



Development of a Framework for Multimodal Research: Creation of a Bibliographic Database

**by Michael D. Coover, Ashley A. Gray, Linda R. Elliott, and
Elizabeth S. Redden**

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Michael D. Covert and Ashley A. Gray
University of South Florida

Linda R. Elliott and Elizabeth S. Redden
Human Research & Engineering Directorate, ARL

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14. ABSTRACT The purpose of this report is to describe the development of a framework to enable classification, evaluation, and comparison of multimodal display research, based on task demands, display characteristics, research design, and individual differences. In this report, we describe the process by which a bibliographic database was developed and organized. First, the framework was specified, which then guided the identification and review of research and theory-based articles that were included in the bibliography. The results of the overall effort, the multimodal framework and article tracking sheet, bibliographic database, and searchable multimodal database make substantial and valuable contributions to the accumulation and interpretation of multimodal research. References collected in this effort are listed in the appendix.					
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1. Introduction

Present-day Soldiers receive an unprecedented information flow from numerous sources in order to execute network-centric warfare. Such information overload can result in extremely high cognitive workload, which can subsequently reduce situational awareness and lower the quality of performance. This problem can be conceptualized as a multi-tasking issue or merely as a processing limitation. Consequently, information providers are challenged with identifying ways to disseminate and convey information as efficiently as possible so that a Soldier's comprehension and decision making are optimized, while overload and distraction are minimized.

A promising conceptual framework for the information overload problem is Wickens' (2002) Multiple Resource Theory (MRT). The premise of MRT is that different resources exist for processing different modalities of input (i.e., different cognitive resources exist for processing visual, audio, and tactile information). Therefore, when information is presented from different modalities, the performance decrement attributable to information overload should be smaller than when information is presented from a single modality to communicate the same amount of information. Simply stated, MRT proposes that (a) people have several independent capacities with resource properties; (b) some resources can be more easily used in tandem, while other combinations are more difficult and would be performed more sequentially; (c) tasks using compatible resources can usually be performed together; and (d) competition for the same sensory modality can produce interference. MRT explicates these capacities and contingencies (Wickens, 2002).

As an example, until recently, Soldiers received information primarily through visual presentation (map, compass, computer screen). When a large amount of information is presented solely through the visual modality, cognitive overload becomes problematic and can have negative effects on performance. MRT advises reducing the volume of information presented in one mode (visually) by offloading to one or more other modes (e.g., audio, tactile modes).

Numerous researchers have approached the information overload problem with MRT as the theoretical rationale (explicitly or implicitly) for using multiple modes of presentation to reduce workload (Wickens, 2002). In order to benefit from the vast amount of research on this topic, the research needs to be accumulated and classified on multiple dimensions such as the type of task and the demands associated with their use. Organization of the multimodal literature is warranted to support the application of research findings to display design. There is interest in determining the extent to which type of display modality can explain variance in performance and impact the use of cognitive resources.

The purpose of this research was to develop a framework to enable classification, evaluation, and comparison of multimodal display research based on task demands, display characteristics, research design and individual differences. In this report, we describe the process by which a bibliographic database was developed and organized. First the framework was specified, which then guided the

identification and review of research and theory-based articles that were included in the bibliography.

The purpose of this research was to develop a framework to enable classification, evaluation, and comparison of multimodal display research based on task demands, display characteristics, research design, and individual differences. In this report, we describe the process by which a bibliographic database was developed and organized. First the framework was specified, which then guided the identification and review of research and theory-based articles that were included in the bibliography. This effort then led to meta-analytical comparisons of effect size and direction across empirical investigations (Burke et al., 2006).

2. Method

Elliott and Redden (personal communication, 2005) developed a framework to organize investigation and research experiments. This initial framework was refined and augmented by the research group at University of South Florida (Covert, Gray, Elliott, Redden, 2006). The resulting multimodal framework represents the culmination of an extensive dialogue between the multimodal literature and the preliminary framework. The following sections describe the development of the multimodal framework and development of the multimodal database.

2.1 Development of the Framework

The multimodal framework (2005) (see figure 1) was a preliminary step to understanding the research on multimodal information processing. The use of the initial framework in reviewing research articles required deliberate consideration and consistent description of several study characteristics. The first step was to examine each of the initial framework components for inclusion in the multimodal framework (see figure 1 for original components). It was determined that the framework could benefit from further development to make it more comprehensive (new components to address research design, theory, results, conclusions, and coding of variables for meta-analytic purposes), as well as from modifications of the existing components to improve clarity and focus. The revised multimodal framework was developed to accommodate additional components in the form of the article tracking sheet (see figure 2).

Since the multimodal framework was intended to guide the review of research literature, we decided that the format should be conducive to the review of an article. The initial framework (see figure 1) existed as an electronic spreadsheet (columns were components, rows were research studies), whereas the article tracking sheet took the form of a five-page Word¹ document, designed to accompany a research article. The article tracking sheet encompassed some of the initial, several modified, and some new framework component fields, which were based on a preliminary literature review.

¹Word is a trademark of Microsoft Corporation.

2005 SU STO Synopsis																			
Green: Effect of 2nd Task on Primary Task Performance																			
Blue - Single One-Channel Display Comparisons re Primary Task (comparison within one channel)																			
Orange - Single Other-Channel Display Comparisons re Primary Task (compare different channels)																			
Yellow-Single Other-Channel Display Comparison re Secondary task (compare different channels)																			
Pink - Multi-modal Display comparison re Primary Task (combine different channels)																			
DISPLAY	DONE	ROLE	PRIMARY TASK	VS	AUD	COG	PHYS	2ND TASK	V	A	COG	PHY	VISUAL	AUDIO	TACTILE	PRIM	2ND	SINGL	DIFF
TACTILE LAND NAV (elliott)	Yes	DISMOUNT	NAVIGATION	X	X	X	X	COMMUNICATION	X	X	X	X	X (GPS, COMPASS)	X	X	X	X		
TACTILE LAND NAV 2 (elliott)	NO	DISMOUNT	TARGET DETECTION	X	X	X	X	NAVIGATION	X	X	X	X	X (HMD, GPS)	X	X		X		
TARGET ACQUISITION 2 (glumm)	Yes	ICV Gunner	TARGET ACQUISITION	X	X	X	X	COMMUNICATION	X	X	X	X	X (CUE)	X (CUE) 3D AUDIO SPEECH	X	X			
TARGET ACQUISITION 2 (glumm)	NO	ICV Gunner	TARGET ACQUISITION	X	X	X	X	MATH	X	X	X	X	X (CUE)	X (CUE) 3D AUDIO SPEECH	X	X		X	
C3 ALERTS (krausman)	NO	MOUNT PLICV	MOVEMENT TO TARGET/SHOOTING	X	X	X	X						X (ALERT)	X (ALERT)	X	X			
C3 ALERTS 2 (krausman)	NO	MOUNT PLICV	MOVEMENT TO TARGET/SHOOTING	X	X	X	X						X (ALERT)	X (ALERT)	X	X			
MCS SYSTEM (davis)	Yes	MOUNT	MOVEMENT TO TARGET/SHOOTING	X	?	X													
MCS INFO DISPLAY & SOLDIER DM (davis)	NO	MOUNT MCS	MOVEMENT TO TARGET/SHOOTING	X	?	X													
INFO DISPLAY FOR MOUNTED NAVIGATION (zuber)	?	MOUNT	MOVEMENT TO TARGET/NAVIGATION	X	?	X									X	X			
VISUAL WKLD - SHOOTING (scribner et al)	Yes	DISMOUNT	TARGET ACQUISITION	X	X	X	X	VISUAL	X	X	X	X	X				X		
INFO DISPLAY/MGT (wiley)	?	C3: TL, 3 Rieren, UH	C3 DECISIONS	X	?	X	X	MONITORING	X				X (COPT, INFO/MGT/NAV)			X			
ICON COMPLEXITY (mahan)	Yes	GENERAL/ALL	NAVIGATION ESTIMATION	X	X	X							Different Types			X			

Figure 1. Initial framework (Elliott & Redden, 2005).

Multimodal Typology: Article Tracking Sheet			
Researcher_____	Today's Date_____		
Article Title_____			

Article Authors_____			
In what country was the study conducted?_____			
What is the publication type?			
_____Journal Article	_____Tech Report	_____Dissertation	_____Unpublished Work
_____Conference Proceedings	_____Book Chapter	_____Other_____	
Are multiple studies described? _____Yes _____No			
What is the study type?			
_____Lab Experiment	_____Field Study	_____Literature Review	
_____Theory	_____Evaluation Study	_____Other_____	
Research Problem (What question is the study trying to answer? What is the goal of the study?)			

Is the study related to virtual reality ? _____Yes _____No			
What is the theoretical basis of the study?			
_____None	_____Wickens' MRT	_____Multiple theories	_____Other
If theoretical basis is "other," "multiple," or requires more information, elaborate:_____			

What are the IVs?_____			

What are the DVs? (ex. Number of errors, decision making time, subjective cognitive load, etc?)_____			

Figure 2. Article tracking sheet.

How are the DVs operationalized? (Any scales used? Reliability of scales? Number of items used?) _____ _____ _____ Describe the study design (was there a control group, what are the conditions, etc): _____ _____ _____ _____ What was the timeframe of the study? _____ Predictive _____ Concurrent _____ Both _____ N/A What type of participants was used? _____ Students _____ Military _____ Related Fields (ex. pilots) _____ General Population (Adults) _____ Other _____ What was the sample size? _____ Summarize the article findings: _____ _____ _____ _____ What types of statistics (means, SDs, F-tests, etc) or effect sizes are provided, and what pages are they on? _____ _____ What is the role of the device user (ex. dismount, ICV gunner, crew) _____ What is the primary task being investigated (ex. navigation, target detection, etc)? _____	What is the secondary task being investigated, if applicable (ex. navigation, target detection, etc)? _____ _____ Does the secondary task involve: Visual demands? _____ Yes _____ No _____ N/A Audio demands? _____ Yes _____ No _____ N/A Cognitive demands? _____ Yes _____ No _____ N/A Physical demands? _____ Yes _____ No _____ N/A Is it a comparison study, and if so, what type (if more than one, check multiple and then explain)? _____ No _____ _____ Mode v. Mode (comparing an audio display to a visual display on the same task; or comparing the traditional mode to an alternative mode) _____ Mode v. Multimode (comparing use of one mode to use of multiple modes) _____ Multimodal Soldier's Choice (different modes available and soldier can choose which one he/she wants) _____ Mode Across Situation (comparing use of audio display for one task to use of audio display for a different task) _____ Multiple _____ Other _____ If it's a comparison study, elaborate on what was compared (specific type of audio, etc) _____ _____ Is the device of interest providing the primary source of information, or augmenting other information for the primary task? _____ Primary _____ Augmenting _____ Both _____ N/A Elaborate on above question including any conditional circumstances (if augmenting, is augmented info redundant or different?) _____ _____ Is the device of interest providing the primary source of information, or augmenting other information for the secondary task? _____ Primary _____ Augmenting _____ Both _____ N/A
Does the primary task involve: Visual demands? _____ Yes _____ No _____ N/A Audio demands? _____ Yes _____ No _____ N/A Cognitive demands? _____ Yes _____ No _____ N/A Physical demands? _____ Yes _____ No _____ N/A	

Figure 2 (continued).

Elaborate on above question including any conditional circumstances (if augmenting, is augmented info redundant or different?):

Is the device **offloading** information for the **primary task**? Yes No

Is the device **offloading** information for the **secondary task**? Yes No

Is the device of interest:

Visual? Yes No If yes, elaborate: _____

Audio? Yes No If yes, elaborate: _____

Tactile? Yes No If yes, elaborate: _____

Other? Yes No If yes, elaborate: _____

Notes/Describe other devices that are being used for comparison

Are multiple modes of input from a device/devices being utilized simultaneously for the same task?

Yes No

Are multiple modes of input from a device/devices being utilized for different tasks?

Yes No

Does the article address the extent to which the device reduces the need to train to the point of **automaticity**? (*Or is it relevant to automaticity?*)

Yes No

Notes on relevance to **automaticity**, if applicable:

Is **data fusion** or **information fusion** mentioned? Yes No

Is **situational awareness** mentioned or **relevant**? Yes No

Does the article quantify **task demand/conflict/interference values** or mention **IMPRINT**?

Yes No

Notes on relevance to **IMPRINT**, if applicable:

Is the article relevant to **Wickens' MRT**? Yes No

Notes on relevance to Wickens' MRT, including any **deficiencies** (important material that can't be explained by Wickens' theory):

Does the article address any **individual differences** (ex. in learning styles, experience, training, age, gender, etc)? Yes No

What individual differences are addressed, and how do they fit in?

Is the research completed? Yes No N/A

Describe any relevant notes on the rigor of the study, and if there are any major flaws to note:

What official keywords are reported by the article authors?

What other keywords do you think describe this article?

Guiding Principle Notes (ideas for possible guiding principles, take-home messages to keep track of, etc)

Other General Notes

Figure 2 (continued).

2.2 Literature Review

In an effort to locate articles spanning a variety of research domains, databases employed for the literature search included ACM (Association for Computing Machinery; <http://www.acm.org/>), IEEE (Institute of Electrical and Electronics Engineers; <http://www.ieee.org/portal/site>), PsycInfo (<http://www.apa.org/psycinfo/>), Web of Science (<http://scientific.thomson.com/products/wos/>), DTIC (Defense Technical Information Center; <http://www.dtic.mil/>), and CSA (<http://www.csa.com/>). A number of keywords were applied to each database to define the searches (e.g., multi-modal, visual, tactile, audio, haptic, interface, display, dual task, multitask). The abstracts of articles returned by the databases were examined, and approximately 900 references that were initially deemed relevant were loaded into an on-line bibliographic management software (www.Refworks.com) for review. These references are listed in appendix A. Readers wishing to import references into their own Refworks or other bibliographic management software can contact the ARL point of contact (Dr. Elizabeth Redden) or Dr Michael Coover, University of South Florida, to request an import file.

2.3 Cognitive Theory Objectives

One of the objectives for the literature review was to identify and review articles regarding theory of multitasking and multiple resources. Wickens' MRT served as a foundation for the multimodal framework, and therefore, articles that discussed or tested MRT concepts were coded specifically for easy retrieval. In addition, it was critical to remain familiar with other related cognitive issues; thus, a cognitive subcommittee of project members was formed. The subcommittee members reviewed literature (mentioned in previous section), which addressed cognitive issues more directly, and they provided summaries and presentations to the other project members during the literature review. As the review progressed, the committee noted that some important issues were not adequately addressed by Wickens' MRT (or any other theory). Although an in-depth analysis and application of these "deeper issues" was outside the scope of the present project, several topics were examined in more detail: parallel versus serial processing; individual differences such as user preferences and brain hemisphere dominance; automaticity; and cross-modal links. These four examples have considerable theoretical potential to interact with the relationship between multimodal information display and user performance. Therefore, they offer interesting directions for future research, especially regarding their integration with the predictions of Wickens' MRT.

2.4 Multimodal Database

Although the new article tracking sheet was useful for understanding the literature and coding articles according to the multimodal framework, the paper format was not conducive to queries or comparison of components across articles. Consequently, an Access² database was developed to provide an electronic version of the article tracking sheets for reviewed articles.

²Access is a registered trademark of Microsoft Corporation.

Approximately 450 articles were reviewed and the respective article tracking sheets were entered into the database for each. The multimodal database includes all components present on the article tracking sheet. It supports queries, sorting, and filters as well as side-by-side comparison of studies or experiments for all multimodal framework fields. Furthermore, because of its versatile features, the database is essentially capable of answering multimodal research questions, such as

1. What mode of information display works best for driving?
2. Regarding alerts or interruptions, are multimodal displays better than unimodal displays?
3. Is there general support for Wickens' MRT?

The multimodal database is an Access-based deliverable that can be made available upon request to the ARL advanced objective manager (Dr Elizabeth Redden).

3. Implications, Applications, and Future Directions

The primary purpose of this research was to develop a framework to enable classification, evaluation, and comparison of multimodal display research based on task demands, display characteristics, research design, and individual differences. The identification of guiding principles for the design of multimodal information display was the second objective and is described in a separate report. The results of this effort, the multimodal framework and article tracking sheet, bibliographic database, and searchable multimodal database make substantial and valuable contributions to the accumulation and interpretation of multimodal research. References collected in this effort are listed in appendix A.

Possibly the most urgent future direction to address is the inconsistent use of terms in the multimodal literature. The most obvious nuisance involves the labeling of modalities. For instance, a number of articles do not consider a display to have a “visual modality” if the visual information exists in the natural environment. Other research operates on the premise that if visual cognitive resources are used to process information, then the term “visual modality” is appropriate, regardless of whether the information is displayed on a device or in the natural environment. This simple distinction presents a considerable obstacle to the formation of a knowledge base for the effects of multi-modal or unimodal displays where the “visual” modality is involved. A number of other critical terms are also used inconsistently (e.g., “multimodal” and “augment”), presumably because of the variety of research domains across which multimodal research takes place (e.g., human-computer interaction, psychology, engineering). A concerted effort to amass a glossary of multimodal and display design terms would offer a significant contribution toward improving the consistency of future research.

Another crucial objective for multimodal research is to complement the present qualitative effort with a quantitative examination of the effects of display modality on human performance. There are a number of important multimodal research questions worthy of meta-analysis, and their evaluation would not only offer empirical support for the guiding principles, but it would also reveal meaningful directions for future research.

4. References

- Burke, J.; Prewett, M.; Gray, A.; Yang, L.; Stilson, R.; Redden, E.; Elliott, L.; Coover, M. Comparing the Effects of Visual - Auditory and Visual -Tactile Feedback on User Performance: A Meta-Analysis. Accepted for *Proceedings of the International Conference on Multi-modal Interfaces*, Banff, Canada, November 2006.
- Coover, M.; Gray, A.; Elliott, L.; Redden, E. Mining the Literature: Development of Principles to Guide Multimodal Research and Applications. Presented at the *2006 NATO Research and Technology Organization: Human Factors of Uninhabited Military Vehicles as Force Multipliers*, Paris, October 2006.
- Prewett, M.; Burke, J.; Yang, L.; Stilson, R.; Gray, A.; Redden, E.; Elliott, L.; Coover, M. The Benefits of Multimodal Information: A Meta-Analysis Comparing Visual and Visual-Tactile Feedback. Accepted for *Proceedings of the International Conference on Multi-modal Interfaces*, Banff, Canada, November 2006.
- Wickens, C. D. Multiple Resources and Performance Prediction. *Theoretical Issues in Ergonomics Science* **2002**, 3 (2), 159-177.

Appendix A. Multimodal References in Bibliographic Database

- Ackerman, P. L.; Schneider, W.; Wickens, C. D. Deciding the Existence of a Time-Sharing Ability: A Combined Methodological and Theoretical Approach. *Human Factors* **1984**, 26 (1), 71-82.
- Adamczyk, P. D.; Bailey, B. P. If Not Now, When?: The Effects of Interruption at Different Moments Within Task Execution. *CHI '04: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Vienna, Austria, 6 (1) 271-278, from web site <http://doi.acm.org/10.1145/985692.985727>, 2004.
- Adams, C. K.; Helson, H. Two-Point Threshold as a Function of Position in the Dermatome. *Journal of Comparative and Physiological Psychology* **1966**, 62 (2), 314-316.
- Adams, R. J.; Hannaford B. Stable Haptic Interaction With Virtual Environments. *IEEE Transactions on Robotics and Automation* **June 1999**, 15 (3), 1-107 and 465-474.
- Adelstein, B. D.; Begault, D. R.; Anderson, M. R.; Wenzel, E. M. Sensitivity to Haptic-Audio Asynchrony. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 73-76, from web site <http://doi.acm.org/10.1145/958432.958448>, 2003.
- Agarwal, A.; Kim, D.; Delisle, M.; Tang, H.; Tyler, M.; Beebe, D. Two-Way Communication Through an Oral-Based Tactile Interface: Preliminary Results. *Proceedings of the 23rd Annual International Conference of the IEEE Engineering in Medicine and Biological Society*, Istanbul, Turkey, 2001.
- Aghdaee, S. M.; Zandvakili, A. Adaptation to Spiral Motion: Global But Not Local Motion Detectors are Modulated by Attention. *Vision Research* **2005**, 45 (9), 1099-1105.
- Akamatsu, M. Touch With a Mouse-A Mouse Type Interface Device With Tactile and Force Display. *RO-MAN '94: Proceedings of the 3rd IEEE International Workshop on Robot and Human Communication*, Nagoya, Japan, 140-144, 1994.
- Akamatsu, M.; Mackenzie, I. S.; Hasbroucq, T. A Comparison of Tactile, Auditory, and Visual Feedback in a Pointing Task Using a Mouse-Type Device. *Ergonomics* **1995**, 38 (4), 816-827.
- Akamatsu, M., & Sato, S. A Multimodal Mouse With Tactile and Force Feedback. *International Journal of Human-Computer Studies* **1994**, 40 (3), 443-453.
- Akamatsu, M. The Influence of Combined Visual and Tactile Information on Finger and Eye Movements During Shape Tracing. *Ergonomics* **1992**, 35 (5), 646-660.

- Akamatsu, M.; MacKenzie, I. S. Movement Characteristics Using a Mouse With Tactile and Force Feedback. *International Journal of Human-Computer Studies* **1996**, 45 (4), 483-493.
- Albery, W. *Spatial Orientation Retention Device-Current Status*; No. AFRL/HE-WP-TP-2005-0010, 2005.
- Alexander, L.; Pi-Ming Cheng, Donath, M.; Gorjestani, A.; Newstrom, B.; Shankwitz, C.; et al. DGPS-based Lane Assist System for Transit Buses. *ITSC '04: Proceedings of the 7th International IEEE Conference on Intelligent Transportation Systems*, Washington, D.C., USA, 755-760, 2004.
- Alhalabi, O.; Horiguchi, S. Tele-handshake: A Cooperative Shared Haptic Virtual Environment. *Proceedings of the 1st Annual Conference on Eurohaptics*, University of Birmingham, UK, 1-5.
- Ali, A. N.; Marsden, P. H. Affective Multi-Modal Interfaces: The Case of McGurk Effect. *IUI '03: Proceedings of the 8th International Conference on Intelligent User Interfaces*, Miami, Florida, USA, 224-226, from web site <http://doi.acm.org/10.1145/604045.604081>, 2003.
- Alles, D. S. Information Transmission by Phantom Sensations. *IEEE Transactions on Man-Machine Systems*, *MMS-11* **1970**, 85-91.
- Allison, R. S.; Zacher, J. E.; Wang, D.; Shu, J. Effects of Network Delay on a Collaborative Motor Task With Telehaptic and Televisual Feedback. *VRCAI '04: Proceedings of the 2004 ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Applications in Industry*, Singapore, 375-381, from web site <http://doi.acm.org/10.1145/1044588.1044670>, 2004.
- Allport, D. A.; Antonis, B.; Reynolds, P. On the Division of Attention: A Disproof of the Single-Channel Hypothesis. *Quarterly Journal of Experimental Psychology* **1972**, 24 (2), 225-235.
- Alm, T. How to Put the Real World Into a 3-D Aircraft Display. *People in Control: An International Conference on Human Interfaces in Control Rooms, Cockpits and Command Centres*. Manchester, UK, 223-227, 2001.
- Alonso, D. L. *The Effects of Individual Differences in Spatial Visualization Ability on Dual-Task Performance*, Univ Microfilms International, 1998.
- Alsius, A.; Navarra, J.; Campbell, R.; Soto-Faraco, S. Audiovisual Integration of Speech Alters Under High Attention Demands. *Current Biology* **2005**, 15 (9), 839-843.
- Althoff, F.; McGlaun, G.; Lang, M.; Rigoll, G. Evaluating Multimodal Interaction Patterns in Various Application Scenarios. *Gesture-Based Communication in Human-Computer Interaction*, 2915 **2003**, 421-435.

- Althoff, F.; McGlaun, G.; Schuller, B.; Morguet, P.; Lang, M. Using Multimodal Interaction to Navigate in Arbitrary Virtual VRML Worlds. *PUI '01: Proceedings of the 2001 Workshop on Perceptive User Interfaces*, Orlando, Florida, USA, 1-8, from <http://doi.acm.org/10.1145/971478.971494>, 2001.
- Anderson, J. R.; Bothell, D.; Byrne, M. D.; Douglas, S.; Lebiere, C.; Qin, Y. *An Integrated Theory of the Mind*.
- Andersson, P.; Alm, T. Perceptual Aspects of Symbol Shapes and Relations in 3D Aircraft Displays. *Human Factors and Ergonomics Society 46th Annual Meeting*, Baltimore, Maryland, USA, 165-169, 2002.
- Andre, A. D.; Wickens, C. D.; Moorman, L.; Boschelli, M. M. Display Formatting Techniques for Improving Situation Awareness in the Aircraft Cockpit. *International Journal of Aviation Psychology* **1991**, 1 (3), 205-218.
- Aragon, C. R.; Hearst, M. A. Improving Aviation Safety With Information Visualization: A Flight Simulation Study. *CHI '05: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Portland, Oregon, USA, 441-450, from <http://doi.acm.org/10.1145/1054972.1055033>, 2005.
- Aretz, D.; Andre, T.; Self, B.; Brenaman, C. Effect of Tactile Feedback on Unmanned Aerial Vehicle Landings. *Proceedings of the Interservice/Industry Training, Simulation, and Education Conference (IITSEC)*, Orlando, FL, 2006.
- Arroyo, E.; Selker, T.; Stouffs, A. Interruptions as Multimodal Outputs: Which are the Less Disruptive? *ICMI '02: Proceedings of the 4th IEEE International Conference on Multimodal Interfaces*, San Francisco, CA, USA, 479-482, 2002.
- Arroyo, E.; Selker, T. Self-Adaptive Multimodal-Interruption Interfaces. *IUI '03: Proceedings of the 8th International Conference on Intelligent User Interfaces*, Miami, Florida, USA, 6-11, from <http://doi.acm.org/10.1145/604045.604051>, 2003.
- Arsenault, R.; Ware, C. The Importance of Stereo and Eye-Coupled Perspective for Eye-Hand Coordination in Fish Tank VR. *Presence: Teleoperators and Virtual Environments* **2004**, 13 (5), 549-559.
- Arsenault, R.; Ware, C. Eye-Hand Co-Ordination With Force Feedback. *CHI '00: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, The Hague, The Netherlands, 408-414, from <http://doi.acm.org/10.1145/332040.332466>, 2000.
- Arthur, E. J.; Hancock, P. A. Navigation Training in Virtual Environments. *International Journal of Cognitive Ergonomics* **2001**, 5 (4), 387-400.
- Artman, H. Team Situation Assessment and Information Distribution. *Ergonomics* **2000**, 43 (8), 1111-1128.

- Asakawa, C.; Takagi, H.; Ino, S.; Ifukube, T. Auditory and Tactile Interfaces for Representing the Visual Effects on the Web. *ASSETS '02: Proceedings of the 5th International ACM Conference on Assistive Technologies*, Edinburgh, Scotland, 65-72, from <http://doi.acm.org/10.1145/638249.638263>, 2002.
- Asamura, N.; Yokoyama, N.; Shinoda, H. Selectively Stimulating Skin Receptors for Tactile Display. *Computer Graphics and Applications, IEEE* **1998**, 18 (6), 32-37.
- Avila, R. S.; Sobierajski, L. M. A Haptic Interaction Method for Volume Visualization. *VISUAL '96: Proceedings of the 7th Conference on Visualization*, San Francisco, California, USA, 197-ff, 1996.
- Awh, E.; Pashler, H. Evidence for Split Attentional Foci. *Journal of Experimental Psychology-Human Perception and Performance* **2000**, 26 (2), 834-846.
- Baca, J.; Picone, J. Effects of Displayless Navigational Interfaces on User Prosodics. *Speech Communication* **2005**, 45 (2), 187-202.
- Bach-y-Rita, P.; Collins, C. C.; Saunders, F.; White, B.; Scadden, L. Vision Substitution by Tactile Projection. *Nature* **1969**, 221.
- Bach-y-Rita, P.; Kaczmarek, K.; Tyler, M. E. A Tongue-Based Tactile Display for Portrayal of Environmental Characteristics. *Virtual and Adaptive Environments: Applications, Implications, and Human Performance Issues*, (pp. 169-186) Lawrence Erlbaum Associates, Publishers, 2003.
- Bach-Y-Rita, P. Tactile Sensory Substitution Studies. In M. C. Roco, & C. D. Montemagno (Eds.), *Coevolution of Human Potential and Converging Technologies*, (pp. 83-91) New York Academy of Sciences, 2004.
- Backs, R. W.; Ryan, A. M. *Multimodal Measures of Mental Workload During Dual-Task Performance: Energetic Demands of Cognitive Processes*, Santa Monica, California, USA: Human Factors Soc Inc, 1992.
- Baier, H.; Buss, M.; Freyberger, F.; Hoogen, J.; Kammermeier, P.; Schmidt, G. Distributed PC-Based Haptic, Visual and Acoustic Telepresence System-Experiments in Virtual and Remote Environments. *VR '99: Proceedings of the Conference on Virtual Reality*, Houston, Texas, USA. 118-125, 1999.
- Baier, H.; Buss, M.; Freyberger, F.; Schmidt, G. Interactive Stereo Vision Telepresence for Correct Communication of Spatial Geometry. *Advanced Robotics* **2003**, 17 (3), 219-233.
- Baier, H.; Buss, M.; Freyberger, F.; Schmidt, G. Benefits of Combined Active Stereo Vision and Haptic Telepresence. *IROS '00: Proceedings of the International Conference on Intelligent Robots and Systems*, Munchen, Germany, 1 702-707, 2000.

- Baldonado, M.; Kuchinsky, A. Guidelines for Using Multiple Views in Information Visualization. *Proceedings of the Working Conference on Advanced Visual Interfaces*, Palermo, Italy, 110-119, 2000.
- Ballard, J. W.; Hessinger, R. W. Human-Engineered Electromechanical Tactual Sensory Control System. *Electrical Manufacturing* **1954**, 54, 118-121.
- Banbury, S. P.; Macken, W. J.; Tremblay, S. Auditory Distraction and Short-Term Memory: Phenomena and Practical Implications. *Human Factors* **2001**, 43 (1), 12-13.
- Banks, R.; Wickens, C. Commanders' Display of Terrain Information Manipulations of Display Dimensionality and Frame of Reference to Support Battlefield Visualization. *Army Research Laboratory (DTIC Article)*, 1999.
- Bardy, B. G.; Laurent, M. Visual Cues and Attention Demand in Locomotor Positioning. *Perceptual & Motor Skills* **1991**, 72 (3), 915-926.
- Barfield, W.; Cohen, M.; Rosenber, C. Visual Land Auditory Localization as a Function of Azimuth and Elevation. *International Journal of Aviation Psychology* **1997**, 7 (2), 123.
- Barfield, W.; Rosenbert, C.; Levasseur, G. The Use of Icons, Earcons and Commands in the Design of an Online Hierarchical Menu. **1991**, 34 (2) 101-108.
- Barrett, S. F.; Pack, D. J.; Straley, C.; Sircin, L.; Janack, G. Real-Time Operating Systems: A Visual Simulator. *ASEE '04: Annual Conference & Exposition: Engineering Education Reaches New Heights*, Salt Lake City, Utah, USA, 2004.
- Bartram, L.; Ware, C.; Calvert, T. Moticons: Detection, Distraction and Task. *International Journal of Human-Computer Studies* **2003**, 58 (5), 515-545.
- Basapur, S.; Bisantz, A. M.; Kesavadas, T. The Effect of Display Modality on Decision-Making with Uncertainty. *HFES '03: Human Factors and Ergonomics Society 47th Annual Meeting*, Denver, Colorado, USA, 558-561, 2003.
- Basdogan, C.; Lum, M.; Salcedo, J.; Chow, E. Autostereoscopic and Haptic Visualization for Space Exploration and Mission Design. *HAPTIC '02: Proceedings of the 10th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*. Orlando, Florida, USA, 271-276, 2002.
- Basdogan, C.; Ho, C.; Srinivasan, M. A.; Slater, M. An Experimental Study on the Role of Touch in Shared Virtual Environments. *ACM Transactions on Computer-Human Interaction (TOCHI)* **2000**, 7 (4), 443-460.

- Bashir, A. M.; Bicker, R.; Taylor, P. M. An Investigation Into Different Visual/Tactual Feedback Modes for a Virtual Object Manipulation Task. *VRCAI '04: Proceedings of the 2004 ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Applications in Industry*, Singapore, 359-362, from <http://doi.acm.org/10.1145/1044588.1044666>, 2004.
- Bastide, R.; Navarre, D.; Palanque, P.; Schyn, A.; Dragicevic, P. A Model-Based Approach for Real-Time Embedded Multimodal Systems in Military Aircrafts. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 243-250, from <http://doi.acm.org/10.1145/1027933.1027974>, 2004.
- Batsakes, P. J.; Fisk, A. D. Age-Related Differences in Dual-Task Visual Search: Are Performance Gains Retained? *Journals of Gerontology: Series B: Psychological Sciences & Social Sciences* **2000**, 55 (6), P332-P342.
- Baxter, W.; Lin, M. C. Haptic interaction With Fluid Media. *GI '04: Proceedings of the 2004 Conference on Graphics Interface*, London, Ontario, Canada, 81-88, 2004.
- Becker, M. W.; Pashler, H. Volatile Visual Representations: Failing to Detect Changes in Recently Processed Information. *Psychonomic Bulletin & Review* **2002**, 9 (4), 744-750.
- Beer, A. L.; Röder, B. Attention to Motion Enhances Processing of Both Visual and Auditory Stimuli: An Event-Based Potential Study. *Cognitive Brain Research* **2004**, 18, 205-225.
- Beer, A. L.; Röder, B. Attending to Visual or Auditory Motion Affects Perception Within and Across Modalities: An event-Related Potential Study. *European Journal of Neuroscience* **2005**, 21 (4), 1116-1130.
- Beer, A. L.; Röder, B. Unimodal and Crossmodal Effects of Endogenous Attention to Visual and Auditory Motion. *Cognitive, Affective & Behavioral Neuroscience* **2004**, 4 (2), 230-240.
- Begault, D. R.; Pittman, M. T. Three-dimensional audio vs. Head-down traffic Alert and Collision Avoidance System Displays. *International Journal of Aviation Psychology* **1996**, 6, 79-93.
- Begault, D. R. Head-Up Auditory Displays for Traffic Collision Avoidance System Advisories: A Preliminary Investigation. *Human Factors* **1993**, 35 (4), 707-717.
- Békésy, G. V. Similarities Between Hearing and Skin Sensations. *Psychol Rev* **1959**, 66 (1), 1-22.
- Békésy, G. V. Sensations of the Skin Similar to Directional Hearing, Beats, and Harmonics of the Ear. *J Acoust Soc Am* **1957**, 29.
- Békésy, G. V. Human Skin Perception of Traveling Waves Similar to Those on the Cochlea. *J Acoust Soc Am* **1955**, 27, 118-121.

- Bellenkes, A. H.; Wickens, C. D.; Kramer, A. F. Visual Scanning and Pilot Expertise: The Role of Attentional Flexibility and Mental Model Development. *Aviation, Space, & Environmental Medicine* **1997**, 68 (7), 569-579.
- Bellotti, F.; Berta, R.; Gloria, A. D.; Margarone, M. Using 3D Sound to Improve the Effectiveness of the Advanced Driver Assistance Systems. *Personal Ubiquitous Computing* **2002**, 6 (3), 155-163.
- Belz, S. M.; Robinson, G. S.; Casali, J. G. A New Class of Auditory Warning Signals for Complex Systems: Auditory Icons. *Human Factors* **1999**, 41 (4), 608-618.
- Benford, S.; Greenhalgh, C.; Rodden, T.; Pycock, J. Collaborative Virtual Environments. *Communications of the ACM* **2001**, 44 (7), 79-85.
- Bengtsson, P.; Grane, C.; Isaksson, J. Haptic/Graphic Interface for In-Vehicle Comfort Functions - A Simulator Study and an Experimental Study. *HAVE '03: Proceedings of the 2nd IEE International Workshop on Haptic, Audio and Visual Environments and their Applications*, Ottawa, Ontario, Canada, 25-29, 2003.
- Bennett, E. The Effect Touching a Projection Augmented Model has on Perception and Object-Presence. *CHI '05: CHI '05 Extended Abstracts on Human Factors in Computing Systems*, Portland, Oregon, USA, 1106-1107, from <http://doi.acm.org/10.1145/1056808.1056834>, 2005.
- Bennett, E. Projection Augmented Models: The Effect of Haptic Feedback on Subjective and Objective Human Factors. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 347, from <http://doi.acm.org/10.1145/1027933.1028005>, 2004.
- Bennett, K. B.; Malek, D. A.; Woods, D. D. The Potential for Misinterpretation Considered More Globally: A Response to Vicente and Ethier. *Human Factors* **2000**, 42 (3), 455-457.
- Bennett, K. B.; Payne, M.; Calcaterra, J. An Empirical Comparison of Alternative Methodologies for the Evaluation of Configural Displays. *Human Factors* **2000**, 42 (2), 287-298.
- Bennett, K. B.; Walters, B. Configural Display Design Techniques Considered at Multiple Levels of Evaluation. *Human Factors* **2001**, 43 (3), 415-434.
- Ben-Yaacov, A.; Maltz, M.; Shinar, D. Effects of an In-Vehicle Collision Avoidance Warning System on Short- and Long-Term Driving Performance. *Human Factors* **2002**, 44 (2), 335-342.
- Bhanu, B.; Zou, X. Moving Humans Detection Based on Multi-Modal Sensor Fusion. *CVPR '04: Conference on Computer Vision and Pattern Recognition Workshop*, Washington, DC, USA, 136, 2004.

- Bhargava, A.; Scott, M.; Traylor, R.; Chung, R.; Mrozek, K.; Wolter, J.; et al. Effect of Cognitive Load on Tactor Location Identification in Zero-G. *WHC '05: First Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Pisa, Italy, 56-62, 2005.
- Bhuiyan, M. A.; Ampornaramveth, V.; Muto, S.; Ueno, H. On Tracking of Eye for Human-Robot Interface. *International Journal of Robotics and Automation* **2004**, 19 (1), 42-54.
- Bicchi, A.; de Rossi, D.; Scilingo, E. P. Psychophysical Evaluation of Simplified Haptic Perception Media. *ROMAN '99: Proceedings of the 8th IEEE International Workshop on Robot and Human Interaction*, Pisa, Italy, 309-314, 1999.
- Bice, R. C. Apparent Movement in Vibrotactile Displays. *Perceptual & Motor Skills* **1969**, 29, 575-578.
- Billinghurst, M.; Miller, E.; Weghorst, S. Collaboration with Wearable Computers. In W. Barfield, & T. Caudell (Eds.), *Fundamentals of Wearable Computers and Augmented Reality*. (pp. 539-577) Lawrence Erlbaum Associates, Publishers, 2001.
- Billinghurst, M.; Starner, T. An Overview of the International Symposium on Wearable Computers 1998. *SIGCHI Bulletin* **2000**, 32 (1), 37-41.
- Biocca, F.; Kim, J.; Choi, Y. Visual Touch in Virtual Environments: An Exploratory Study of Presence, Multimodal Interfaces, and Cross-Modal Sensory Illusions. *Presence-Teleoperators and Virtual Environments* **2001**, 10 (3), 247-265.
- Bisantz, A. M.; Pritchett, A. R. Measuring the Fit Between Human Judgments and Automated Alerting Algorithms: A Study of Collision Detection. *Human Factors* **2003**, 45 (2), 266-280.
- Blandford, A.; Wong, B. L. W. Situation Awareness in Emergency Medical Dispatch. *International Journal of Human-Computer Studies* **2004**, 61 (4), 421-452.
- Blauert, J.; Lehnert, H.; Sahrhage, J.; Strauss, H. An Interactive Virtual-Environment Generator for Psychoacoustic Research. I: Architecture and Implementation. *Acustica* **2000**, 86 (1), 94-102.
- Bliss, J. C.; Crane, H. D.; Mansfield, P. K.; Townsend, J. T. Information Available in Brief Tactile Presentations. *Perception & Psychophysics* **1966**, 1, 273-283.
- Bliss, J. C. A Relatively High-Resolution Reading Aid for the Blind. *IEEE Transactions on Man-Machine Systems* **1969**, MMS-10 (1), 1-9.
- Bliss, J. C. Tactile Displays Conference Proceedings. *IEEE Transactions on Man-Machine Systems* **1970**, MMS-11.

- Bliss, J. C.; Brody, W. R.; Lane, B. Visual and Tactile Tracking With Step Commands. *NASA–Langley Contract Report CR–623*, **1967**, 119-161.
- Bliss, J. C.; Crane, H. D.; Link, S. W.; Townsend, J. T. Tactile Perception of Sequentially Presented Spatial Patterns. *Perception & Psychophysics* **1966**, *1*, 125-130.
- Bliss, S. C.; Katcher, M. H.; Rogers, C. H.; Shepard, R. P. Optical-to-Tactile Image Conversion for the Blind. *IEEE Transactions on Man-Machine Systems* **1970**, *MMS-11* (1), 58-64.
- Bodnar, A.; Corbett, R.; Nekrasovski, D. AROMA: Ambient Awareness Through Olfaction in a Messaging Application. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 183-190, from <http://doi.acm.org/10.1145/1027933.1027965>, 2004.
- Boeck, J. D.; Cuppens, E.; Weyer, T. D.; Raymaekers, C.; Coninx, K. Multisensory Interaction Metaphors With Haptics and Proprioception in Virtual Environments. *NordiCHI '04: Proceedings of the Third Nordic Conference on Human-Computer Interaction*, Tampere, Finland, 189-197, from <http://doi.acm.org/10.1145/1028014.1028043>, 2004.
- Boekaerts, M. Individual Differences in the Use of Visual and Verbal Mediators. *Research in Education* **1982**, *27*, 49-62.
- Boff, K. R.; Lincoln, J. E. (Eds.). *Engineering Data Compendium: Human Perception and Performance*. AAMRL: Wright-Patterson AFB, OH, 1988.
- Bohnen, H. G. M.; de Reus, A. J. C.; Koester, T.; Sorensen, P. K.; Koltko-Rivera, M. E.; Hancock, P. A.; et al. Stress, Workload and Fatigue. In D. A. Vincenzi, M. Mouloua & P. A. Hancock (Eds.), *Human Performance, Situation Awareness and Automation: Current Research and Trends, Vol 1&2 HPSAA II*, (pp. 219-262) Lawrence Erlbaum Associates, Publishers, 2004.
- Bolanowski, S. J.; Gescheider, G. A.; Verrillo, R. T.; Checkosky, C. M. Four Channels Mediate the Mechanical Aspects of Touch. *Journal of the Acoustical Society of America* **1988**, *84* (5), 1680-1694.
- Boles, D. B.; Law, M. B. A Simultaneous Task Comparison of Differentiated and Undifferentiated Hemispheric Resource Theories. *Journal of Experimental Psychology: Human Perception & Performance* **1998**, *24* (1), 204-215.
- Boles, D. B.; Wickens, C. D. Display Formatting in Information Integration and Nonintegration Tasks. *Human Factors* **1987**, *29* (4), 395-406.
- Bolia, R. S.; D'Angelo, W. R.; McKinley, R. L. Aurally-Aided Visual Search in Three-Dimensional Space. *Human Factors* **1999**, *41* (4), 664-669.

- Bolia, R. S. Special Issue: Spatial Audio Displays for Military Aviation. *International Journal of Aviation Psychology* **2004**, 14 (3), 233-238.
- Bolia, R. S.; Nelson, W. T.; Morley, R. M. Asymmetric Performance in the Cocktail Party Effect: Implications for the Design of Spatial Audio Displays. *Human Factors* **2001**, 43 (2), 208-216.
- Bolia, R. S.; Nelson, W. T.; Vidulich, M. A. A Multi-Layer Visual Display for Air Battle Managers: Effects of Depth and Transparency on Performance and Workload in a Dual-Task Scenario. *Human Factors & Aerospace Safety* **2004**, 4 (3), 181-193.
- Bone, R.; Marksteiner, J. CDTI Enhanced Flight Rules. *Journal of Air Traffic Control* **2003**, 45 (3), 33-36.
- Bonnel, A. M; Hafter, E. R. Divided Attention Between Simultaneous Auditory and Visual Signals. *Perception & Psychophysics* **1998**, 60 (2), 179-190.
- Book, W. J.; Swanson, D. K. Reach Out and Touch Someone: Controlling Haptic Manipulators Near and Far. *Annual Reviews in Control* **2004**, 28 (1), 87-95.
- Booth, S.; Schmidt-Tjarksen, T. Psychological Theory in Haptic Interface Design: Initial Steps Towards an Interactive Cognitive Subsystems (ICS) Approach. Birmingham, 81-86, 2001.
- Bootsma, R. J.; Fernandez, L.; Mottet, D. Behind fitts' law: Kinematic Patterns in Goal-Directed Movements. *International Journal of Human-Computer Studies* **2004**, 61 (6), 811-821.
- Bouguila, L.; Ishii, M.; Sato, M. Multi-Modal Haptic Device for Large-Scale Virtual Environments. *MULTIMEDIA '00: Proceedings of the 8th ACM International Conference on Multimedia*, Marina del Rey, California, USA, 277-283, from <http://doi.acm.org/10.1145/354384.354506>, 2000.
- Bouguila, L.; Sato, M. Virtual Locomotion System for Large-Scale Virtual Environment. *VR '02: Proceedings of the 2002 IEEE Virtual Reality Conference*, Orlando, Florida, USA, 291-292, 2002.
- Bourke, P. A.; Duncan, J. Effect of Template Complexity on Visual Search and Dual-Task Performance. *Psychological Science* **2005**, 16 (3), 208-213.
- Bourke, P. A.; Duncan, J.; NimmoSmith, I. A General Factor Involved in Dual-Task Performance Decrement. *Quarterly Journal of Experimental Psychology: Human Experimental Psychology* **1996**, 49A (3), 525-545.
- Bradshaw, A. C.; Johari, A. Effects of an Online Visual Procedure on Task Completion, Time and Attitude. *Journal of Educational Computing Research* **2003**, 29 (4), 401-417.

- Branco, P. Challenges for Multimodal Interfaces Towards Anyone Anywhere Accessibility: A Position Paper. *WUAUC'01: Proceedings of the 2001 EC/NSF Workshop on Universal Accessibility of Ubiquitous Computing*, Alcácer do Sal, Portugal, 26-27, from <http://doi.acm.org/10.1145/564526.564535>, 2001.
- Braune, R.; Wickens, C. D. Time-Sharing Revisited: Test of a Componential Model for the Assessment of Individual Differences. *Ergonomics* **1986**, 29 (11), 1399-1414.
- Brave, S.; Ishii, H.; Dahley, A. Tangible Interfaces for Remote Collaboration and Communication. *CSCW '98: Proceedings of the 1998 ACM Conference on Computer Supported Cooperative Work*, Seattle, Washington, USA, 169-178, from <http://doi.acm.org/10.1145/289444.289491>, 1998.
- Bredin, S. S. D. *Attention Demands Across Extended Practice of a Bimanual Coordination Task*, Univ Microfilms International, 2005.
- Bresciani, J. P.; Ernst, M. O.; Drewing, K.; Bouyer, G.; Maury, V.; Kheddar, A. Feeling What You Hear: Auditory Signals Can Modulate Tactile Tap Perception. *Experimental Brain Research* **2005**, 162 (2), 172-180.
- Brewster, S. A. Sonically-Enhanced Drag and Drop. *ICAD'98, British Computer Society*, Glasgow, UK, 1998.
- Brewster, S. A. Using Non-Speech Sound to Overcome Information Overload. *Displays* **1997**, 17, 179-189.
- Brewster, S. A.; Crease, M. G. Correcting Menu Usability Problems with Sound. *Behaviour and Information Technology* **1999**, 18 (3), 165-177.
- Brewster, S. A.; Brown, L. M. Non-Visual Information Display Using Tactons. *CHI '04: CHI '04 Extended Abstracts on Human Factors in Computing Systems*, Vienna, Austria, 787-788, from <http://doi.acm.org/10.1145/985921.985936>, 2004.
- Brewster, S.; Brown, L. M. Tactons: Structured Tactile Messages for Non-Visual Information Display. *CRPIT '28: Proceedings of the 5th Conference on Australasian User Interface*, Dunedin, New Zealand, 15-23, 2004.
- Brock, D.; Ballas, J. A.; McClimens, B. Perceptual Issues for the Use of 3D Auditory Displays in Operational Environments. *ISICT '03: Proceedings of the 1st International Symposium on Information and Communication Technologies*, Dublin, Ireland, 445-448, 2003.
- Bronkhorst, A. W.; Veltman, J. A. H.; van Breda, L. Application of a Three-Dimensional Auditory Display in a Flight Task. *Human Factors* **1996**, 38, 23-33.
- Brookhuis, K.; de Waard, D. *Limiting Speed, Towards an Intelligent Speed Adapter (ISA)*; No. Transportation Research Part F 2, 1999.

- Brown, M. L.; Newsome, S. L.; Glinert, E. P. An Experiment Into the Use of Auditory Cues to Reduce Visual Workload. *CHI '89: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Toronto, Canada, USA, 339-346, from <http://doi.acm.org/10.1145/67449.67515>, 1989.
- Brunken, R.; Plass, J. L.; Leutner, D. Assessment of Cognitive Load in Multimedia Learning With Dual-Task Methodology: Auditory Load and Modality Effects. *Instructional Science* **2004**, 32 (1-2), 115-132.
- Brünken, R.; Steinbacher, S.; Plass, J. L.; Leutner, D. Assessment of Cognitive Load in Multimedia Learning Using Dual-Task Methodology. *Experimental Psychology* **2002**, 49 (2), 109-119.
- Brychcy, M. L.; Shanmugasundaram, R.; Allen, D. N.; Harris, K. S. Flight Simulation Architecture for Tunnel-in-the-Sky Guidance and Synthetic Vision. *Journal of Aerospace Computing, Information, and Communication* **2004**, 1 (5), 239-252.
- Bryden, K. M. Military Keynote: Military-Based Virtual Systems Engineering. WSC '02: *Proceedings of the 34th Conference on Winter Simulation*, San Diego, California, USA, 855-858, 2002.
- Buhler, D.; Vignier, S.; Heisterkamp, P.; Minker, W. Safety and Operating Issues for Mobile Human-Machine Interfaces. *IUI '03: Proceedings of the 8th International Conference on Intelligent User Interfaces*, Miami, Florida, USA, 227-229, from <http://doi.acm.org/10.1145/604045.604082>, 2003.
- Burgess-Limerick, R.; Mon-Williams, M.; Coppard, V. L. Visual Display Height. *Human Factors* **2000**, 42 (1), 140-150.
- Burke, M. W.; Gilson, R. D.; Jagacinski, R. J. Multi-Modal Information Processing for Visual Workload Relief. *Ergonomics* **1980**, 23 (10), 961-975.
- Burnett, G. E.; Summerskill, S. J.; Porter, J. M. On-the-Move Destination Entry for Vehicle Navigation Systems: Unsafe by Any Means? *Behavior & Information Technology* **2004**, 23 (4), 265-272.
- Burns, C. M. Putting it All Together: Improving Display Integration in Ecological Displays. *Human Factors* **2000**, 42 (2), 226-241.
- Burns, D. A Dual-Task Analysis of Detection Accuracy for the Case of High Target-Distractor Similarity: Further Evidence for Independent Processing. *Perception & Psychophysics* **1979**, 25 (3), 185-196.
- Bush, J. M. *The Effect of Event Rate on Sustained Attention and Stress States in a Simultaneous Vigilance Task Paradigm*, Univ Microfilms International, 2002.

- Byrne M. D.; Gray W. D. Returning Human Factors to an Engineering Discipline: Expanding the Science Base Through a New Generation of Quantitative Methods--Preface to the Special Section. *Human Factors* **2003**, 45 (1), 1-135.
- Cadiz, J. J.; Venolia, G.; Jancke, G.; Gupta, A. Designing and Deploying an Information Awareness Interface. *CSCW '02: Proceedings of the 2002 ACM Conference on Computer Supported Cooperative Work*, New Orleans, Louisiana, USA, 314-323, from <http://doi.acm.org/10.1145/587078.587122>, 2002.
- Caldwell, D. G.; Gosney, C. Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System. *ROBOT '93: Proceedings of the 1993 IEEE International Conference on Robotics and Automation*, 1 955-960, 1993.
- Caldwell, D. G.; Lawther, S.; Wardle, A. Multi-Modal Cutaneous Tactile Feedback. *IROS '96: Proceedings of the 1996 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Osaka, Japan, 2 465-472, 1996.
- Caldwell, D. G.; Lawther, S.; Wardle, A. Tactile Perception and its Application to the Design of Multi-Modal Cutaneous Feedback Systems. *ROBOT '96: Proceedings of the 1996 IEEE International Conference on Robotics and Automation*, Minneapolis, Minnesota, USA, 4 3215-3221, 1996.
- Calhoun, G.; Draper, M.; Ruff, H.; Fontejon, J.; Guilfoos, B. *Evaluation of Tactile Alerts for Control Station Operation*, 2003.
- Cantoni, V.; Gesù, V. D.; Setti, A.; Tegolo, D. *Human and Machine Perception: Information Fusion*, Plenum Press, 1997.
- Cantrell, J.; Fucci, D.; Petrosino, L.; Nance, R. A Preliminary Report of Oral tacTile Sensation and Responses to Delayed Auditory Feedback. *Perceptual & Motor Skills* **1988**, 66 (2), 487-493.
- Carlander, O.; Eriksson, L. Uni- and Bimodal Threat Cueing With Vibrotactile and 3D Audio Technologies in a Combat Vehicle. *Proceedings of the 2006 Human Factors and Ergonomics Society*, San Francisco, CA, 2006.
- Carlbom, I.; Hsu, W. M.; Klinker, G.; Szeliski, R.; Waters, K.; Doyle, M.; et al. Modeling and Analysis of Empirical Data in Collaborative Environments. *Communications of the ACM* **1992**, 35 (6), 74-84.
- Carswell, C. M.; Wickens, C. D. Lateral Task Segregation and the Task-Hemispheric Integrity Effect. *Human Factors* **1985**, 27 (6), 695-700.
- Casini, L.; Macar, F. Effects of Attention Manipulation on Judgments of Duration and of Intensity in the Visual Modality. *Memory & Cognition* **1997**, 25 (6), 812-818.

- Cave, K. R.; Pashler, H. Visual Selection Mediated by Location: Selecting Successive Visual Objects. *Perception & Psychophysics* **1995**, 57 (4), 421-432.
- Challis, B. Design Principles for Non-Visual Interaction. *CHI '00: CHI '00 Extended Abstracts on Human Factors in Computing Systems*, The Hague, The Netherlands, 73-74, from <http://doi.acm.org/10.1145/633292.633337>, 2000.
- Chang, A.; O'Modhrain, S.; Jacob, R.; Gunther, E.; Ishii, H. ComTouch: Design of a Vibrotactile Communication Device. *DIS '02: Proceedings of the Conference on Designing Interactive Systems*, London, England, 312-320, from <http://doi.acm.org/10.1145/778712.778755>, 2002.
- Chang, A.; O'Sullivan, C. Audio-Haptic Feedback in Mobile Phones. *CHI '05: CHI '05 Extended Abstracts on Human Factors in Computing Systems*, Portland, Oregon, USA, 1264-1267, from <http://doi.acm.org/10.1145/1056808.1056892>, 2005.
- Chase, B.; Irwin-Chase, H.; Sonico, J. A Methodology to Control for Individual Differences in Dual-Task Performance. *Theoretical Issues in Ergonomics Science* **2004**, 5 (5), 445-451.
- Chen, C. Individual Differences in a Spatial-Semantic Virtual Environment. *Journal of the American Society for Information Science* **2000**, 51 (6), 529-542.
- Chen, H.; Sun, H. Haptic-Dependent Navigation and Interaction of Hybrid Virtual Models. *VRCAI '04: Proceedings of the 2004 ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Applications in Industry*, Singapore, 355-358, from <http://doi.acm.org/10.1145/1044588.1044665>, 2004.
- Chen, H.; Sun, H. Real-Time Haptic Sculpting in Virtual Volume Space. *VRST '02: Proceedings of the ACM Symposium on Virtual Reality Software and Technology*, Hong Kong, China, 81-88, from <http://doi.acm.org/10.1145/585740.585755>, 2002.
- Chen, K.; Heng, P.; Sun, H. Direct Haptic Rendering of Isosurface by Intermediate Representation. *VRST '00: Proceedings of the ACM Symposium on Virtual Reality Software and Technology*, Seoul, Korea, 188-194, from <http://doi.acm.org/10.1145/502390.502426>, 2000.
- Cheung, B. The Resurgence of Tactile Display Technologies. *Aviation, Space, and Environmental Medicine* **2004**, 75 (10), 925-926.
- Cheung, B. Nonvisual Spatial Orientation Mechanisms. *Progress in Astronautics and Aeronautics* **2004**, 203, 37-94.
- Chewar, C. M.; McCrickard, D. S. Dynamic Route Descriptions: Tradeoffs by Usage Goals and User Characteristics. *SMARTGRAPH '02: Proceedings of the 2nd International Symposium on Smart Graphics*, Hawthorne, New York, USA, 71-78, from <http://doi.acm.org/10.1145/569005.569016>, 2002.

- Chewar, C. M.; McCrickard, D. S.; Ndiwalana, A.; North, C.; Pryor, J.; Tessendorf, D. Secondary Task Display Attributes: Optimizing Visualizations for Cognitive Task Suitability and Interference Avoidance. *VISSYM '02: Proceedings of the Symposium on Data Visualisation 2002*, Barcelona, Spain, 165-171, 2002.
- Chiasson, J.; McGrath, B.; Rupert, A. Enhanced Situation Awareness in Sea, Air, and Land Environment. *RTO HFM Symposium on "Spatial Disorientation in Military Vehicles: Causes, Consequences and Cures" TRO-MP-086*, La Coruña, Spain, 2002.
- Chinthammit, W.; Seibel, E. J.; Furness, T. A. Unique Shared-Aperture Display With Head or Target Tracking. *VR '02: Proceedings of the IEEE Virtual Reality*, Orlando, Florida, USA, 235-242, 2002.
- Choi, S.; Walker, L.; Tan, H. Z.; Crittenden, S.; Reifenberger, R. Force Constancy and Its Effect on Haptic Perception of Virtual Surfaces. *ACM Transactions on Applied Perception (TAP)* **2005**, 2 (2), 89-105.
- Cholewiak, R. W.; Brill, J. C.; Schwab, A. Vibrotactile Localization on the Abdomen: Effects of Place and Space. *Perception and Psychophysics* **2004**, 66 (6), 970-987.
- Cholewiak, R. W.; Collins, A. A.; Brill, J. C. *Spatial Factors in Vibrotactile Pattern Perception*, 2001.
- Cholewiak, R. W.; Collins, A. A. Vibrotactile Localization on the Arm: Effects of Place, Space, and Age. *Perception and Psychophysics* **2003**, 65, 1058-1077.
- Cholewiak, R. W.; Collins, A. A. Vibrotactile Pattern Localization: Influences of Body Site and Aging. *Abstracts of the Psychonomic Society* **2002**, 7, 18.
- Cholewiak, R. W.; Collins, A. A. The Generation of Vibrotactile Patterns on a Linear Array: Influences of Body Site, Time, and Presentation Mode. *Perception and Psychophysics* **2000**, 62 (6), 1220-1235.
- Chu, C. C. P.; Dani, T. H.; Gadh, R. Multimodal Interfaces for a Virtual Reality Computer Aided Design System. *ROBOT '97: Proceedings of the IEEE International Conference on Robotics and Automation*, Albuquerque, New Mexico, 2 1329-1334, 1997.
- Chu, C. C. P.; Dani, T. H.; Gadh, R. Multi-Sensory User Interface for a Virtual-Reality-Based Computer-Aided Design System. *Computer-Aided Design* **1997**, 29 (10), 709-725.
- Chu, L. L. User Performance and Haptic Design Issues for a Force-Feedback Sound Editing Interface. *CHI '02: CHI '02 Extended Abstracts on Human Factors in Computing Systems*, Minneapolis, Minnesota, USA, 544-545, from <http://doi.acm.org/10.1145/506443.506473>, 2002.

- Chunyan, W.; Wei, W.; Jian, L.; Yulin, C. Visual Object-Oriented Application for Lane Following on Intelligent Highway System. *Journal of Southeast University (English Edition)* **2003**, 19 (2), 165-167.
- Cockburn, A.; Brewster, S. Multimodal Feedback for the Acquisition of Small Targets. *Ergonomics* **2005**, 48 (9), 1129-1150.
- Cockburn, A.; Firth, A. Improving the Acquisition of sMall Targets. *Proceedings of the HCI*, 181-196, 2003.
- Cohen, P. R.; Johnston, M.; McGee, D.; Oviatt, S.; Pittman, J.; Smith, I.; et al. QuickSet: Multimodal Interaction for Simulation Set-Up and Control. *Proceedings of the Fifth Conference on Applied Natural Language Processing*, Washington, DC, USA, 20-24, 1997.
- Cohen, P.; McGee, D.; Clow, J. The Efficiency of Multimodal Interaction for a Map-Based Task. *Proceedings of the 6th Conference on Applied Natural Language Processing*, Seattle, Washington, USA, 331-338, 2000.
- Cohn, J.; Lyons, D.; Templeman, J.; Muller, P. Virtual Technologies and Environments for Expeditionary Warfare Training. *RTO HFM Symposium on Advanced Technologies for Military Training*, Genoa, Italy, 1-12, 2003.
- Colle, H. A.; Reid, G. B. Spatial Orientation in 3-D Desktop Displays: Using Rooms for Organizing Information. *Human Factors* **2003**, 45 (3), 424-435.
- Colle, H. A.; Reid, G. B. Double Trade-Off Curves With Different Cognitive Processing Combinations: Testing the Cancellation Axiom of Mental Workload Measurement Theory. *Human Factors* **1999**, 41 (1), 35-50.
- Colwell, C.; Petrie, H.; Kornbrot, D.; Hardwick, A.; Furner, S. Haptic Virtual Reality for Blind Computer Users. *Assets '98: Proceedings of the 3rd International ACM Conference on Assistive Technologies*, Marina del Rey, California, USA, 92-99, from <http://doi.acm.org/10.1145/274497.274515>, 1998.
- Coradeschi, S.; Driankov, D.; Karlsson, L.; Saffiotti, A. Fuzzy Anchoring. *FUZZ '01: Proceedings of the 10th IEEE International Conference on Fuzzy Systems*, Melbourne, Australia, 111-114, 2001.
- Costagliola, G.; Di Martino, S.; Ferrucci, F.; Oliviero, G.; Montemurro, U.; Paliotti, A. Handy: A News Interaction Device for Vehicular Information Systems. *Mobile Human-Computer Interaction - Mobilehci 2004, Proceedings Lecture Notes in Computer Science* **2004**, 3160, 264-275.

- Coutee, A. S.; McDermott, S. D.; Bras, B. A Haptic Assembly and Disassembly Simulation Environment and Associated Computational Load Optimization Techniques. *Journal of Computing and Information Science in Engineering (Transactions of the ASME)* **2001**, 123 (2), 113-122.
- Crowley, J. L.; Berard, F. Multi-Modal Tracking of Faces for Video Communications. *CVPR '97: Proceedings of the IEEE Conference on Computer Society Computer Vision and Pattern Recognition*, San Juan, Puerto Rico, 640-645, 1997.
- Cummings, M. L. The Need for Command and Control Instant message Adaptive Interfaces: Lessons Learned From Tactical Tomahawk Human-in-the-Loop Simulations. *Cyber Psychology & Behavior* **2004**, 7 (6), 653-661.
- Czerwinski, M.; Larson, K. Business: Trends in Future Web Designs: What's Next for the HCI Professional? *Interactions* **1998**, 5 (6), 9.
- Dachille IX, F.; Qin, H., Kaufman, A.; El-Sana, J. Haptic Sculpting of Dynamic Surfaces. *SI3D '99: Proceedings of the 1999 Symposium on Interactive 3D Graphics*, Atlanta, Georgia, USA, 103-110, from <http://doi.acm.org/10.1145/300523.300535>, 1999.
- Dagtas, S.; Sarimollaoglu, M.; Iqbal, K. A Multi-Modal Virtual Environment With Text-Independent Real-Time Speaker Identification. *MMSE '04: Proceedings of the IEEE 6th International Symposium on Multimedia Software Engineering*, Miami, Florida, USA, 557-560, 2004.
- Daly, J.; Washburn, D.; Lazarus, T.; Reeder, J.; Martin, G. A. Haptic Enhancements for Collaborative Scenarios in Virtual Environment. *GRAPH '03: Proceedings of the SIGGRAPH 2003 Conference on Sketches & Applications: In Conjunction with the 30th Annual Conference on Computer Graphics and Interactive Techniques*, San Diego, California, USA, 1, from <http://doi.acm.org/10.1145/965400.965496>, 2003.
- Damos, D. L.; Wickens, C. D. The Identification and Transfer of Timesharing Skills. *Acta Psychologica* **1980**, 46 (1), 15-39.
- Damos, D. L.; Wickens, C. D. Dual-Task Performance and the Hick-Hyman Law of Choice Reaction Time. *Journal of Motor Behavior* **1977**, 9 (3), 209-215.
- Darrell, T.; Gordon, G.; Woodfill, J.; Harville, M. A Virtual Mirror Interface Using Real-Time Robust Face Tracking. *AFGR '98: Proceedings of the 3rd IEEE International Conference on Automatic Face and Gesture Recognition*, Nara, Japan, 616-621, 1998.
- Davenport, W. G. Vigilance for Simultaneous Auditory and Vibrotactile Signals. *Australian Journal of Psychology* **1969**, 21 (2), 159-165.
- Davis, B. M. *Effect of Tactical Navigation Display Modality on Navigation Performance, Situation Awareness, and Mental Workload*; U.S. Army Research Laboratory.

- De Angeli, A.; Gerbino, W.; Cassano, G.; Petrelli, D. Visual Display, Pointing, and Natural Language: The Power of Multimodal Interaction. *AVI '98: Proceedings of the Working Conference on Advanced Visual Interfaces*, L'Aquila, Italy, 164-173, from <http://doi.acm.org/10.1145/948496.948519>, 1998.
- De Waard, D. *The Measurement of Drivers' Mental Workload*. Unpublished Doctoral, University of Groningen, Traffic Research Centre, 1996.
- De Waard, D.; van der Hulst, M.; Hoedemaeker, M.; Brookhuis, K. Driver Behavior in an Emergency Situation in the Automated Highway System. *Transportation Human Factors* **1999**, 1 (1), 67-82.
- Dell'Acqua, R.; Turatto, M.; Jolicoeur, P. Cross-Modal Attentional Deficits in Processing Tactile Stimulation. *Perception & Psychophysics* **2001**, 63 (5), 777-789.
- Dennerlein, J. T.; DiMarino, M. J. Forearm Electromyographic Changes With the Use of a Haptic Force-Feedback Computer Mouse. *Human Factors* **2006**, 48 (1), 130-141.
- Dennerlein, J. T.; Martin, D. B.; Hasser, C. Force-Feedback Improves Performance for Steering and Combined Steering-Targeting Tasks. *CHI '00: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, The Hague, The Netherlands, 423-429, from <http://doi.acm.org/10.1145/332040.332469>, 2000.
- Derefeldt, G.; Skinnars, O.; Alfredson, J.; Eriksson, L.; Andersson, P.; Westlund, J.; et al. Improvement of Tactical Situation Awareness with Colour-Coded Horizontal-Situation Displays in Combat Aircraft. *Displays* **1999**, 20 (4), 171-184.
- Diamond, D. D.; Kass, S. J.; Andrasik, F.; Raj, A. K.; Rupert, A. H. Vibrotactile Cueing as a Master Caution System for Visual Monitoring. *Human Factors & Aerospace Safety* **2002**, 2 (4), 339-354.
- Diaz, M. F. *Response Surfaces in the Prediction of Mental Workload Imposed by Synthetic Work Environments*, Univ Microfilms International, 1996.
- Dien, J.; Tucker, D. M.; Potts, G.; Hartry-Speiser, A. Localization of Auditory Evoked Potentials Related to Selective Intermodal Attention. *Journal of Cognitive Neuroscience* **1997**, 9 (6), 799-823.
- Diesfeldt, H. F. Cross-Modal and Within Modal Judgment of Length by Geriatric Patients and Healthy Young Subjects. *Nederlands Tijdschrift Voor Gerontologie* **1972**, 3 (4), 327-338.
- DiFilippo, D.; Pai, D. K. The AHI: An Audio and Haptic Interface for Contact Interactions. *UIST '00: Proceedings of the 13th Annual ACM Symposium on User Interface Software and Technology*, San Diego, California, USA, 149-158, from <http://doi.acm.org/10.1145/354401.354437>, 2000.

- DiFranco, D. E.; Beauregard, G. L.; Srinivasan, M. A. The Effect of Auditory Cues on the Haptic Perception of Stiffness in Virtual Environments. *Proceedings of the ASME Dynamic Systems and Control Division* **1997**, 61 (61) 17-22.
- Diller, D. E. *The Effects of Attentional Focus on Visual Information Processing*, Univ Microfilms International, 2000.
- Dinse, H. R.; Kalisch, T.; Ragert, P.; Pleger, B.; Schwenkreis, P.; Tegenthoff, M. Improving Human Haptic Performance in Normal and Impaired Human Populations Through Unattended Activation-Based Learning. *ACM Transactions on Applied Perceptions* **2005**, 2 (2), 71-88.
- Divita, J.; Obermayer, R.; Nugent, W.; Linville, J. M. Verification of the Change Blindness Phenomenon While Managing Critical Events on a Combat Information Display. *Human Factors* **2004**, 46 (2), 205-218.
- Dobbins, T.; Samways, S. The Use of Tactile Navigation Displays for the Reduction of Disorientation in Maritime Environments. *Spatial Disorientation in Military Vehicles: Causes, Consequences, and Cures*, La Coruna, Spain, 2002.
- Dobbins, T.; Samways, S. *The Use of Tactile Navigation Cues in High-Speed Craft Operations*. London: The Royal Institution of Naval Architects, 2002.
- Draper, M. H.; Viirre, E. S.; Furness, T. A.; Gawron, V. J. Effects of Image Scale and System Time Delay on Simulator Sickness Within Head-Coupled Virtual Environments. *Human Factors* **2001**, 43 (1), 129-146.
- Drewing, K.; Fritschi, M.; Zopf, R.; Ernst, M. O.; Buss, M. First Evaluation of a Novel Tactile Display Exerting Shear Force Via Lateral Displacement. *ACM Transactions on Applied Perception (TAP)* **2005**, 2 (2), 118-131.
- Driver, J.; Grossenbacher, P. G. Multimodal Spatial Constraints on Tactile Selective Attention. In T. Inui, & J. L. McClelland (Eds.), *Attention and Performance 16: Information Integration in Perception and Communication*, (pp. 209-235), The MIT Press, 1996.
- D'Souza, M. E.; Greenstein, J. S. The Design of a Visual Display for the Presentation of Statistical Quality Control Information to Operators on the Plant Floor. *Human Factors* **1999**, 41 (4), 619-627.
- Durlach, P. J. Change Blindness and Its Implications for Complex Monitoring and Control Systems Design and Operator Training. *Human-Computer Interaction* **2004**, 19 (4), 423-451.
- Dyson, M. C. How Physical Text Layout Affects Reading From Screen. *Behaviour and Information Technology* **2004**, 23 (6), 377-393.

- Dzindolet, M. T.; Pierce, L. G.; Beck, H. P.; Dawe, L. A. The Perceived Utility of Human and Automated Aids in a Visual Detection Task. *Human Factors* **2002**, 44 (1), 79-94.
- Eberts, R. E. Development of Mental Models by Display Augmentation. *IEEE Transactions on Systems, Man, & Cybernetics* **1988**, 18 (4), 506-513.
- Edwards, A. D. N.; Pitt, I. J.; Brewster, S. A.; Stevens, R. D. Multiple Modalities in Adapted Interfaces. In A. D. N. Edwards (Ed.), *Extra-Ordinary Human-Computer Interaction: Interfaces for Users With Disabilities*, (pp. 221-243), Cambridge University Press, 1995.
- Eimer, M. Crossmodal Links in Spatial Attention Between Vision, Audition, and Touch: Evidence From Event-Related Brain Potentials. *Neuropsychologia* **2001**, 39 (12), 1292-1303.
- Eimer, M. Can Attention be Directed to Opposite Locations in Different Modalities? An ERP study. *Clinical Neurophysiology* **1999**, 110 (7), 1252-1259.
- Elliott, L. R.; Redden, E.; Pettitt, R.; Carstens, C. B.; van Erp, J.; Duistermaat, M. *Tactile Guidance for Land Navigation*; ARL-TR-3814; Army Research Laboratory: Human Research and Engineering Directorate, 2005.
- Elliott, L. R. *Effect of Simulations Versus Sequential Display of Visual Information on Decision Accuracy: Moderating Effects of Decision Context*, Univ Microfilms International, 1997.
- Elting, C.; Zwickel, J.; Malaka, R. Device-Dependant Modality Selection for User-Interfaces: An Empirical Study. *IUI '02: Proceedings of the 7th International Conference on Intelligent User Interfaces*, San Francisco, California, USA, 55-62, from <http://doi.acm.org/10.1145/502716.502728>, 2002.
- Emery, V. K.; Edwards, P. J.; Jacko, J. A.; Moloney, K. P.; Barnard, L.; Kongnakorn, T.; et al. Toward Achieving Universal Usability for Older Adults Through Multimodal Feedback. *CUU '03: Proceedings of the 2003 Conference on Universal Usability*, Vancouver, British Columbia, Canada, 46-53, from <http://doi.acm.org/10.1145/957205.957214>, 2003.
- Enriquez, M.; Afonin, O.; Yager, B.; Maclean, K. A pneumatic Tactile Alerting System for the Driving Environment. *PUI '01: Proceedings of the 2001 Workshop on Perceptive User Interfaces*, Orlando, Florida, USA, 1-7, from <http://doi.acm.org/10.1145/971478.971506>, 2001.
- Ercoline, W. R.; Self, B. P.; Matthews, R. S. J. Effects of Three Helmet-Mounted Display Symbolologies on Unusual Attitude Recognition and Recovery. *Aviation, Space, and Environmental Medicine* **2002**, 73 (11), 1053-1058.
- Eriksen, C. W.; Yeh, Y. Allocation of Attention in the Visual Field. *Journal of Experimental Psychology: Human Perception & Performance* **1985**, 11 (5), 583-597.

- Eriksson, L.; Carlander, O.; Borgvall, J.; Dahlman, J.; Lif, P. *Operator Site 2004-2005*; No. FOI-R--1871—SE; Lingkoping, SE: Swedish Defence REsearch Agency, 2005.
- Eriksson, L.; Van Erp, J. B. F.; Carlander, O.; Levin, B.; Van Veen, H. A. H. C.; Veltman, J. E. Vibrotactile and Visual Threat Cueing With High G Threat Intercept in Dynamic Flight Simulation. *Proceedings of the 50th Annual Meeting of the Human Factors and Ergonomics Society*, San Francisco, 2006.
- Ernst, M. O.; Banks, M. S. Humans Integrate Visual and Haptic Information in a Statistically Optimal Fashion. *Nature* **2002**, *415* (6870), 429-433.
- Ernst, M. O.; Banks, M. S. Humans Integrate Visual and Haptic Information in a Statistically Optimal Fashion. *Nature* **2002**, *415*, 429-433.
- Ernst, M.; Banks, M.; Wichmann, F.; Maloney, L.; Bulthoff, H. Combining Sensory Information to Improve Visualization. *VIS '02: Proceedings of the Conference on Visualization*, Boston, Massachusetts, USA, 571-574, 2002.
- Ertan, S.; Lee, C.; Willets, A.; Tan, H.; Pentland, A. A Wearable Haptic Navigation Guidance System. *ISWC '98: Second International Symposium on Wearable Computers, Digest of Papers*, Pittsburgh, Pennsylvania, USA, 164-165, 1998.
- Everett, S.; Gaver, B. Using Speech and Audio in the Interface (Abstract). *CHI '95: Conference Companion on Human Factors in Computing Systems*, Denver, Colorado, USA, 342, from <http://doi.acm.org/10.1145/223355.223711>, 1995.
- Fadden, S.; Ververs, P. M.; Wickens, C. D. Pathway HUDs: Are They Viable? *Human Factors* **2001**, *43* (2), 173-193.
- Fagot, C.; Pashler, H. Making 2 Responses to a Single Object - Implications for the Central Attentional Bottleneck. *Journal of Experimental Psychology-Human Perception and Performance* **1992**, *18* (4), 1058-1079.
- Fagot, C.; Pashler, H. Repetition Blindness: Perception or Memory Failure? *Journal of Experimental Psychology: Human Perception & Performance* **1995**, *21* (2), 275-292.
- Fagot, C.; Pashler, H. Making Two Responses to a Single Object: Implications for the Central Attentional Bottleneck: Correction. *Journal of Experimental Psychology: Human Perception & Performance* **1993**, *19* (2), 443.
- Fairclough, S. H.; Venables, L.; Tattersall, A. The Influence of Task Demand and Learning on the Psychophysiological Response. *International Journal of Psychophysiology* **2005**, *56* (2), 171-184.
- Farrell, R. Head Turners. *Buildings* **2004**, *98* (3), 16.

- Ferreira, V. S.; Pashler, H. Central Bottleneck Influences on the Processing Stages of Word Production. *Journal of Experimental Psychology: Learning, Memory, & Cognition* **2002**, 28 (6), 1187-1199.
- Ferrel, C.; Orliaguet, J.; Leifflen, D.; Bard, C.; Fleury, M. Visual Context and the Control of Movements Through Video Display. *Human Factors* **2001**, 43 (1), 56-65.
- Final report: Force/Tactile Feedback System for Virtual Reality Environments.* (Computer Graphics Systems Development Corporation No. 19980421 158), 1998.
- Findlay, J. M. Eye scanning and Visual Search. In J. M. Henderson, & F. Ferreira (Eds.), *Interface of Language, Vision, and Action: Eye Movements and the Visual World*, (pp. 134-159), Psychology Press, 2004.
- Fischer, A.; Vance, J. M. PHANToM Haptic Device Implemented in a Projection Screen Virtual Environment. *EGVE '03: Proceedings of the Workshop on Virtual Environments*, Zurich, Switzerland, 225-229, from <http://doi.acm.org/10.1145/769953.769979>, 2003.
- Fogg, B. J.; Cutler, L. D.; Arnold, P.; Eisbach, C. HandJive: A Device for Interpersonal Haptic Entertainment. *CHI '98: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Los Angeles, California, USA, 57-64, from <http://doi.acm.org/10.1145/274644.274653>, 1998.
- Forbus, K. D.; Usher, J.; Chapman, V. Sketching for Military Courses of Action Diagrams. *IUI '03: Proceedings of the 8th International Conference on Intelligent User Interfaces*, Miami, Florida, USA, 61-68, from <http://doi.acm.org/10.1145/604045.604059>, 2003.
- Forster, B.; Cavina-Pratesi, C.; Aglioti, S. M.; Berlucchi, G. Redundant Target Effect and Intersensory Facilitation From Visual-Tactile Interactions in Simple Reaction Time. *Experimental Brain Research* **2002**, 143 (4), 480-487.
- Franco, L.; Cannas, S. A. Generalization Properties of Modular Networks: Implementing the Parity Function. *IEEE Transactions on Neural Networks* **2001**, 12 (6), 1306-1313.
- Fraser, J.; Gutwin, C. The Effects of Feedback on Targeting Performance in Visually Stressed Conditions. *Graphics Interface* **2000**, 19-26.
- Freeman, G. Gulfstream Enhanced Vision System. *Symposium Proceedings - Society of Experimental Test Pilots* **2002**, 46, 154-168.
- Friedman, A.; Polson, M. C.; Dafoe, C. G.; Gaskill, S. J. Dividing Attention Within and Between Hemispheres: Testing a Multiple Resources Approach to Limited-Capacity Information Processing. *Journal of Experimental Psychology: Human Perception & Performance* **1982**, 8 (5), 625-650.

- Fritz, C. O.; Morris, P. E.; Bjork, R. A.; Gelman, R.; Wickens, T. D. When Further Learning Fails: Stability and Change Following Repeated Presentation of Text. *British Journal of Psychology* **2000**, *91* (4), 493-511.
- Fuhrman, A.; Krol, M.; Pavone, L.; Reich, D. L. Application of Fuzzy Functions for Visual Presentation of Medical Data. *Journal of Medical Systems* **2004**, *28* (6), 603-606.
- Fujimoto, M.; Ishibashi, Y. The Effect of Stereoscopic Viewing of a Virtual Space on a Networked Game Using Haptic Media. *ACE '04: Proceedings of the 2004 ACM SIGCHI International Conference on Advances in Computer Entertainment Technology*, Singapore, 317-320, from <http://doi.acm.org/10.1145/1067343.1067389>, 2004.
- Furukawa, H.; Inagaki, T.; Niwa, Y. Operator's Situation Awareness Under Different Levels of Automation; Evaluations Through Probabilistic Human Cognitive Simulations. *Proceedings of the IEEE International Conference Systems, Man, and Cybernetics* **2000**, *2*, 1319-1324.
- Gallace, A.; Tan, H. Z.; Spence, C. Tactile Change Detection. *WHC '05: First Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Pisa, Italy, 12-16, 2005.
- Gan, M. A.; Tyutchev, M. V.; Kuzilin, Y. E.; Novoselskii, V. V.; Pavlov, A. P. Holographic Information-Display System for an Automobile. *Journal of Optical Technology* **1995**, *62* (7), 467-470.
- Gargan, R.; Sullivan, J.; Tyler, S. Multimodal Response Planning: An Adaptive Rule Based Approach. *CHI '88: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Washington, D.C. 229-234, 1988.
- Garland, K. J.; Noyes, J. M. CRT Monitors: Do They Interfere With Learning? *Behaviour and Information Technology* **2004**, *23* (1), 43-52.
- Gawronski, B.; Deutsch, R.; Strack, F. Approach/Avoidance-Related Motor Actions and the Processing of Affective Stimuli: Incongruity Effects in Automatic Attention Allocation. *Social Cognition* **2005**, *23* (2), 182-203.
- Geffen, G.; Bradshaw, J. L.; Nettleton, N. C. Attention and Hemispheric Differences in Reaction Time During Simultaneous Audio-Visual Tasks. *Quarterly Journal of Experimental Psychology* **1973**, *25* (3), 404-412.
- Geldard, F. A. Some Neglected Possibilities of Communication. *Science* **1960**, *131*, 1583-1588.
- Gemperle, F.; Goode, A.; Pearce, J.; Siewiorek, D.; Smailigic, A. *Wearable Vibro-Tactile Display*, Carnegie Mellon, 2003.

- Ghinea, G.; Gulliver, S. R.; Serif, T. Pervasive and Standalone Computing: The Perceptual Effects of Variable Multimedia Quality. *International Journal of Human-Computer Studies* **2004**, 60 (5-6), 640-665.
- Gilliland, K.; Schlegel, R. E. Tactile Stimulation of the Human Head for Information Display. *Human Factors* **1994**, 36 (4), 700-717.
- Gilson, R. D. Vibrotactile Masking: Effects of Multiple Maskers. *Perception & Psychophysics* **1969**, 5 (3), 181-182.
- Gilson, R. D. Vibrotactile Masking: Some Spatial and Temporal Effects. *Perception & Psychophysics* **1969**, 5 (3), 176-180.
- Gilson, R. D. Some Factors Affecting the Spatial Discrimination of Vibrotactile Patterns. *Perception & Psychophysics* **1968**, 3, 131-136.
- Gilson, R. D.; Mouloua, M.; Graft, A. S.; McDonald, D. P. Behavioral Influences of Proximal Alarms. *Human Factors* **2001**, 43 (4), 595-610.
- Gluckman, J. P.; Warm, J. S.; Dember, W. N.; Rosa, R. R. Demand Transitions and Sustained Attention. *Journal of General Psychology* **1993**, 120 (3), 323-337.
- Glumm, M.; Kehring, K. *Effects of Visual and Auditory Cues About Threat Location on Target Acquisition and Attention to Auditory Communications*; ARL 20098, 2004.
- Glumm, M.; Kehring, K.; White, T. *Effects of Tactile, Visual, and Auditory Cues About Threat Location on Target Acquisition and attEntion to Visual and Auditory Communications*; ARL-TR-3863; Army Research Laboratory Human Research and Engineering Directorate: Aberdeen Proving Ground, MD, 2006.
- Goettl, B. P.; Wickens, C. D.; Kramer, A. F. Integrated Displays and the Perception of Graphical Data. *Ergonomics* **1991**, 34 (8), 1047-1063.
- Goings, M. W.; St Cyr, S. A.; Hall, S.; Doherty, S.; Vincenzi, D. A.; Denning, T. V.; et al. Individual and Team Performance. In D. A. Vincenzi, M. Mouloua & P. A. Hancock (Eds.), *Human Performance, Situation Awareness and Automation: Current Research and Trends, Vol 1&2 HPSAA II*, (pp. 82-141), Lawrence Erlbaum Associates, Publishers, 2004.
- Golledge, R. G.; Marston, J. R.; Loomis, J. M.; Klatzky, R. L. Stated Preferences for Components of a Personal Guidance System for Nonvisual Navigation. *Journal of Visual Impairment & Blindness* **2004**, 98 (3), 135-147.

- Goodrich, M. A.; Boer, E. R. Semiotics and Mental Models: Modeling Automobile Driver behavior. *Proceedings of the 1998 IEEE International Symposium on Intelligent Control (ISIC)*, 1998. *Held Jointly with IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA), Intelligent Systems and Semiotics (ISAS)*, Gaithersburg, Maryland, USA, 771-776, 1998.
- Goolkasian, P.; Foos, P. W. Bimodal Format Effects in Working Memory. *American Journal of Psychology* **2005**, *118* (1), 61-77.
- Goto, T.; Escher, M.; Zanardi, C.; Magnenat-Thalmann, N. Multimodal Interaction in Collaborative Virtual Environments. *ICIP '99: Proceedings of the 1999 International Conference on Image Processing*, Kobe, Japan, 3 1-5, 1999.
- Graf, H. P.; Cosatto, E.; Potamianos, M. Robust Recognition of Faces and Facial Features With a Multi-Modal System. *ICSMC '99: IEEE International Conference on Systems, Man, and Cybernetics: 'Computational Cybernetics and Simulation'*, Orlando, Florida, USA, 3 2034-2039, 1997.
- Gramopadhye, A. K.; Melloy, B. J.; Nair, S. N.; Vora, J.; Orhan, C.; Duchowski, A. T.; et al. The Use of Binocular Eye Tracking in Virtual Reality for aiRcraft Inspection Training. *International Journal of Industrial Engineering: Theory, Applications and Practice* **2002**, *9* (2), 123-132.
- Gray, R.; Tan, H. Z.; Young, J. J. Do Multimodal Signals Need to Come From the Same Place? Crossmodal Attentional Links Between Proximal and Distal Surfaces. *ICMI '02: Proceedings of the 4th IEEE International Conference on Multimodal Interfaces*, Pittsburgh, Pennsylvania, USA, 437-441, 2002.
- Graydon, F. X.; Young, R.; Benton, M. D.; Genik, R. J. I.; Posse, S.; Hsieh, L.; et al. Visual Event Detection During Simulated Driving: Identifying the Neural Correlates With Functional Neuroimaging. *Transportation Research Part F: Traffic Psychology & Behaviour* **2004**, *7* (4), 271-286.
- Greenhill, S.; Venkatesh, S.; Pearce, A.; Ly, T. C. Representations and Processes in Decision Modelling. *Defense Science and Technology Organisation* **2002**, 1-61.
- Gregor, S. Explanations From Knowledge-Based Systems and Cooperative Problem Solving: An Empirical Study. *International Journal of Human-Computers Studies* **2001**, *54* (1), 81-105.
- Gregory, A.; Mascarenhas, A.; Ehmann, S.; Lin, M.; Manocha, D. Six Degree-of-Freedom Haptic Display of Polygonal Models. *Vis '00: Proceedings of the Conference on Visualization*, Salt Lake City, Utah, USA, 139-146, 2000.

- Grier, R. A.; Warm, J. S.; Dember, W. N.; Matthews, G.; Galinsky, T. L.; Szalma, J. L., et al. The Vigilance Decrement Reflects Limitations in Effortful Attention, Not Mindlessness. *Human Factors* **2003**, 45 (3), 349-359.
- Groen, E. L.; Van Erp, J.; Bos, J. E.; Van Veen, H. A. H. C. Tactile Countermeasure to Spatial Disorientation. *Proceedings of the 75th AsMA Annual Scientific Meeting: Frontiers in Aerospace Medicine*, Anchorage, Alaska, from <http://search.epnet.com/login.aspx?direct=true&db=psyhref&an=2004.22278.0040010>, 2004.
- Guest, S.; Spence, C. What Role Does Multisensory Integration Play in the Visuotactile Perception of Texture? *International Journal of Psychophysiology* **2003**, 50 (1-2), 63-80.
- Gugerty, L. J. Situation Awareness During Driving: Explicit and Implicit Knowledge in Dynamic Spatial Memory. *Journal of Experimental Psychology-Applied* **1997**, 3 (1), 42-66.
- Guikema, S. D.; Milke, M. W. Sensitivity Analysis for Multi-Attribute Project Selection Problems. *Civil Engineering and Environmental Systems* **2003**, 20 (3), 143-162.
- Gulliver, S. R.; Serif, T.; Ghinea, G. Pervasive and Standalone Computing: The Perceptual Effects of Variable Multimedia Quality. *International Journal of Human-Computer Studies* **2003**, 60 (5-6), 640-665.
- Gunn, D. V.; Nelson, W. T.; Bolia, R. S.; Warm, J. S.; Schumsky, D. A.; Corcoran, K. J. Target Acquisition with UAVs - Vigilance Displays and Advanced Cueing Interfaces. *HFES '02: Human Factors and Ergonomics Society 46th Annual Meeting*, Pittsburgh, Pennsylvania, USA, 63 1541-1545, 2002.
- Gupta, R.; Sheridan, T.; Whitney, D. Experiments Using Multimodal Virtual Environments in Design for Assembly Analysis. *Presence-Teleoperators and Virtual Environments* **1997**, 6 (3), 318-338.
- Gwizdka, J.; Chignell, M. Individual Differences and Task-Based User Interface Evaluation: A Case Study of Pending Tasks in Email. *Interacting with Computers* **2004**, 16 (4), 769-797.
- Haimson, C.; Bothell, D.; Douglass, S. A.; Anderson, J. R. Partitioning Visual Displays Aids Task-Directed Visual Search. *Human Factors* **2004**, 46 (3), 551-566.
- Haimson, C.; Anderson, J. R. Partitioning Visual Displays - Directing the Path of Visual Search. *Human Factors and Ergonomics Society 46th Annual Meeting*, Baltimore, Maryland, USA, 1604-1608, 2002.
- Halcomb, C. G.; Schlickau, C. *Virtually Everything About Virtual Reality*, American Psychological Assn, 2004.

- Hale, K. S.; Stanney, K. M. Deriving Haptic Design Guidelines From Human Physiological, Psychophysical, and Neurological Foundations. *Computer Graphics and Applications, IEEE* **2004**, 24 (2), 33-39.
- Hall, D. L.; Shaw, T. S. Multi-Sensory, Multi-Modal Concepts for Information Understanding. *RTO IST Workshop on "MAssive Military Data Fusion and Visualization: Users Talk with Developers*, Halden, Norway, 2-1-2-22, 2002.
- Halpern, L. Simultaneous Visual and Tactile Illusions of Size. *Confinia Neurologica* **1959**, 19, 301-306.
- Halvorsrud, R.; Hagen, S. Designing a Collaborative Virtual Environment for Introducing Pupils to Complex Subject Matter. *NordiCHI '04: Proceedings of the Third Nordic Conference on Human-Computer Interaction*, Tampere, Finland, 121-130, from <http://doi.acm.org/10.1145/1028014.1028034>, 2004.
- Hancock, H. E.; Rogers, W. A.; Fisk, A. D. An Evaluation of Warning Habits and Beliefs Across the Adult Life Span. *Human Factors* **2001**, 43 (3), 343-354.
- Harada, T.; Ohno, S.; Sato, M. The Influence of Multimodal Sensory Information Display on Dribbling of a Basketball in a Virtual Workspace. *Proceedings of the 4th International Conference on Virtual Systems and Multimedia* **1998**, 4 (2) 548-553.
- Haskell, I. D.; Wickens, C. D. Two- and Three-Dimensional Displays for Aviation: A Theoretical and Empirical Comparison. *International Journal of Aviation Psychology* **1993**, 3 (2), 87-109.
- Hayes, J. R.; Sheedy, J. E.; Subbaram, M. V. Filters on cOmputer Displays: Effects on Legibility, Performance and Comfort. *Behaviour and Information Technology* **2003**, 22 (6), 427-433.
- He, F.; Agah, A. Multi-Modal Human Interactions With an Intelligent Interface Utilizing Images, Sounds, and Force Feedback. *Journal of Intelligent & Robotic Systems* **2001**, 32 (2), 171-190.
- Head-up Display for Ralf Schumacher's Helmet. *Auto Technology* **2002**, 2, 46.
- Helleberg, J. R.; Wickens, C. D. Effects of Data-Link Modality and Display Redundancy on Pilot Performance: An Attentional Perspective. *International Journal of Aviation Psychology* **2003**, 13 (3), 189-210.
- Heller, M. A. Tactile Picture in Set Sighted and Blind People. *Behavioral Brain Research* **2002**, 135, 65-68.
- Hellier, E.; Edworthy, J.; Weedon, B.; Adams, A. The Perceived Urgency of Speech Warnings: Semantics Versus Acoustics. *Human Factors* **2002**, 44 (1), 1-17.

- Heng, P.; Wong, T.; Leung, K.; Chui, Y.; Sun, H. A Haptic Needle Manipulation Simulator for Chinese Acupuncture Learning and Training. *VRCAI '04: Proceedings of the 2004 ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Applications in Industry*, Singapore, 57-64, from <http://doi.acm.org/10.1145/1044588.1044598>, 2004.
- Higashi, M.; Aoki, N.; Kaneko, T. Application of Haptic Navigation to Modify Free-Form Surfaces Through Specified Points and Curves. *SMA '02: Proceedings of the 7th ACM Symposium on Solid Modeling and Applications*, Saarbrücken, Germany, 377-388, from <http://doi.acm.org/10.1145/566282.566336>, 2002.
- Hillis, J. M.; Ernst, M. O.; Banks, M. S.; Landy, M. S. Combining Sensory Information: Mandatory Fusion Within, But Not Between, Senses. *Science* **2002**, 298 (5598), 1627-1630.
- Hinckley, K.; Pierce, J.; Horvitz, E.; Sinclair, M. Foreground and Background Interaction With Sensor-Enhanced Mobile Devices. *ACM Transactions on Computer-Human Interaction (TOCHI)* **2005**, 12 (1), 31-52.
- Ho, C. Y.; Nikolic, M.; Waters, M.; Sarter, N. Not Now! Supporting Interruption Management by Indicating the Modality and Urgency of Pending Tasks. *Human Factors*, 46 (3), 399-409.
- Ho, C. Y.; Nikolic, M. I.; Sarter, N. B. Multimodal Information Presentation in Support of Timesharing and Effective Interruption Management. *DASC '01: The 20th Conference of Digital Avionics Systems*, Daytona Beach, Florida, USA, 1 5D2/1-5D2/8, 2001.
- Ho, C.; Nikolic, M. I.; Sarter, N. B. Multitmodal Information Presentation in Support of Timesharing and Effective Interruption Management. *Proceedings of the 20th Digital Avionics Systems Conference*, Piscataway, 1, 2001.
- Ho, C.; Nikolic, M. I.; Waters, M. J.; Sarter, N. B. Not Now! Supporting Interruption Management by Indicating the Modality and Urgency of Pending Tasks. *Human Factors* **2004**, 46 (3), 399-409.
- Ho, C. Using Spatial Warning Signals to Capture a Driver's Visual Attention. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 350-350, from <http://doi.acm.org/10.1145/1027933.1028008>, 2004.
- Ho, G.; Scialfa, C. T.; Caid, J. K.; Graw, T. Visual Search for Traffic Signs: The Effects of Clutter, Luminance, and Aging. *Human Factors* **2001**, 43 (2), 194-207.
- Ho-Ching, F. W.; Mankoff, J.; Landay, J. A. Can You See What I Hear? The Design and Evaluation of a Peripheral Sound Display for the Deaf. *CHI '03: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 161-168, from <http://doi.acm.org/10.1145/642611.642641>, 2003.
- Hoffman, J. E.; Nelson, B.; Houck, M. R. The Role of Attentional Resources in Automatic Detection. *Cognitive Psychology* **1983**, 15 (3), 379-410.

- Hoh, R. H.; Arencibia, A. J.; Hislop, G. M. Development and Flight-Test of a Commercial Head-Up Display. *Symposium Proceedings - Society of Experimental Test Pilots* **2002**, 46, 107-131.
- Hollands, J. G.; Ivanovic, N.; Enomoto, Y. Visual Momentum and Task Switching With 2D and 3D Displays of Geographic Terrain. *HFES '03: Human Factors and Ergonomics Society 47th Annual Meeting*, Denver, Colorado, USA, 1620-1624, 2003.
- Hollands, J. G.; Parker, H. A.; McFadden, S.; Boothby, R. LCD Versus CRT Displays: A Comparison of Visual Search Performance for Colored Symbols. *Human Factors* **2002**, 44 (2), 210-221.
- Hollerbach, J. M. Locomotion Interfaces. In K. M. Stanney (Ed.), *Handbook of Virtual Environments: Design, Implementation, and Applications*, (pp. 239-254), Lawrence Erlbaum Associates, Publishers, 2002.
- Holzman, T. G. Speech-Audio Interface for Medical Information Management in Field Environments. *International Journal of Speech Technology* **2001**, 4 (3-4), 209-226.
- Hommel, B.; Doeller, C. F. Selection and Consolidation of Objects and Actions. *Psychological Research/Psychologische Forschung* **2005**, 69 (3), 157-166.
- Hommel, B.; Schneider, W. X. Visual Attention and Manual Response Selection: Distinct Mechanisms Operating on the Same Codes. *Visual Cognition* **2002**, 9 (4), 392-420.
- Hoogs, A.; Mundy, J.; Cross, G. Multi-Modal Fusion for Video Understanding. *AIPR '01: Proceedings of the Applied Imagery Pattern Recognition Workshop*, Washington, DC, USA, 103-108, 2001.
- Hopp, P. J.; Smith, C. A. R.; Clegg, B. A.; Heggstad, E. D. Interruption Management: The Use of Attention-Directing Tactile Cues. *Human Factors* **2005**, 47 (1), 1-11.
- Hornof, A. Cognitive Strategies for the Visual Search of Hierarchical Computer Displays. *Human-Computer Interaction* **2004**, 19 (3), 183-223.
- Horrey, W. J.; Wickens, C. D. Driving and Side Task Performance: The Effects of Display Clutter, Separation and Modality. *Human Factors* **2004**, 46 (4), 611-624.
- Huang, G.; Metaxas, D.; Govindaraj, M. Feel the "Fabric": An Audio-Haptic Interface. *SCA '03: Proceedings of the 2003 ACM SIGGRAPH/Eurographics Symposium on Computer Animation*, San Diego, California, USA, 52-61, 2003.
- Huang, L.; Holcombe, A. O.; Pashler, H. Repetition Priming in Visual Search: Episodic Retrieval, Not Feature Priming. *Memory & Cognition* **2004**, 32 (1), 12-20.
- Huang, L.; Pashler, H. Attention Capacity and Task Difficulty in Visual Search. *Cognition* **2005**, 94 (3), B101-B111.

- Huang, L.; Pashler, H. Expectation and Repetition Effects in Searching for Featural Singletons in Very Brief Displays. *Perception & Psychophysics* **2005**, 67 (1), 150-157.
- Huang, L.; Pashler, H. Symmetry Detection and Visual Attention: A “Binary-Map” Hypothesis. *Vision Research* **2002**, 42 (11), 1421-1430.
- Huang, L.; Pashler, H.; Junge, J. A. Are There Capacity Limitations in Symmetry Perception? *Psychonomic Bulletin & Review* **2004**, 11 (5), 862-869.
- Hubbold, R. J. Collaborative Stretcher Carrying: A Case Study. *EGVE '02: Proceedings of the Workshop on Virtual Environments 2002*, Barcelona, Spain, 7-12, 2002.
- Huey, B. M.; Wickens, C. D.; National Research Council (Eds.). *Workload Transition: Implications for Individual and Team Performance*. Washington, DC: National Academy Press, 1993.
- Hutton, S. B.; Tegally, D. The Effects of Dividing Attention on Smooth Pursuit Eye Tracking. *Experimental Brain Research* **2005**, 163 (3), 306-313.
- Hwang, F.; Keates, S.; Langdon, P.; Clarkson, P. J. Multiple Haptic Target for Motion-Impaired Computer Users. *CHI '03: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 41-48, from <http://doi.acm.org/10.1145/642611.642620>, 2003.
- Hwang, F.; Keates, S.; Langdon, P.; Clarkson, P. J.; Robinson, P. Perception and Haptics: Towards More Accessible Computers for Motion-Impaired Users. *PUI '01: Proceedings of the 2001 Workshop on Perceptive User Interfaces*, Orlando, Florida, USA, 1-9, from <http://doi.acm.org/10.1145/971478.971507>, 2001.
- Inoue, T. VDT Eyeglasses - Multifocal Lenses for Near Distance Use. *Displays* **2002**, 23 (1-2), 11-16.
- Irwin, D. E. Fixation Location and Fixation Duration as Indices of Cognitive Processing. In J. M. Henderson, & F. Ferreira (Eds.), *Interface of Language, Vision, and Action: Eye Movements and the Visual World*, (pp. 105-133), Psychology Press, 2004.
- Ishibashi, Y.; Kanbara, T.; Tasaka, S. Inter-Stream Synchronization Between Haptic Media and Voice in Collaborative Virtual Environments. *MULTIMEDIA '04: Proceedings of the 12th Annual ACM International Conference on Multimedia*, New York, New York, USA, 604-611, from <http://doi.acm.org/10.1145/1027527.1027670>, 2004.
- Isreal, J. B.; Chesney, G. L.; Wickens, C. D.; Donchin, E. P300 and Tracking Difficulty: Evidence for Multiple Resources in Dual-Task Performance. *Psychophysiology* **1980**, 17 (3), 259-273.

- Isreal, J. B.; Wickens, C. D.; Chesney, G. L.; Donchin, E. The Event-Related Brain Potential as an Index of Display-Monitoring Workload. *Human Factors* **1980**, 22 (2), 211-224.
- Iwata, H. Full-Surround Image Display Technologies. *International Journal of Computer Vision* **2004**, 58 (3), 227-235.
- Iwata, H. Haptic Screen. *SIGGRAPH '98: ACM SIGGRAPH 98 Conference Abstracts and Applications*, Orlando, Florida, USA, 117, from <http://doi.acm.org/10.1145/280953.281311>, 1998.
- Iwata, H.; Yano, H.; Nakaizumi, F.; Kawamura, R. Project FEELEX: Adding Haptic Surface to Graphics. *SIGGRAPH '01: Proceedings of the 28th Annual Conference on Computer Graphics and Interactive Techniques*, Los Angeles, California, USA, 469-476, from <http://doi.acm.org/10.1145/383259.383314>, 2001.
- Jacko, J.; Emery, V. K.; Edwards, P. J.; Ashok, M.; Barnard, L.; Kongnakorn, T.; et al. The Effects of Multimodal Feedback on Older Adults' Task Performance Given Varying Levels of Computer Experience. *Behaviour & Information Technology* **2004**, 23 (4), 247-264.
- Jacobson, R. D. Receiving Spatial Information Through Multimodal Interfaces. *IV '02: Proceedings of the 6th International Conference on Information Visualisation*, Tallahassee, Florida, USA, 730-734, 2002.
- Jaekl, P. M.; Allison, R. S.; Harris, L. R.; Jasiobedzka, U. T.; Jenkin, H. L.; Jenkin, M. R.; et al. Perceptual Stability During Head Movement in Virtual Reality. *VR '02: Proceedings of the IEEE Virtual Reality Conference*, Orlando, Florida, USA, 149-155, 2002.
- Jamson, A. H.; Merat, N. Surrogate In-Vehicle Information Systems and Driver Behaviour: Effects of Visual and Cognitive Load in Simulated Rural Driving. *Transportation Research Part F-Traffic Psychology and Behaviour* **2005**, 8 (2), 79-96.
- Jenkins, D. Flat panel Display Metrology Finds More Than Meets the Eye: Camera-Based Systems for Defect Detection Reduce Production Costs and Improve Quality. *Photonics Spectra* **2003**, 37 (8), 80-82, 84.
- Jennings, S.; Reid, L. D.; Craig, G.; Kruk, R. V. Time Delays in Visually Coupled Systems During Flight Test and Simulation. *Journal of Aircraft* **2004**, 41 (6), 1327-1335.
- Jeong, W.; Gluck, M. Multimodal Geographic Information Systems: Adding Haptic and Auditory Display. *Journal of the American Society for Information Science and Technology* **2003**, 54 (3), 229-242.
- Jeong, W.; Gluck, M. Multimodal Bivariate Thematic Maps: Auditory and Haptic Display. *ASIST 2002: Proceedings of the 65th Annual ASIST Annual Meeting*, Philadelphia, Pennsylvania, USA, 39, 279-283, 2002.

- Jeong, W. S.; Gluck, M. Multimodal Geographic Information Systems: Adding Haptic and Auditory Displays. *ASIST 2001: Proceedings of the 64th ASIST Annual Meeting* **2001**, 38, 239-245.
- Jeong, W. Exploratory User Study of Haptic and Auditory Display for Multimodal Geographical Information Systems. *CHI '01: CHI '01 Extended Abstracts on Human Factors in Computing Systems*, Seattle, Washington, USA, 73-74, from <http://doi.acm.org/10.1145/634067.634114>, 2001.
- Jiang, Y.; Saxe, R.; Kanwisher, N. Functional Magnetic Resonance Imaging Provides New Constraints on Theories of the Psychological Refractory Period. *Psychological Science* **2004**, 15 (6), 390-396.
- John, M. S.; Cowen, M. B.; Smallman, H. S.; Oonk, H. M. The Use of 2D and 3D Displays for Shape-Understanding Versus Relative-Position Tasks. *Human Factors* **2001**, 43 (1), 79-98.
- Johnson, A.; Proctor, R. W. *Attention: Theory and Practice*, Sage Publications, Inc, 2004.
- Johnson, C. W. Impact of Working Environments Upon Human-Machine Dialogues: A Formal Logic for the Integrated Specification of Physical and Cognitive Ergonomic Constraints on User Interface Design. *Ergonomics* **1996**, 39 (3), 512-530.
- Johnston, M.; Cohen, P. R.; McGee, D.; Oviatt, S. L.; Pittman, J. A.; Smith, I. Unification-Based Multimodal Integration. *Proceedings of the 8th Conference on European Chapter of the Association for Computational Linguistics*, Madrid, Spain, 281-288, 1997.
- Jones, J. A.; Orso, A.; Harrold, M. J. GAMMATELLA: Visualizing Program-Execution Data for Deployed Software. *Information Visualization* **2004**, 3 (3), 173-188.
- Jones, M. B.; Kennedy, R. S.; Stanney, K. M. Toward Systematic Control of Cybersickness. *Presence: Teleoperators and Virtual Environments* **2004**, 13 (5), 589-600.
- Jr., J. K. S. Making Graphics Physically Tangible. *Communications of the ACM* **1999**, 42 (8), 74-81.
- Jr., R. A. G.; Sullivan, J. W.; Tyler, S. W. Multimodal Response Planning: An Adaptive Rule Based Approach. *CHI '88: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Washington, D.C., USA, 229-234, from <http://doi.acm.org/10.1145/57167.57206>, 1988.
- Kaczmarek, K.; Bach-y-Rita, P. Tactile Displays. In W. Barfield & T. Furness, III (Eds.) (Ed.), *Advanced Interface Design and Virtual Environments*, (pp. 349-414), 1995.
- Kajimoto, H.; Kawakami, N.; Maeda, T.; Tachi, S. Electrocutaneous Display with Receptor Selective Stimulations. *Electronics and Communications in Japan, Part II: Electronics (English Translation of Denshi Tsushin Gakkai Ronbunshi)* **2002**, 85 (6), 40-49.

- Kammermeier, P.; Buss, M.; Schmidt, G. A Systems Theoretical Model for Human Perception in Multimodal Presence Systems. *IEEE-ASME Transactions on Mechatronics* **2001**, 6 (3), 234-244.
- Kammermeier, P.; Buss, M.; Schmidt, G. Multi-Modal Sensory Feedback Based on a Mathematical Model of Human Perception. *IROS '99: Proceedings of the International Conference on Intelligent Robots and Systems*, Kyongju, Korea, 3 (3) 1537-1542, 1999.
- Kanto, Y. A Prototype Tactile Mouse for GUI Presentation. *Progress in Experimental and Computational Mechanics in Engineering* **2003**, 243-2, 9-14.
- Kappe, B.; van Erp, J.; Korteling, J. E. Effects of Head-Slaved and Peripheral Displays on Lane-Keeping Performance and Spatial Orientation. *Human Factors* **1999**, 41 (3), 453-466.
- Karosu, M. Dual Task Model—An Evaluation Model for the Complex Operation. *CHI '94: Conference on Human Factors in Computing Systems*, Boston, Massachusetts, USA, 125-126, from <http://doi.acm.org/10.1145/259963.260105>, 1994.
- Kaster, T.; Pfeiffer, M.; Bauckhage, C. Combining Speech and Haptics for Intuitive and Efficient Navigation Through Image Databases. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 180-187, from <http://doi.acm.org/10.1145/958432.958469>, 2003.
- Katoh, Z.; Nagasawa, Y.; Kadoo, A. A Study on Visual Information Processing Under Multi-Task Condition: I. Display Density and Search Time. *Reports of Aeromedical Laboratory* **1987**, 28 (3), 63-77.
- Kawai, Y.; Tomita, F. Interactive Tactile Display System: A Support System for the Visually Disabled to Recognize 3D Objects. *ASSETS '96: Proceedings of the 2nd Annual ACM Conference on Assistive Technologies*, Vancouver, British Columbia, Canada, 45-50, from <http://doi.acm.org/10.1145/228347.228356>, 1996.
- Kelleher, J.; Van Genabith, J. Visual Salience and Reference Resolution in Simulated 3-D Environments. *Artificial Intelligence Review* **2004**, 21 (3), 253-267.
- Keller, J. Human Performance Modeling for Discrete-Event Simulation: Workload. *2002 Winter Simulation Conference*, San Diego, CA, from <http://www.wintersim.org/prog02.htm#MO2>, 2002.
- Kelly, R. T. *Modality-Specific Interference in Dual Task Performance*, Univ Microfilms International, 1976.
- Kelsick, J.; Vance, J. M.; Buhr, L.; Moller, C. Discrete Event Simulation Implemented in a Virtual Environment. *Journal of Mechanical Design (Transactions of the ASME)* **2003**, 125 (3), 428-433.

- Keyson, D. V. Dynamic Cursor Gain and Tactual Feedback in the Capture of Cursor Movements. *Ergonomics* **1997**, 40 (12), 1287-1298.
- Keyson, D. V. Touch in User Interface Navigation. *IEE Colloquium on Developments in Tactile Displays*, London, England, 4/1-4/3, 1997.
- Kim, Y. J.; Hoffmann, C. M. Enhanced Battlefield Visualization for Situation Awareness. *Computers & Graphics-UK* **2003**, 27 (6), 873-885.
- King, W. J. *Toward the Human-Computer Dyad*, Univ Microfilms International, 2003.
- Kirkpatrick, A. E. Interactive Touch: Haptic Interfaces Based Upon Hand Movement Patterns. *CHI '99: CHI '99 Extended Abstracts on Human Factors in Computing Systems*, Pittsburgh, Pennsylvania, USA, 59-60, from <http://doi.acm.org/10.1145/632716.632755>, 1999.
- Kirman, J. H. Tactile Communication of Speech: A Review and Analysis. *Psychological Bulletin* **1973**, 80, 54-74.
- Klingberg, T.; Roland, P. E. Interference Between Two Concurrent Tasks is Associated With Activation of Overlapping Fields in the Cortex. *Cognitive Brain Research* **1997**, 6 (1), 1-8.
- Knapp, J. M.; Loomis, J. M. Limited Field of View of Head-Mounted Displays is Not the Cause of Distance Underestimation in Virtual Environments. *Presence: Teleoperators and Virtual Environments* **2004**, 13 (5), 572-577.
- Knecht, W. R. *Effects of Critical Information Saliency on Task Performance: Application of Ecological Information Augmentation in a Cockpit Display of Traffic Information*, Univ Microfilms International, 2001.
- Koprowicz, K.; Miller, J.; Mulligan, C.; Reimann, C.; Wang, D.; Williams, T. R. Does Isolating a Visual Element Call Attention to it? Results of an Eye-Tracking Investigation of the Effects of Isolation on Emphasis. *Technical Communication* **2005**, 52 (1), 21-26.
- Korner, O.; Manner, R. Haptic Display for a Virtual Reality Simulator for Flexible Endoscopy. *EGVE '02: Proceedings of the Workshop on Virtual Environments 2002*, Barcelona, Spain, 13-ff, 2002.
- Kosnik, W.; Polhamus, G.; Kee, D.; Thomas, J. Perceptual Impact of an Animated Holographic Stereogram. *HFES '03: Human Factors and Ergonomics Society 47th Annual Meeting*, Denver, Colorado, USA, 1635-1638, 2003.
- Kotnik, B.; Rotovnik, T.; Kacic, Z.; Horvat, B.; Kramberger, I.; Horvat, B. The Design of Mobile Multimodal Communication Device - Personal Navigator. *EUROCON '01: International Conference on Trends in Communications*, Bratislava, Slovak Republic, 2 337-340, 2001.

- Koulouriotis, D. E.; Diakoulakis, I. E.; Emiris, D. M. Anamorphosis of Fuzzy Cognitive Maps for Operation in Ambiguous and Multi-Stimulus Real World Environments. *Proceedings of the 10th IEEE International Conference on Fuzzy Systems*, Melbourne, Australia, 1156-1159, 2002.
- Kramer, A. F.; Wickens, C. D.; Donchin, E. Processing of Stimulus Properties: Evidence for Dual-Task Integrality. *Journal of Experimental Psychology: Human Perception & Performance* **1985**, 11 (4), 393-408.
- Kramer, E.; Holzworth, R. J.; Pratt, J. H.; Sohn, Y. W.; Nelson, C. Serial Presentation of Computer Graphics: Training Effects and Strategy Development for Analytic and Holistic Cognitive Styles. *HFES '03: Human Factors and Ergonomics Society 47th Annual Meeting*, Denver, Colorado, USA, 1058-1062, 2003.
- Krausman, A.; Elliott, L.; Kedden, E.; Petrov, P. Effects of Visual, Auditory, and Tactile Cues on Army Platoon Leader Decision Making. *ICCRTS '05: 10th International Symposium on Command and Control Research and Technology*, 2-8, 2005.
- Krausman, A.; Pettitt, R.; Elliott, L.; Redden, E. Effects of Multimodal Alerts on Army Platoon Leader Decision Making and Performance. *2006 Command and Control Research and Technology Symposium*, San Diego, CA, from <http://dodccrp.org>, 2006.
- Kraut, M. A.; Kremen, S.; Moo, L. R.; Segal, J. B.; Calhoun, V.; Hart, J. J. Object Activation in Semantic Memory from Visual Multimodal Feature Input. *Journal of Cognitive Neuroscience* **2002**, 14 (1), 37-47.
- Kraut, R. E.; Gergle, D.; Fussell, S. R. The Use of Visual Information in Shared Visual Spaces: Informing the Development of Virtual Co-Presence. *CSCW '02: Proceedings of the 2002 ACM Conference on Computer Supported Cooperative Work*, New Orleans, Louisiana, USA, 31-40. from <http://doi.acm.org/10.1145/587078.587084>, 2002.
- Krol, M.; Reich, D. L.; Pavone, L.; Fuhrman, A. Application of Fuzzy Functions for Visual Presentation of Medical Data. *Journal of Medical Systems* **2004**, 28 (6), 603-606.
- Kurosu, M. Dual Task Model: An Evaluation Model for the Complex Operation. *CHI '94: Conference Companion*, Boston, Massachusetts, USA, 125-126, 1994.
- Kurze, M. Rendering Drawings for Interactive Haptic Perception. *CHI '97: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Atlanta, Georgia, USA, 423-430, from <http://doi.acm.org/10.1145/258549.258826>, 1997.
- Kurze, M. TDraw: A Computer-Based Tactile Drawing Tool for Blind People. *Assets '96: Proceedings of the 2nd Annual ACM Conference on Assistive Technologies*, Vancouver, British Columbia, Canada, 131-138, from <http://doi.acm.org/10.1145/228347.228368>, 1996.

- Kusajima, T. *Visual Reading and Braille Reading: An Experimental Investigation of the Physiology and Psychology of Visual and Tactual Reading*. New York: American Foundation for the Blind, 1974.
- Laerhoven, K. V.; Villar, N.; Schmidt, A.; Kortuem, G.; Gellersen, H. Using an Autonomous Cube for Basic Navigation and Input. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 203-210, from <http://doi.acm.org/10.1145/958432.958472>, 2003.
- Lalanne, C.; Lorenceau, J. Crossmodal Integration for Perception and Action. *Journal of Physiology-Paris* **2004**, 98 (1-3), 265-279.
- LaLomia, M. J.; Coover, M. D.; Salas, E. Problem Solving Performance and Display Preference for Information Displays Depicting Numerical Functions. *SIGCHI Bulletin* **1988**, 20 (2), 47-51.
- Landragin, F.; Bella, L.; Romary, L. Referring to Objects with Spoken and Haptic Modalities. *ICMI '02: Proceedings of the 4th IEEE International Conference on Multimodal Interfaces*, Pittsburgh, Pennsylvania, USA, 99, 2002.
- Landsdown, T. C. Individual Differences During Driver Secondary Task Performance: Verbal Protocol and Visual Allocation Findings. *Accident Analysis & Prevention* **2002**, 34 (5), 655-662.
- Lang, S. Y. T.; Dickinson, J.; Buchal, R. O. Cognitive Factors in Distributed Design. *Computers in Industry* **2002**, 48 (1), 89-98.
- Langrock, D. G.; Broome, D. R. Advanced Telerobotic Controller. *OCEANS '94: 'Oceans Engineering for Today's Technology and Tomorrow's Preservation'*, Brest, France, 2 157-162, 1994.
- Lantz, E. Future Directions in Visual Display Systems. *SIGGRAPH Computer Graphics* **1997**, 31 (2), 38-42.
- Lantz, E. The Future of Virtual Reality: Head Mounted Displays Versus Spatially Immersive Displays (panel). *SIGGRAPH '96: Proceedings of the 23rd Annual Conference on Computer Graphics and Interactive Techniques*, New Orleans, Louisiana, USA, 485-486, from <http://doi.acm.org/10.1145/237170.237289>, 1996.
- Larson, J. A.; Oviatt, S. Principles for Multimodal User Interface Design. *CHI '03: CHI '03 Extended Abstracts on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 1058-1059, from <http://doi.acm.org/10.1145/765891.766147>, 2003.
- Lawrence, B. M.; Myerson, J.; Abrams, R. A. Interference With Spatial Working Memory: An Eye Movement is More Than a Shift of Attention. *Psychonomic Bulletin & Review* **2004**, 11 (3), 488-494.

- Lawrence, D. A.; Pao, L. Y.; Lee, C. D.; Novoselov, R. Y. Synergistic Visual/Haptic Rendering Modes for Scientific Visualization. *Computer Graphics and Applications, IEEE* **2004**, 24 (6), 22-30.
- Lawrence, D. A.; Lee, C. D.; Pao, L. Y.; Novoselov, R. Y. Shock and Vortex Visualization Using a Combined Visual/Haptic Interface. *VIS '00: Proceedings of the Conference on Visualization*, Salt Lake City, Utah, USA, 131-137, 2000.
- Lecuyer, A.; Vidal, M.; Joly, O.; Megard, C.; Berthoz, A. Can Haptic Feedback Improve the Perception of Self-Motion in Virtual Reality? *HAPTICS '04: Proceedings of the 12th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Chicago, Illinois, USA, 208-215, 2004.
- Lederman, S. J.; Martin, A.; Tong, C.; Klatzky, R. L. Relative Performance Using Haptic and/or Touch-Produced Auditory Cues in a Remote Absolute Texture Identification Task. *HAPTICS '03: Proceedings of the 11th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Los Angeles, California, USA, 151-158, 2003.
- Lederman, S. J.; Hamilton, C. Using Tactile Features to Help Functionally Blind Individuals Denominate Banknotes. *Human Factors* **2002**, 44 (3), 413-428.
- Lee, C. H.; Jeng, T. A Context Manager for Tangible Media Design Presentation a Human-Centric Interaction Approach. *Automation in Construction* **2003**, 12 (5), 487-493.
- Lee, J. D.; Caven, B.; Haake, S.; Brown, T. L. Speech-Based Interaction With In-Vehicle Computers: The Effect of Speech-Based E-mail on Drivers' Attention to the Roadway. *Human Factors* **2001**, 43 (4), 631-640.
- Lee, J. D.; Hoffman, J. D.; Hayes, E. Collision Warning Design to Mitigate Driver Distraction. *CHI '04: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Vienna, Austria, 65-72, from <http://doi.acm.org/10.1145/985692.985701>, 2004.
- Lee, J. D.; McGehee, D. V.; Brown, T. L. Collision Warning Timing, Driver Distraction, and Driver Response to Imminent Rear-End Collisions in a High-Fidelity Driving Simulator. *Human Factors* **2002**, 44 (2), 314-334.
- Lee, J. C.; Dietz, P. H.; Leigh, D.; Yerazunis, W. S.; Hudson, S. E. Haptic Pen: A Tactile Feedback Stylus for Touch Screens. *UIST '04: Proceedings of the 17th Annual ACM Symposium on User Interface Software and Technology*, Santa Fe, New Mexico, USA, 291-294, from <http://doi.acm.org/10.1145/1029632.1029682>, 2004.
- Lee, M. D. Multichannel Auditory Search: Toward Understanding Control Processes in Polychotic Auditory Listening. *Human Factors* **2001**, 43 (2), 328-342.

- Leggatt, A. P.; Noyes, J. M. A Holistic Approach to the Introduction of Automatic Speech Recognition Technology in Ground Combat Vehicles. *Military Psychology* **2004**, *16* (2), 81-97.
- Leggatt, A. P.; Noyes, J. M. Navigation Aids: Effects on Crew Workload and Performance. *Military Psychology* **2000**, *12* (2), 89-104.
- Levy, J.; Pashler, H. Is Dual-Task Slowing Instruction Dependent? *Journal of Experimental Psychology: Human Perception & Performance* **2001**, *27* (4), 862-869.
- Lin, M.; Baxter, W.; Scheib, V.; Wendt, J. Physically Based Virtual Painting. *Communications of the ACM* **2004**, *47* (8), 40-47.
- Lin, S. V.; Seibel, E. J.; Furness, T. A. I. Testing Visual Search Performance Using Retinal Light Scanning as a Future Wearable Low Vision Aid. *International Journal of Human-Computer Interaction* **2003**, *15* (2), 245-263.
- Lindeman, R.; Yanagida, Y.; Sibert, J.; Lavine, R. Effective Vibrotactile Cueing in a Visual Search Task. *Proceedings of the Ninth IFIP International Conference of Human-Computer Interaction (INTERACT 2003)*, 89-96, 2003.
- Lindeman, R. W.; Sibert, J. L.; Hahn, J. K. Towards Usable VR: An Empirical Study of User Interfaces for Immersive Virtual Environments. *CHI '99: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Pittsburgh, Pennsylvania, USA, 64-71, from <http://doi.acm.org/10.1145/302979.302995>, 1999.
- Lindeman, R. W.; Sibert, J. L.; Mendez-Mendez, E.; Patil, S.; Phifer, D. Effectiveness of Directional Vibrotactile Cuing on a Building-Clearing Task. *CHI '05: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Portland, Oregon, USA, 271-280, from <http://doi.acm.org/10.1145/1054972.1055010>, 2005.
- Lipschutz, B.; Kolinsky, R.; Damhaut, P.; Wikler, D.; Goldman, S. Attention-Dependent Changes of Activation and Connectivity in Dichotic Listening. *NeuroImage* **2002**, *17* (2), 643-656.
- Liu, P.; Wang, Z. Voice Activity Detection Using Visual Information. *ICASSP '04: Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Montreal, Quebec, Canada, 1 I-609-12, 2004.
- Liu, Y. Effects of Taiwan In-Vehicle Cellular Audio Phone system on Driving Performance. *Safety Science* **2003**, *41* (6), 531-542.
- Liu, Y. C. Comparative Study of the Effects of Auditory, Visual and Multimodality Displays on Drivers' Performance in Advanced Traveler Information Systems. *Ergonomics* **2001**, *44* (4), 425-442.

- Liu, Y.; Wickens, C. D. Use of Computer Graphics and Cluster Analysis in Aiding Relational Judgment. *Human Factors* **1992**, 34 (2), 165-178.
- Liu, Y.; Wickens, C. D. Visual Scanning With or Without Spatial Uncertainty and Divided and Selective Attention. *Acta Psychologica* **1992**, 79 (2), 131-153.
- Loftin, R. B. Multisensory Perception: Beyond the Visual in Visualization. *Computing in Science and Engineering* **2003**, 5 (4), 56-58.
- Lohse, G. L. Role of Working Memory on Graphical Information Processing. *Behavior & Information Technology* **1997**, 16 (6), 297-308.
- Lok, B.; Naik, S.; Whitton, M.; Brooks Jr, F. P. Effects of Handling Real Objects and Self-Avatar Fidelity on Cognitive Task Performance and Sense of Presence in Virtual Environments. *Presence: Teleoperators and Virtual Environments* **2003**, 12 (6), 615-628.
- Long, G. M.; Zavod, M. J. Contrast Sensitivity in a Dynamic Environment: Effects of Target Conditions and Visual Impairment. *Human Factors* **2002**, 44 (1), 120-132.
- Luria, R.; Meiran, N. Increased Control Demand Results in Serial Processing. *Psychological Science* **2005**, 16 (10), 833-840.
- Macadam, C. C. Understanding and Modeling the Human Driver. *Vehicle System Dynamics* **2003**, 40 (1-3), 101-134.
- Macaluso, E.; Frith, C. D.; Driver, J. Modulation of Human Visual Cortex by Crossmodal Spatial Attention. *Science* **2000**, 289 (5482), 1206-1208.
- MacColl, I.; Carrington, D. User Interface Correctness. *Crossroads* **1997**, 3 (3), 9-13.
- MacDonald, J. A.; Balakrishnan, J. D.; Orosz, M. D.; Karplus, W. J. Intelligibility of Speech in a Virtual 3-D Environment. *Human Factors* **2002**, 44 (2), 272-286.
- Mackay, W. E.; Fayard, A.; Frobert, L.; Medini, L. Reinventing the Familiar: Exploring an Augmented Reality Design Space for Air Traffic Control. *CHI '98: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Los Angeles, California, USA, 558-565, from <http://doi.acm.org/10.1145/274644.274719>, 1998.
- MacKenzie, I. S.; Oniszczak, A. A Comparison of Three Selection Techniques for Touchpads. *CHI '98: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Los Angeles, California, USA, 336-343, from <http://doi.acm.org/10.1145/274644.274691>, 1998.
- Madden, D. J. Adult Age Differences in the Attentional Capacity Demands of Visual Search. *Cognitive Development* **1986**, 1 (4), 335-363.

- Maglio, P. P.; Campbell, C. S. Tradeoffs in Displaying Peripheral Information. *CHI '00: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, The Hague, The Netherlands, 241-248, from <http://doi.acm.org/10.1145/332040.332438>, 2000.
- Maltz, M.; Meyer, J. Use of Warnings in an Attentionally Demanding Detection Task. *Human Factors* **2001**, 43 (2), 217-226.
- Maltz, M.; Shinar, D. Imperfect In-Vehicle Collision Avoidance Warning Systems Can Aid Drivers. *Human Factors* **2004**, 46 (2), 357-366.
- Mandryk, R. L.; Rodgers, M. E.; Inkpen, K. M. Sticky Widgets: Pseudo-Haptic Widget Enhancements for Multi-Monitor Displays. *CHI '05: CHI '05 Extended Abstracts on Human Factors in Computing Systems*, Portland, Oregon, USA, 1621-1624, from <http://doi.acm.org/10.1145/1056808.1056981>, 2005.
- Maravita, A.; Spence, C.; Kennett, S.; Driver, J. Tool-Use Changes Multimodal Spatial Interactions Between Vision and Touch in Normal Humans. *Cognition* **2002**, 83 (2), B25-B34.
- Marchak, F. M.; Cleveland, W. S.; Rogowitz, B. E.; Wickens, C. D. The Psychology of Visualization. *VIS '93: Proceedings of the 4th Conference on Visualization*, San Jose, California, USA, 351-354, 1993.
- Mark, W. R.; Randolph, S. C.; Finch, M.; Van Verth, J. M.; Taylor, R. M., II. Adding Force Feedback to Graphics Systems: Issues and Solutions. *SIGGRAPH '96: Proceedings of the 23rd Annual Conference on Computer Graphics and Interactive Techniques*, New Orleans, Louisiana, USA, 447-452, from <http://doi.acm.org/10.1145/237170.237284>, 1996.
- Marks, L. E. On Cross-Modal Similarity: Auditory-Visual Interactions in Speeded Discrimination. *Journal of Experimental Psychology: Human Perception & Performance* **1987**, 13 (3), 384-394.
- Marois, R.; Ivanoff, J. Capacity Limits of Information Processing in the Brain. *Trends in Cognitive Sciences* **2005**, 9 (6), 296-305.
- Marshall, S. New Techniques for Evaluating Innovative Interfaces with Eye Tracking. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 2, from <http://doi.acm.org/10.1145/958432.958434>, 2003.
- Marsic, I.; Medl, A.; Flanagan, J. Natural Communication with Information Systems. *Proceedings of the IEEE* **2000**, 88 (8), 1354-1366.

- Martens, M. H.; Van Winsum, W. Effects of Speech Versus Tactile Support Messages on Driving Behaviour and Workload. *ESV '01: Proceedings of the 17th International Technical Conference on Enhanced Safety of Vehicles*, Amsterdam, The Netherlands, from <http://search.epnet.com/login.aspx?direct=true&db=psyhref&an=2004.22278.0040015>, 2001.
- Martin, J. C.; Veldman, R.; Berouli, D. *Developing Multimodal Interfaces: A Theoretical Framework and Guided Propagation Networks*, LIMSI-CNRS.
- Martin-Emerson, R.; Wickens, C. D. Superimposition, Symbolology, Visual Attention, and the Head-Up Display. *Human Factors* **1997**, 39 (4), 581-601.
- Mason, A. H.; Walji, M. A.; Lee, E. J.; MacKenzie, C. L. Reaching Movements to Augmented and Graphic Objects in Virtual Environments. *CHI '01: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Seattle, Washington, USA, 426-433, from <http://doi.acm.org/10.1145/365024.365308>, 2001.
- Massaro, D. W. A Framework for Evaluating Multimodal Integration by Humans and a Role for Embodied Conversational Agents. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 24-31, from <http://doi.acm.org/10.1145/1027933.1027939>, 2004.
- Masys, A. J.; Olafsen, R.; Brathen, K.; Salmon, P.; Stanton, N.; Walker, G.; et al. Situation Awareness. In D. A. Vincenzi, M. Mouloua & P. A. Hancock (Eds.), *Human Performance, Situation Awareness and Automation: Current Research and Trends, Vol 1&2 HPSAA II*, (pp. 39-171), Lawrence Erlbaum Associates, Publishers, 2004.
- Matthews, T.; Dey, A. K.; Mankoff, J.; Carter, S.; Rattenbury, T. A Toolkit for Managing User Attention in Peripheral Displays. *UIST '04: Proceedings of the 17th Annual ACM Symposium on User Interface Software and Technology*, Santa Fe, New Mexico, USA, 247-256, from <http://doi.acm.org/10.1145/1029632.1029676>, 2004.
- May, J. G.; Badcock, D. R. Vision and Virtual Environments. In K. M. Stanney (Ed.), *Handbook of Virtual Environments: Design, Implementation, and Applications*, (pp. 29-63), Lawrence Erlbaum Associates, 2002.
- Maybury, M. T. Research in Multimedia and Multimodal Parsing and Generation. *Artificial Intelligence Review* **1995**, 9 (2-3), 103-127.
- Mayer, R. E.; Moreno, R. A Split-Attention Effect in Multimedia Learning: Evidence for Dual Processing Systems in Working Memory. *Journal of Educational Psychology* **1998**, 90, 312-320.

- Mazzone, A.; Spagno, C.; Kunz, A. A Haptic Feedback Device Based on an Active Mesh. *VRST '03: Proceedings of the ACM Symposium on Virtual Reality Software and Technology*, Osaka, Japan, 188-195, from <http://doi.acm.org/10.1145/1008653.1008687>, 2003.
- McCallum, W. C.; Pleydell-Pearce, C. Brain Slow Potential Changes Associated With Visual Monitoring Tasks. In W. C. McCallum, & S. H. Curry (Eds.), *Slow Potential Changes in the Human Brain*, (pp. 165-189), Plenum Press, 1993.
- McCandless, J. W.; McCann, R. S.; Hilty, B. R. Upgrades to the Caution and Warning System of the Space Shuttle. *HFES '03: Human Factors and Ergonomics Society 47th Annual Meeting*, Denver, Colorado, USA, 16-20, 2003.
- McCann, R. S.; Remington, R. W.; Van Selst, M. A Dual-Task Investigation of Automaticity in Visual Word Processing. *Journal of Experimental Psychology: Human Perception & Performance* **2000**, 26 (4), 1352-1370.
- McCrickard, D. S.; Catrambone, R.; Chewar, C. M.; Stasko, J. T. Establishing Tradeoffs That Leverage Attention for Utility: Empirically Evaluating Information Display in Notification Systems. *International Journal of Human-Computer Studies* **2003**, 58 (5), 547-582.
- McDonnell, K. T.; Qin, H.; Wlodarczyk, R. A. Virtual clay: A Real-Time Sculpting System With Haptic Toolkits. *SI3D '01: Proceedings of the 2001 Symposium on Interactive 3D Graphics*, Research Triangle Park, North Carolina, USA, 179-190, from <http://doi.acm.org/10.1145/364338.364395>, 2001.
- McElligott, J.; Leeuwen, L. V. Designing Sound Tools and Toys for Blind and Visually Impaired Children. *IDC '04: Proceeding of the 2004 Conference on Interaction Design and Children*, Maryland, USA, 65-72, from <http://doi.acm.org/10.1145/1017833.1017842>, 2004.
- McGee, M. R. A Haptically Enhanced Scrollbar: Force-Feedback as a Means of Reducing the Problems Associated With Scrolling. *First PHANTOM Users Research Symposium*, Deutsches Krebsforschungszentrum, Heidelberg, Germany, 1999.
- McGee, M. R.; Gray, P.; Brewster, S. Feeling Rough: Multimodal Perception of Virtual Roughness. *Conference Proceedings of EuroHaptics 2001*, Birmingham, UK, 29-32, 2001.
- McGee, M. R.; Gray, P.; Brewster, S. The Effective Combination of Haptic and Auditory Textural Information. *HHCI '00: Proceedings of the Lecture Notes in Computer Science: Haptic Human-Computer Interaction, 2058*, 118-126, 2001.
- McGee, M. R.; Gray, P.; Brewster, S. Haptic Perception of Virtual Roughness. *CHI '01: CHI '01 Extended Abstracts on Human Factors in Computing Systems*, Seattle, Washington, USA, 155-156, from <http://doi.acm.org/10.1145/634067.634162>, 2001.
- McGowan, J. F.; Duka, T. Hemispheric Lateralisation in a Manual-Verbal Task Combination: The Role of Modality and Gender. *Neuropsychologia* **2000**, 38 (7), 1018-1027.

- McGrath, Estrada; Braithewaite, Raj; Rupert. Tactile Situation Awareness System. Flight Demonstration Final Report. *USAARL Report Number 2004-10*, 1-43, 2004.
- McGuirl, J. M.; Sarter, N. B. Presenting In-Flight Icing Information: A Comparison of Visual and Tactile Cues. *DASC '01: Proceedings of the 20th Conference on Digital Avionics Systems*, Columbus, Ohio, USA, 1 2A2/1-2A2/8, 2001.
- McKinley, R. A.; Gallimore, J.; Lanning, C.; Simmons, C. *Tactile Cueing for Target Acquisition and Identification*; Air Force Research Laboratory.
- McLeod, P. A Dual Task Response Modality Effect: Support for Multiprocessor Models of Attention. *Quarterly Journal of Experimental Psychology* **1977**, 29 (4), 651-667.
- McNeely, W. A.; Puterbaugh, K. D.; Troy, J. J. Six Degree-of-Freedom Haptic Rendering Using Voxel Sampling. *SIGGRAPH '99: Proceedings of the 26th Annual Conference on Computer Graphics and Interactive Techniques*, Los Angeles, California, USA, 401-408, from <http://doi.acm.org/10.1145/311535.311600>, 1999.
- McPhee, L. C.; Scialfa, C. T.; Dennis, W. M.; Ho, G.; Caird, J. K. Age Differences in Visual Search for Traffic Signs During a Simulated Conversation. *Human Factors* **2004**, 46 (4), 674-685.
- Medvedev, S. V.; Rudas, M. S.; Pakhomov, S. V.; Ivanitskii, A. M.; Il'yuchenok, I. R.; Ivanitskii, G. A. Mechanisms of Selective Attention During Competitive Discrimination of Visual and Auditory Verbal Information: Positron Emission Tomography and Cortical Evoked Potential Studies. *Human Physiology* **2003**, 29 (6), 41-50.
- Meehan, M. J. *Physiological Reaction as an Objective Measure of Presence in Virtual Environments*, Univ Microfilms International, 2001.
- Meehan, M.; Insko, B.; Whitton, M.; Brooks Jr., F. P. Physiological Measures of Presence in Stressful Virtual Environments. *SIGGRAPH '02: Proceedings of the 29th Annual Conference on Computer Graphics and Interactive Techniques*, San Antonio, Texas, USA, 645-652, from <http://doi.acm.org/10.1145/566570.566630>, 2002.
- Meiser, T. Memory Advantage of Subject-Performed Actions: Comments on the Multimodal Theory of Memory. *Zeitschrift Fur Experimentelle Psychologie* **2000**, 47 (1), 1-12.
- Meyer, J. Performance with Tables and Graphs: Effects of Training and a Visual Search Model. *Ergonomics* **2000**, 43 (11), 1840-1865.
- Meyer, J. Effects of Warning Validity and Proximity on Responses to Warnings. *Human Factors* **2001**, 43 (4), 563-572.
- Meyer, J.; Bitan, Y. Why Better Operators Receive Worse Warnings. *Human Factors* **2002**, 44 (3), 343-353.

- Michahelles, F.; Matter, P.; Schmidt, A.; Schiele, B. Applying Wearable Sensors to Avalanche Rescue. *Computers & Graphics-UK* **2003**, 27 (6), 839-847.
- Michelitsch, G.; Williams, J.; Osen, M.; Jimenez, B.; Rapp, S. Haptic Chameleon: A New Concept of Shape-Changing User Interface Controls With Force Feedback. *CHI '04: CHI '04 Extended Abstracts on Human Factors in Computing Systems*, Vienna, Austria, 1305-1308, from <http://doi.acm.org/10.1145/985921.986050>, 2004.
- Miller, T.; Stasko, J. Artistically Conveying Peripheral Information With the Info Canvas. *AVI '02: Proceedings of the Conference on Advanced Visual Interfaces*, Gallipoli (Lecce), Italy, 2002.
- Miller, C. S.; Remington, R. W. Modeling Information Navigation: Implications for Information Architecture. *Human-Computer Interaction* **2004**, 19 (3), 225-271.
- Miller, T.; Zeleznik, R. An Insidious Haptic Invasion: Adding Force Feedback to the X Desktop. *UIST '98: Proceedings of the 11th Annual ACM Symposium on User Interface Software and Technology*, San Francisco, California, USA, 59-64, from <http://doi.acm.org/10.1145/288392.288573>, 1998.
- Mirchandani, P. B. An Auditory Display in a Dual-Axis Tracking Task. *IEEE Transactions on Systems, Man, & Cybernetics* **1972**, 2 (3), 375-380.
- Miura, T. Coping With Situational Demands: A Study of Eye Movements and Peripheral Vision Performance. In A. G. Gale, M. H. Freeman, C. M. Haslegrave, P. Smith & S. P. Taylor (Eds.), *Vision in vehicles*, (pp. 205-216), 1986.
- Moorhead, I. R.; Holmes, S.; Furnell, A. *Understanding Multisensory Integration for Pilot Spatial Orientation*; No. QINETIQ/KI/CHS/TR042277, 2004.
- Morey, C. C.; Cowan, N. When Visual and Verbal Memories Compete: Evidence of Cross-Domain Limits in Working Memory. *Psychonomic Bulletin & Review* **2004**, 11 (2), 296-301.
- Morishima, S.; Ogata, S.; Murai, K.; Nakamura, S. Audio-Visual Speech Translation With Automatic Lip Synchronization and Face Tracking Based on 3-D Head Model. *ICASSP '02: Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2 2117-2120, 2002.
- Morrin, K. A. *Information Processing Characteristics in the Performance of a Real-Time Information Coordination Task: Working Memory and Attentional Constraints*, Univ Microfilms International, 1996.
- Morris, D.; Joshi, N. Alternative "Vision": A Haptic and Auditory Assistive Device. *CHI '03: CHI '03 Extended Abstracts on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 966-967, from <http://doi.acm.org/10.1145/765891.766097>, 2003.

- Morris, M. R.; Morris, D.; Winograd, T. Individual Audio Channels With Single Display Groupware: Effects on Communication and Task Strategy. *CSCW '04: Proceedings of the 2004 ACM Conference on Computer Supported Cooperative Work*, Chicago, Illinois, USA, 242-251, from <http://doi.acm.org/10.1145/1031607.1031646>, 2004.
- Motoyuki, A.; Sato, S. A Multi-Modal Mouse With Tactile and Force Feedback. *International Journal of Human-Computer Studies* **1994**, 40 (3), 443-453.
- Mullennix, J. W.; Sawusch, J. R.; Garrison, L. F. Automaticity and the Detection of Speech. *Memory & Cognition* **1992**, 20 (1), 40-50.
- Munch, S.; Dillmann, R. Haptic Output in Multimodal User Interfaces. *IUI '97: Proceedings of the 2nd International Conference on Intelligent User Interfaces*, Orlando, Florida, USA, 105-112, from <http://doi.acm.org/10.1145/238218.238311>, 1997.
- Murata, A.; Iwase, H. Rate of Information Processing During Simultaneous Presentation of Auditory and Visual Information. *IEMBS '98: Proceedings of the 20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Hong Kong, 5 2700-2703, 1998.
- Murata, A.; Uetake, A.; Matsumoto, S.; Takasawa, Y. Evaluation of Shoulder Muscular Fatigue Induced During VDT tasks. *International Journal of Human-Computer Interaction* **2003**, 15 (3), 407-417.
- Murata, A.; Miyoshi, T. Trade-Off Relationship Between Width and Depth of Visual Information Processing in Measurement of Functional Visual Field. *ICSMC '02: IEEE International Conference on Systems, Man and Cybernetics*, Nashville, Tennessee, USA, 2 1271-1276, 2000.
- Murrell, G. A. Combination of Evidence in a Probabilistic Visual Search and Detection Task. *Organizational Behavior & Human Performance* **1977**, 18 (1), 3-18.
- Murtagh, F.; Taskaya, T.; Contreras, P.; Mothe, J.; Englmeier, K. Interactive Visual User Interfaces: A Survey. *Artificial Intelligence Review* **2003**, 19 (4), 263-283.
- Mussa-Ivaldi, F. A.; Miller, L. E. Brain-Machine Interfaces: Computational Demands and Clinical Needs Meet Basic Neuroscience. *Trends in Neurosciences* **2003**, 26 (6), 329-334.
- Mykityshyn, A. L.; Fisk, A. D.; Rogers, W. A. Learning to Use a Home Medical Device: Mediating Age-Related Differences With Training. *Human Factors* **2002**, 44 (3), 354-364.
- Nakamura, N.; Fukui, Y. Development of a Force and Torque Hybrid Display "GyroCubeStick". *WHC '05: Proceedings of the 1st Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Pisa, Italy, 633-634, 2005.

- Nash, A. J.; Fernandez, M. P300 and Allocation of Attention in Dual-Tasks. *International Journal of Psychophysiology* **1996**, 23 (3), 171-180.
- Nashel, A.; Razzaque, S. Tactile Virtual Buttons for Mobile Devices. *CHI '03: CHI '03 Extended Abstracts on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 854-855, from <http://doi.acm.org/10.1145/765891.766032>, 2003.
- Nesbitt, K. V.; Gallimore, R. J.; Orenstein, B. J. Using Force Feedback for Multi-Sensory Display. *AUIC '01: Proceedings of the 2nd Australasian Conference on User Interface*, Queensland, Australia, 64-68, 2001.
- Nevis, A.; Hilton, R. J.; Taylor, S. J.; Cordes, B.; McLean, J. W. Advantages of Three-Dimensional Electro-Optic Imaging Sensors. *Detection and Remediation Technologies for Mines and Minelike Targets VIII*, 5089, 225-237, 2003.
- Niemela, M.; Saarinen, J. Visual Search for Grouped Versus Ungrouped Icons in a Computer Interface. *Human Factors* **2000**, 42 (4), 630-635.
- Nikolic, M. I.; Orr, J.; Sarter, N. B. The Effects of Display Context on the Effectiveness of Visual Onsets for Attention Capture. *DASC '01: Proceedings of the 20th Conference on Digital Avionics Systems*, Daytona Beach, Florida, USA, 1 5A3/1-5A3/7, 2001.
- Nikolic, M. I.; Orr, J. M.; Sarter, N. B. Why Pilots Miss the Green Box: How Display Context Undermines Attention Capture. *International Journal of Aviation Psychology* **2004**, 14 (1), 39-52.
- Nikolic, M. I.; Sarter, N. B. Peripheral Visual Feedback: A Powerful Means of Supporting Effective Attention Allocation in Event-Driven, Data-Rich Environments. *Human Factors* **2001**, 43 (1), 30-38.
- Noma, H.; Miyasato, T.; Kishino, F. A Palmtop Display for Dextrous Manipulation With Haptic Sensation. *CHI '96: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Vancouver, British Columbia, Canada, 126-133, from <http://doi.acm.org/10.1145/238386.238454>, 1996.
- Oakley, I.; O'Modhrain, S. Tilt to Scroll: Evaluating a Motion Based Vibrotactile Mobile Interface. *WHC '05: Proceedings of the 1st Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Pisa, Italy, 40-49, 2005.
- Oakley, I.; Brewster, S.; Gray, P. Solving Multi-Target Haptic Problems in Menu Interaction. *CHI '01: CHI '01 Extended Abstracts on Human Factors in Computing Systems*, Seattle, Washington, USA, 357-358, from <http://doi.acm.org/10.1145/634067.634278>, 2001.

- Oakley, I.; McGee, M. R.; Brewster, S.; Gray, P. Putting the Feel in “Look and Feel”. *CHI '00: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, The Hague, The Netherlands, 415-422, from <http://doi.acm.org/10.1145/332040.332467>, 2000.
- O'Hagan, R. G.; Zelinsky, A.; Rougeaux, S. Visual Gesture Interfaces for Virtual Environments. *Interacting with Computers* **2002**, 14 (3), 231-250.
- Ojanpää, H.; Näsänen, R. Effects of Luminance and Colour Contrast on the Search of Information on Display Devices. *Displays* **2003**, 24 (4), 167-178.
- Oliver, N.; Horvitz, E. Selective Perception Policies for Guiding Sensing and Computation in Multimodal Systems: A Comparative Analysis. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 36-43, from <http://doi.acm.org/10.1145/958432.958442>, 2003.
- Olmos, O.; Liang, C. C.; Wickens, C. D. Electronic Map Evaluation in Simulated Visual Meteorological Conditions. *International Journal of Aviation Psychology* **1997**, 7 (1), 37-66.
- Olmos, O.; Wickens, C. D.; Chudy, A. Tactical Displays for Combat Awareness: An Examination of Dimensionality and Frame of Reference Concepts and the Application of Cognitive Engineering. *International Journal of Aviation Psychology* **2000**, 10 (3), 247-271.
- O'Modhrain, S. Touch and Go - Designing Haptic Feedback for a Hand-Held Mobile Device. *BT Technology Journal* **2004**, 22 (4), 139-145.
- Oniszczak, A.; MacKenzie, I. S. A Comparison of Two Input Methods for Keypads on Mobile Devices. *NordiCHI '04: Proceedings of the Third Nordic Conference on Human-Computer Interaction*, Tampere, Finland, 101-104, from <http://doi.acm.org/10.1145/1028014.1028030>, 2004.
- Oritsland, T. A.; Buur, J. Interaction Styles: An Aesthetic Sense of Direction in Interface Design. *International Journal of Human-Computer Interaction* **2003**, 15 (1), 67-85.
- Ostnes, R.; Abbott, V.; Lavender, S. Visualisation Techniques: An Overview - Part 1. *Hydrographic Journal* **2004**, 113, 3-7.
- Oswalt, I. Technology Trends in Military Simulation. *WSC '95: Proceedings of the 27th Conference on Winter Simulation*, Arlington, Virginia, USA, 1152-1157, from <http://doi.acm.org/10.1145/224401.224788>, 1995.
- Ota, N. *Tactile Vest Project*; No. TVP 39-646, Carnegie Mellon University, 2001.

- Otaduy, M. A.; Lin, M. C. A Perceptually-Inspired Force Model for Haptic Texture Rendering. *APGV '04: Proceedings of the 1st Symposium on Applied Perception in Graphics and Visualization*, Los Angeles, California, USA, 123-126, from <http://doi.acm.org/10.1145/1012551.1012574>, 2004.
- Otaduy, M. A.; Lin, M. C. User-Centric Viewpoint Computation for Haptic Exploration and Manipulation. *VIS '01: Proceedings of the Conference on Visualization*, San Diego, California, USA. 311-318, 2001.
- Oulasvirta, A.; Tamminen, S.; Roto, V.; Kuorelahti, J. Interaction in 4-Second Bursts: The Fragmented Nature of Attentional Resources in Mobile HCI. *CHI '05: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Portland, Oregon, USA, 919-928, from <http://doi.acm.org/10.1145/1054972.1055101>, 2005.
- Overbye, T. J.; Sun, Y.; Wiegmann, D. A.; Rich, A. M. Human Factors Aspects of Power System Visualizations: An Empirical Investigation. *Electric Power Components & Systems* **2002**, 30 (8), 877-888.
- Oviatt, S.; Darrell, T.; Flickner, M. Multimodal Interfaces That Flex, Adapt, and Persist. *Communications of the ACM* **2004**, 47 (1), 30-33.
- Oviatt, S. Ten myths of Multimodal Interaction. *Communications of the ACM* **1999**, 42 (11), 74-81.
- Oviatt, S.; Cohen, P. Perceptual User Interfaces: Multimodal Interfaces That Process What Comes Naturally. *Communications of the ACM* **2000**, 43 (3), 45-53.
- Oviatt, S.; Coulston, R.; Lunsford, R. When do we Interact Multimodally? Cognitive Load and Multimodal Communication Patterns. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 129-136, from <http://doi.acm.org/10.1145/1027933.1027957>, 2004 .
- Oviatt, S.; Lunsford, R.; Coulston, R. Individual Differences in Multimodal Integration Patterns: What are They and Why do They Exist? *CHI '05: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Portland, Oregon, USA, 241-249, from <http://doi.acm.org/10.1145/1054972.1055006>, 2005.
- Oving, A. B.; Veltman, J. A.; Bronkhorst, A. W. Effectiveness of 3-D Audio for Warnings in the Cockpit. *International Journal of Aviation Psychology* **2004**, 14 (3), 257-276.
- Page, D. J.; Ells, J. G. Combining Letter-Matching and Tone Discrimination: Evidence of Automatic Perceptual and Spatial Congruity Effects. *Quarterly Journal of Experimental Psychology: Human Experimental Psychology* **1993**, 46 (1), 161-180.
- Palmer, C. Desktop Data Mapping: A Review of MapPoint, Maptitude, and GeoMedia. *Searcher* **2002**, 10 (6), 64-68.

- Parasuraman, R.; Sheridan, T.; Wickens, C. A Model for Types and Levels of Human Interaction with Automation. *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Human s* **2000**, *30* (3), 286-297.
- Parasuraman, R.; Masalonis, A. J.; Hancock, P. A. Fuzzy Signal Detection Theory: Basic Postulates and Formulas for Analyzing Human and Machine Performance. *Human Factors* **2000**, *42* (4), 636-659.
- Park, S. H.; Woldstad, J. C. Multiple Two-Dimensional Displays as an Alternative to Three-Dimensional Displays in Telrobotic Tasks. *Human Factors* **2000**, *42* (4), 592-603.
- Park, J.; Kim, S.; Son, S.; Kwon, D. Shape Retaining Chain Linked Model for Real-Time Volume Haptic Rendering. *VVS '02: Proceedings of the 2002 IEEE Symposium on Volume Visualization and Graphics*, Boston, Massachusetts, USA, 65-72, 2002.
- Park, K. S.; Lim, C. J. A Simple Vision-Based Head Tracking Method for Eye-Controlled Human/Computer Interface. *International Journal of Human-Computer Studies* **2001**, *54* (3), 319-332.
- Park, S. H.; Woldstad, J. C. Multiple Two-Dimensional Displays as an Alternative to Three-Dimensional Displays in Telerobotic Tasks. *Human Factors* **2000**, *42* (4), 592-603.
- Parush, A. An Empirical Evaluation of Textual Display Configurations for Supervisory Tasks. *Behaviour and Information Technology* **2004**, *23* (4), 225-235.
- Pashler, H. Graded Capacity-Sharing in Dual-Task Interference. *Journal of Experimental Psychology-Human Perception and Performance* **1994**, *20* (2), 330-342.
- Pashler, H. Doing 2 Things at the Same Time. *American Scientist* **1993**, *81* (1), 48-55.
- Pashler, H. Dual-Task Interference and Elementary Mental Mechanisms. *Attention and Performance* **1993**, (14), 245-264.
- Pashler, H. Attention and Visual Perception: Analyzing Divided Attention. In S. M. Kosslyn, & D. N. Osherson (Eds.), *Visual cognition: An invitation to cognitive science, vol. 2 (2nd ed.)*, (pp. 71-100), The MIT Press, 1995.
- Pashler, H. Divided Attention: Storing and Classifying Briefly Presented Objects. *Psychonomic Bulletin & Review* **1994**, *1* (1), 115-118.
- Pashler, H. Dual-Task Interference in Simple Tasks: Data and Theory. *Psychological Bulletin* **1994**, *116* (2), 220-244.
- Pashler, H. Attentional Limitations in Doing Two Tasks at the Same Time. *Current Directions in Psychological Science* **1992**, *1* (2), 44-48.

- Pashler, H. Shifting Visual Attention and Selecting Motor Responses: Distinct Attentional Mechanisms. *Journal of Experimental Psychology: Human Perception & Performance* **1991**, 17 (4), 1023-1040.
- Pashler, H. Do Response Modality Effects Support Multiprocessor Models of Divided Attention? *Journal of Experimental Psychology: Human Perception & Performance* **1990**, 16 (4), 826-842.
- Pashler, H. Cross-Dimensional Interaction and Texture Segregation. *Perception & Psychophysics* **1988**, 43 (4), 307-318.
- Pashler, H. Familiarity and Visual Change Detection. *Perception & Psychophysics* **1988**, 44 (4), 369-378.
- Pashler, H. Detecting Conjunctions of Color and Form: Reassessing the Serial Search Hypothesis. *Perception & Psychophysics* **1987**, 41 (3), 191-201.
- Pashler, H. Processing Stages in Overlapping Tasks: Evidence for a Central Bottleneck. *Journal of Experimental Psychology: Human Perception & Performance* **1984**, 10 (3), 358-377.
- Pashler, H. E. *The Psychology of Attention*, The MIT Press, 1998.
- Pashler, H.; Badgio, P. C. Visual Attention and Stimulus Identification. *Journal of Experimental Psychology: Human Perception & Performance* **1985**, 11 (2), 105-121.
- Pashler, H.; Baylis, G. C. Procedural Learning: II. Intertrial Repetition Effects in Speeded-Choice Tasks. *Journal of Experimental Psychology: Learning, Memory, & Cognition* **1991**, 17 (1), 33-48.
- Pashler, H.; Harris, C. R. Spontaneous Allocation of Visual Attention: Dominant Role of Uniqueness. *Psychonomic Bulletin & Review* **2001**, 8 (4), 747-752.
- Pashler, H.; Johnston, J. C. Chronometric Evidence for Central Postponement in Temporally Overlapping Tasks. *Quarterly Journal of Experimental Psychology: Human Experimental Psychology* **1989**, 41 (1), 19-45.
- Pashler, H.; Johnston, J. C.; Ruthruff, E. Attention and Performance. *Annual Review of Psychology* **2001**, 52, 629-651.
- Pashler, H.; Jolicoeur, P.; Dell'Acqua, R.; Crebolder, J.; Goschke, T.; De Jong, R.; et al. Task Switching and Multitask Performance. In S. Monsell, & J. Driver (Eds.), *Control of Cognitive Processes: Attention and Performance XVIII*, (pp. 275-423), The MIT Press, 2000.
- Pashler, H.; O'Brien, S. Dual-Task Interference and the Cerebral Hemispheres. *Journal of Experimental Psychology: Human Perception & Performance* **1993**, 19 (2), 315-330.

- Pastizzo, M. J.; Erbacher, R. F.; Feldman, L. B. Multidimensional Data Visualization. *Behavior Research Methods, Instruments & Computers* **2002**, 34 (2), 158162.
- Patomaki, S. Multimodal Interfaces and Applications for Visually Impaired Children. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 351-351, from <http://doi.acm.org/10.1145/1027933.1028009>, 2004.
- Patomaki, S.; Raisamo, R.; Salo, J.; Pasto, V.; Hippula, A. Experiences on Haptic Interfaces for Visually Impaired Young Children. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 281-288, from <http://doi.acm.org/10.1145/1027933.1027979>, 2004.
- Payandeh, S.; Dill, J.; Wilson, G.; Zhang, H.; Shi, L.; Lomax, A.; et al. Demo: A Multi-Modal Training Environment for Surgeons. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 301-302, from <http://doi.acm.org/10.1145/958432.958489>, 2003.
- Peebles, D.; Cheng, P. C. H. Modeling the Effect of Task and Graphical Representation on Response Latency in a Graph Reading Task. *Human Factors* **2003**, 45 (1), 28-46.
- Peeva, D. Haptic and Audio Correlation in User Interfaces. *J. Comput. Small Coll.* **2004**, 19 (5), 329-330.
- Pentland, A. Perceptual User Interfaces: Perceptual Intelligence. *Communications of the ACM* **2000**, 43 (3), 35-44.
- Perrott, D. R.; Constantino, B.; Cisneros, J. Auditory and Visual Localization Performance in a Sequential Discrimination Task. *Journal of Acoustical Society of America* **1992**, 93 (4), 2134-2138.
- Perrott, D. R.; Sadralodabai, T.; Saberi, K.; Strybel, T. Z. Aurally-Aided Visual Search in the Central Visual Field: Effect of Visual Load and Visual Enhancement of the Target. *Human Factors* **1991**, 33, 389-400.
- Petersen, K. T.; Hansen, S. D.; Sorensen, J. A. Modeling and Evaluation of Multimodal Perceptual Quality. *Signal Processing Magazine, IEEE* **1997**, 14 (4), 38-39.
- Piateski, E.; Jones, L. Vibrotactile Pattern Recognition on the Arm and Torso. *WHC '05: Proceedings of the First Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Pisa, Italy, 90-95, 2005.
- Pierno, A. C.; Caria, A.; Castiello, U. Comparing Effects of 2-D and 3-D Visual Cues During Aurally-Aided Target Acquisition. *Human Factors* **2004**, 46 (4), 728-737.

- Pierno, A. C.; Caria, A.; Glover, S.; Castiello, U. Effects of Increasing Visual Load on Aurally and Visually Guided Target Acquisition in a Virtual Environment. *Applied Ergonomics* **2005**, 36 (3), 335-343.
- Plaue, C.; Miller, T.; Stasko, J. Is a Picture Worth a Thousand Words? An Evaluation of Information Awareness Displays. *GI '04: Proceedings of the 2004 Conference on Graphics Interface*, London, Ontario, Canada, 117-126, 2004.
- Plesniak, W.; Pappu, R. Coincident Display Using Haptics and Holographic Video. *CHI '98: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Los Angeles, California, USA, 304-311, from <http://doi.acm.org/10.1145/274644.274687>, 1998.
- Plumlee, M. D. *Linking Focus and Context in Three-Dimensional Multiscale Environments*, Univ Microfilms International, 2004.
- Pocheville, A.; Kheddar, A.; Yokoi, K. I-TOUCH: A Generic Multimodal Framework for Industry Virtual Prototyping. *TEXCRA '04. 1st IEEE Technical Exhibition Based Conference on Robotics and Automation*, Minato-ku, Japan, 65-66, 2004.
- Polovnikov, O. Navigation and Steering During Manual Rendezvous With the Space Station. *Aerospace Science and Technology* **2004**, 8 (7), 645-651.
- Ponds, R. W.; Brouwer, W. H.; Van Wolffelaar, P. C. Age Differences in Divided Attention in a Simulated Driving Task. *Journals of Gerontology* **1988**, 43 (6), P151-156.
- Popescu, D. C.; Compton, M. A Model for Efficient and Accurate Interaction With Elastic Objects in Haptic Virtual Environments. *GRAPHITE '03: Proceedings of the 1st International Conference on Computer Graphics and Interactive Techniques in Australasia and South East Asia*, Melbourne, Australia, 245-250, from <http://doi.acm.org/10.1145/604471.604518>, 2003.
- Postle, B. R.; D'Esposito, M.; Corkin, S. Effects of Verbal and Nonverbal Interference on Spatial and Object Visual Working Memory. *Memory & Cognition* **2005**, 33 (2), 203-212.
- Poupyrev, I.; Maruyama, S. Tactile Interfaces for Small Touch Screens. *UIST '03: Proceedings of the 16th Annual ACM Symposium on User Interface Software and Technology*, Vancouver, Canada, 217-220, from <http://doi.acm.org/10.1145/964696.964721>, 2003.
- Poupyrev, I.; Maruyama, S.; Rekimoto, J. Ambient Touch: Designing Tactile Interfaces for Handheld Devices. *UIST '02: Proceedings of the 15th Annual ACM Symposium on User Interface Software and Technology*, Paris, France, 51-60, from <http://doi.acm.org/10.1145/571985.571993>, 2002.
- Poupyrev, I.; Okabe, M.; Maruyama, S. Haptic Feedback for Pen Computing: Directions and Strategies. *CHI '04: CHI '04 Extended Abstracts on Human Factors in Computing Systems*, Vienna, Austria, 1309-1312, from <http://doi.acm.org/10.1145/985921.986051>, 2004.

- Poupyrev, I.; Rekimoto, J.; Maruyama, S. TouchEngine: A Tactile Display for Handheld Devices. *CHI '02: CHI '02 Extended Abstracts on Human Factors in Computing Systems*, Minneapolis, Minnesota, USA, 644-645, from <http://doi.acm.org/10.1145/506443.506525>, 2002.
- Prabhu, G. V. *In-Vehicle Navigation Displays: A Human Attention and Information Processing Model*, Univ Microfilms International, 1996.
- Prather, S. C. *Positron Emission Tomographic Investigation of Cross-Modal Interactions Between Touch and Vision in Humans*, Univ Microfilms International, 2003.
- Pratt, J. H. *Development of Cognitive Styles and Strategies in the Visual Discrimination of Computer Displayed Graphics: Task Characteristics, Training and Design*, Univ Microfilms International, 2003.
- Preusche, C., Hoogen, J., Reintsema, D., Schmidt, G., & Hirzinger, G. Flexible Multimodal Telepresent Assembly Using a Generic Interconnection Framework. *ICRA '02: Proceedings of the IEEE International Conference on Robotics and Automation*, Washington, D.C., USA, 4 3712-3718, 2002.
- Prinzo, O. V. Pilot's Visual Acquisition of Traffic Operational Communication From an In-Flight Evaluation of a Cockpit Display of Traffic Information. *International Journal of Aviation Psychology* **2003**, 13 (3), 211-231.
- Proctor, R. W.; Tan, H. Z.; Vu, K. L.; Gray, R.; Spence, C. Implications of Compatibility and Cuing Effects of Multimodal Interfaces. *Proceedings of HCI International*, 2005.
- Prynne, K. B. L. Design of Visual, Audio and Tactile Interfaces for New Vehicle Control Systems. *IEEE Colloquium on Design of the Driver Interface*, London, England, 6/1-6/4, 1995.
- Rabinowitz, W. M.; Houtsma, A. J. M.; Durlach, N. L.; DEL-Horne, L. A. Multidimensional Tactile Displays: Identification of Vibratory Intensity, Frequency, and Contactor Area. *Journal of the Acoustical Society of America* **1987**, 82, 1243-1252.
- Raj, A. K.; McGrath, B. J.; Rochlis, J.; Newman, D. J.; Rupert, A. H. The Application of Tactile Cues to Enhance Situation Displays. *Proceedings for the Third Annual Symposium and Exhibition on Situational Awareness in the Tactical Air Environment*, 77-84, from <http://search.epnet.com/login.aspx?direct=true&db=psychref&an=2004.22278.0040018>, 1998.
- Raj, A.; Kass, S.; Perry, J. Vibrotactile Displays for Improving Spatial Awareness. *Proceedings of the Human Factors and Ergonomics Society*, San Diego, 2000.

- Raj, A.; Perry, J.; Kass, S.; Carff, R.; Diamond, D.; Suri, N.; et al. *Final Research Report for Intelligent Human Computer Tactile Interfaces for Rotorcraft and Civil Aviation*; No. NASA AMES Research Center Grant NAG-2-1226.
- Raj, A.; Perry, J.; Kass, S.; Rupert, A. *Tactile Interfaces for Improved Situation Awareness During Remote Piloting*; No. NASA Langley Research Center grant NAG 1 2236.
- Ramloll, R.; Yu, W.; Brewster, S.; Riedel, B.; Burton, M.; Dimigen, G. Constructing Sonified Haptic Line Graphs for the Blind Student: First Steps. *ASSETS '00: Proceedings of the Fourth International ACM Conference on Assistive Technologies*, Arlington, Virginia, USA, 17-25, from <http://doi.acm.org/10.1145/354324.354330>, 2000.
- Ramstein, C. Combining Haptic and Braille Technologies: Design Issues and Pilot Study. *ASSETS '96: Proceedings of the 2nd Annual ACM Conference on Assistive Technologies*, Vancouver, British Columbia, Canada, 37-44, from <http://doi.acm.org/10.1145/228347.228355>, 1996.
- Ramstein, C.; Arcand, J.; Deveault, M. Adaptive User Interfaces With Force Feedback. *CHI '96: Conference Companion on Human Factors in Computing Systems*, Vancouver, British Columbia, Canada, 406-407, from <http://doi.acm.org/10.1145/257089.257400>, 1996.
- Ramstein, C.; Hayward, V. The Pantograph: A Large Workspace Haptic Device for Multimodal Human Computer Interaction. *CHI '94: Conference Companion on Human Factors in Computing Systems*, Boston, Massachusetts, USA, 57-58, from <http://doi.acm.org/10.1145/259963.260039>, 1994.
- Ramstein, C.; Martial, O.; Dufresne, A.; Carignan, M.; Chasse, P.; Mabillean, P. Touching and Hearing GUI's: Design Issues for the PC-Access System. *ASSETS '96: Proceedings of the Second Annual ACM Conference on Assistive Technologies*, Vancouver, British Columbia, Canada, 2-9, from <http://doi.acm.org/10.1145/228347.228349>, 1996.
- Raskar, R.; Welch, G.; Cutts, M.; Lake, A.; Stesin, L.; Fuchs, H. The Office of the Future: A United Approach to Image-Based Modeling and Spatially Immersive Displays, 1998.
- Rayner, K.; Liversedge, S. P. Visual and linguistic processing during eye fixations in reading. In J. M. Henderson, & F. Ferreira (Eds.), *Interface of language, vision, and action: Eye movements and the visual world*, (pp. 59-104), Psychology Press, 2004.
- Read, B. Seeing Clearly (New Enhanced Visual Systems Based on Infrared Sensors). *Aerospace International* **2002**, 29 (5), 30-33.
- Reilly, K. D.; Bray, N. W.; Jackson, M. Approaches to Cognitive System Simulation: Architectures and Animations. *SIMSYM '00: Proceedings of the 33rd Annual Simulation Symposium*, Washington, D.C., USA, 198-207, 2000.

- Reimersdahl, T. V.; Bley, F.; Kuhlen, T.; Bischof, C. H. Haptic Rendering Techniques for the Interactive Exploration of CFD Datasets in Virtual Environments. *EGVE '03: Proceedings of the Workshop on Virtual Environments 2003*, Zurich, Switzerland, 241-246, from <http://doi.acm.org/10.1145/769953.769981>, 2003.
- Reingold, E. M.; Loschky, L. C.; McConkie, G. W.; Stampe, D. Gaze-Contingent Multiresolutional Displays: An Integrative Review. *Human Factors* **2003**, 45 (2), 307-328.
- Reising, J. M.; Liggett, K. K.; Hartsock, D. C. Exploring Techniques for Target Designation Using 3-D Stereo Map Displays. *International Journal of Aviation Psychology* **1993**, 3 (3), 169-187.
- Rekimoto, J. ThumbSense: Automatic Input Mode Sensing for Touchpad-Based Interactions. *CHI '03: CHI '03 Extended Abstracts on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 852-853, from <http://doi.acm.org/10.1145/765891.766031>, 2003.
- Remington, R. W.; Johnston, J. C.; Ruthruff, E.; Gold, M.; Romera, M. Visual Search in Complex Displays: Factors Affecting Conflict Detection by Air Traffic Controllers. *Human Factors* **2000**, 42 (3), 349-366.
- Renshaw, J. A.; Finlay, J. E.; Tyfa, D.; Ward, R. D. Understanding Visual Influence in Graph Design Through Temporal and Spatial Eye Movement Characteristics. *Interacting with Computers* **2004**, 16 (3), 557-578.
- Rensink, R. A. Internal vs. External Information in Visual Perception. *SMARTGRAPH '02: Proceedings of the 2nd International Symposium on Smart Graphics*, Hawthorne, New York, USA, 63-70, from <http://doi.acm.org/10.1145/569005.569015>, 2002.
- Repperger, D.; Gilkey, R. H.; Green, R.; LaFleur, T. C.; Huas, M. *A Landing Task Investigation Involving Haptics in a Cave Environment*, 2001.
- Revels, A. R.; Kancler, D. E.; Quill, L. L. Evaluation of Mobile Computing Displays. *Proceedings of the SPIE International Society for Optical Engineering* **2000**, 4021, 33-44.
- Richard, C. M.; Wright, R. D.; Ee, C. Effect of a Concurrent Auditory Task on Visual Search Performance in a Driving-Related Image-Flicker Task. *Human Factors* **2002**, 44 (1), 108-119.
- Richards, E. D. *The Shift from Feature-Based to Object-Based Representations in the Search for a Change: The Role of Short-Term Consolidation*, Univ Microfilms International, 2003.
- Riener, R.; Frey, M. T.; Proll, T.; Regenfelder, F.; Burgkart, R. Phantom-Based Multimodal Interactions for Medical Education and Training: The Munich Knee Joint Simulator. *IEEE Transactions on Information Technology in Biomedicine* **2004**, 8 (2), 208-216.

- Rimell, A.; Hollier, M. The Significance of Cross-Modal Interaction in Audio-Visual Quality Perception. *MMSP '99: Proceedings of the IEEE 3rd Workshop on Multimedia Signal Processing*, Copenhagen, Denmark, 509-514, 1999.
- Ritter, F.; Sonnet, H.; Hartmann, K.; Strothotte, T. Illustrative Shadows: Integrating 3D and 2D Information Displays. *IUI '03: Proceedings of the 8th International Conference on Intelligent User Interfaces*, Miami, Florida, USA, 166-173, from <http://doi.acm.org/10.1145/604045.604072>, 2003.
- Rizzo, A.; Parlangeli, O.; Marchigiani, E.; Bagnara, S. The Management of Human Errors in User-Centered Design. *SIGCHI Bulletin* **1996**, 28 (3), 114-118.
- Roberts, J. C. Visualization Equivalence for Multisensory Perception. *Computing in Science and Engineering* **2004**, 6 (3), 61-65.
- Roberts, S.; Pashler, H. Reply to Roders and Rowe (2002). *Psychological Review* **2002**, 109 (3), 605.
- Rocchesso, D. Audio Effects to Enhance Spatial Information Displays. *3DPVT '02: First International Symposium in 3D Data Processing Visualization and Transmission*, University of North Carolina, Chapel Hill, USA, 214-223, 2002.
- Rocchesso, D.; Bresin, R.; Fernstrom, M. Sounding Objects. *IEEE Multimedia* **2003**, 10 (2), 42-52.
- Rochlis, J. L.; Newman, D. J. A Tactile Display for International Space Station (ISS) Extra Vehicular Activity (EVA). *Aviation, Space, and Environmental Medicine* **2000**, 71, 571-578.
- Rodgers, J. L.; Rowe, D. C. Theory Development Should Begin (But Not End) With Good Empirical Fits: A Comment on Roberts and Pashler (2000). *Psychological Review* **2002**, 109 (3), 599-604.
- Rodgers, M. D.; Holding, D. Dual-Task Efficiency throughout the Day. *Human Performance* **1991**, 4 (3), 187-198.
- Rogers, S.; Asbury, C. *Obstacle Display for Hover in Degraded Visual Environments*; RDECOM TR 05-D-14; RDE COM U.S. Army Aviation Research, Development, and Engineering, 2005.
- Roginska, A. *Attention Redirection Based on the Spatial Presentation of Auditory Displays*, Univ Microfilms International, 2004.
- Rohrer, D.; Pashler, H. E. Concurrent Task Effects on Memory Retrieval. *Psychonomic Bulletin & Review* **2003**, 10 (1), 96-103.

- Rojas, D. C. *Alternating and Divided Attention in Dual Task Performance: Auditory, Visual, and Inter-Modal Event Related Potentials*, Univ Microfilms International, 1996.
- Rose, P. N. *The Effects of Auditory Noise on a Peripheral Visual Task in a Dual Task Paradigm*, Univ Microfilms International, 1991.
- Rosenberg, L. B. Design of a Virtual Rigid Surface: Haptic/Audio Registration. *CHI '94: Conference Companion on Human Factors in Computing Systems*, Boston, Massachusetts, USA, 257-258, from <http://doi.acm.org/10.1145/259963.260473>, 1994.
- Rossi, A. F.; Paradiso, M. A. Feature-Specific Effects of Selective Visual Attention. *Vision Research* **1995**, 35 (5), 621-634.
- Rovers, A. F.; Essen, H. A. V. HIM: A Framework for Haptic Instant Messaging. *CHI '04: CHI '04 Extended Abstracts on Human Factors in Computing Systems*, Vienna, Austria, 1313-1316, from <http://doi.acm.org/10.1145/985921.986052>, 2004.
- Rubakhin, V. F.; Poltorak, M. I. A Study of the Processing of Multimodal Signals by Man. *Voprosy Psichologii* **1974**, 5, 71-80.
- Ruddle, R. A.; Peruch, P. Effects of Proprioceptive Feedback and Environmental Characteristics on Spatial Learning in Virtual Environments. *International Journal of Human-Computer Studies* **2004**, 60 (3), 299-326.
- Ruddle, R. A.; Savage, J. C.; Jones, D. M. Verbal Communication During Cooperative Object Manipulation. *CVE '02: Proceedings of the 4th International Conference on Collaborative Virtual Environments*, Bonn, Germany, 120-127, from <http://doi.acm.org/10.1145/571878.571897>, 2002.
- Rudmann, D. S.; McCarley, J. S.; Kramer, A. F. Bimodal Displays Improve Speech Comprehension in Environments With Multiple Speakers. *Human Factors* **2003**, 45 (2), 329-336.
- Rupert, A. H. An Instrumentation Solution for Reducing Spatial Disorientation Mishaps. *Engineering in Medicine and Biology Magazine, IEEE* **2000**, 19 (2), 71-80.
- Rupert, A. H. Tactile Situation Awareness System: Proprioceptive Prostheses for Sensory Deficiencies. *Aviation, Space, & Environmental Medicine* **2000**, 71 (9), A92-A99.
- Ruspini, D. C.; Kolarov, K.; Khatib, O. The Haptic Display of Complex Graphical Environments. *SIGGRAPH '97: Proceedings of the 24th Annual Conference on Computer Graphics and Interactive Techniques*, Los Angeles, California, USA, 345-352, from <http://doi.acm.org/10.1145/258734.258878>, 1997.

- Ruthruff, E.; Pashler, H. E. Perceptual and Central Interference in Dual-Task Performance. In K. Shapiro (Ed.), *Limits of attention: Temporal constraints in human information processing*, (pp. 100-123), Oxford University Press, 2001.
- Ruthruff, E.; Pashler, H. E.; Hazeltine, E. Dual-Task Interference With Equal Task Emphasis: Graded Capacity Sharing or Central Postponement? *Perception & Psychophysics* **2003**, 65 (5), 801-816.
- Ruthruff, E.; Pashler, H. E.; Klaassen, A. Processing Bottlenecks in Dual-Task Performance: Structural Limitation or Strategic Postponement? *Psychonomic Bulletin & Review* **2001**, 8 (1), 73-80.
- Ryu, D.; Kang, S.; Kim, M.; Song, J. B. Multi-Modal User Interface for Teleoperation of ROBHAZ-DT2 Field Robot System. *IROS '04: Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems*, Alberat, Canada, 1 168-173, 2004.
- Saenko, K.; Darrell, T.; Glass, J. R. Articulatory Features for Robust Visual Speech Recognition. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 152-158, from <http://doi.acm.org/10.1145/1027933.1027960>, 2004.
- Saito, D. N.; Okada, T.; Morita, Y.; Yonekura, Y.; Sadato, N. Tactile--Visual Cross-Modal Shape Matching: A Functional MRI Study. *Cognitive Brain Research* **2003**, 17 (1), 14-25.
- Salisbury, K.; Brock, D.; Massie, T.; Swarup, N.; Zilles, C. Haptic Rendering: Programming Touch Interaction With Virtual Objects. *SI3D '95: Proceedings of the 1995 Symposium on Interactive 3D Graphics*, Monterey, California, USA, 123-130, from <http://doi.acm.org/10.1145/199404.199426>, 1995.
- Sallnas, E.; Rassmus, G.; Sjostrom, C. Supporting Presence in Collaborative Environments by Haptic Force Feedback. *ACM Transactions on Computer-Human Interactions* **2000**, 7 (4), 461-476.
- Salthouse, R. A.; Rogan, J. D.; Prill, K. A. Division of Attention: Age Differences on a Visually Presented Memory Task. *Memory and Cognition* **1984**, 12 (6), 613-620.
- Samman, S. N. *Multimodal Computing: Maximizing Working Memory Processing*, Univ Microfilms International, 2005.
- Sarter, N. Multimodal Information Presentation in Support of Human-Automation Communication and Coordination. In E. Salas (Ed.), *Advances in Human Performance and Cognitive Engineering Research*. New York: JAI Press, 2002.
- Sarter, N. B. The Need for Multisensory Interfaces in Support of Effective Attention Allocation in Highly Dynamic Event-Driven Domains: The Case of Cockpit Automation. *International Journal of Aviation Psychology* **2000**, 10 (3), 231-245.

- Sarter, N. B. Human Technology Interface: Multimodal Communication in Support of Coordinative Functions in Human-Machine Teams. *Journal of Human Performance in Extreme Environments* **2001**, 5 (2), 50-54.
- Sato, T.; Daimon, T.; Kawashima, H.; Kinoshita, M.; Ikeda, A. Fundamental Study on Human Interface of Narrow Road Drive Assist System Based on Drivers' Cognitive Process. *JSAE Review* **2003**, 24 (2), 189-196.
- Sax, L. M. *Individual Differences in the Development of Automaticity of a Visual Classification Task*, Univ Microfilms International, 1996.
- Schindler, E. New Sensations. *NetWorker* **2003**, 7 (3), 11-14.
- Schmidt, H.; Hesse, S.; Bernhardt, R.; Kruer, J. HapticWalker---A Novel Haptic Foot Device. *ACM Transactions on Applied Perceptions (TAP)* **2005**, 2 (2), 166-180.
- Schneider, M.; Kiesler, S. Calling While Driving: Effects of Providing Remote Traffic Context. *CHI '05: Proceeding of in-Vehicle Interfaces*, Portland, Oregon, USA, 561-569, 2005.
- Schneider, W.; Shiffrin, R. M. Controlled and Automatic Human Information Processing: I. Detection, Search, and Attention. *Psychological Review* **1977**, 84 (1), 1-66.
- Schnupp, J. W. H.; Dawe, K. L.; Pollack, G. L. The Detection of Multisensory Stimuli in an Orthogonal Sensory Space. *Experimental Brain Research* **2005**, 162 (2), 181-190.
- Schrope, M. Simply Sensational. *New Scientist*, 2(June), 30-33, 2001.
- Schumacher, E. H. *Independent Concurrent Processing in Dual-Task Performance: Evidence for Adaptive Executive Control of Task Scheduling*, Univ Microfilms International, 1999.
- Schweickert, R.; Fisher, D. L.; Proctor, R. W. Steps Toward, Building Mathematical and Computer Models From Cognitive Task Analyses. *Human Factors* **2003**, 45 (1), 77-103.
- Seagull, F. J.; Sanderson, P. M. Anesthesia Alarms in Context: An Observational Study. *Human Factors* **2001**, 43 (1), 66-78.
- Seagull, F. J. *Problems with Auditory Alarms in Anesthesia and Tests of a Proposed Solution: Multimodal Multitask Performance with an Auditory Display*, Univ Microfilms International, 2002.
- Selcon, S. J.; Taylor, R. M.; Shadrake, R. A. *Multi-Modal Cockpit Warnings: Pictures, Words, or Both?*, 1992.
- Seligmann, D.; Mercuri, R.; Edmark, J. Providing Assurances in a Multimedia Interactive Environment. *CHI '95: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Denver, Colorado, USA, 250-256, from <http://doi.acm.org/10.1145/223904.223936>, 1995.

- Sen, A.; Kurseja, M.; Chatterjee, S. Role of Modality Sensitization in Dual Task Performance: An Experimental Investigation. *Indian Journal of Current Psychological Research* **1988**, 3 (1), 22-28.
- Seyranian, G. D. *Human Spatial Perception in Environments with Four Spatial Dimensions*, Univ Microfilms International, 2001.
- Shahabi, C.; Kolahdouzan, M. R.; Barish, G.; Zimmermann, R.; Yao, D.; Fu, K.; et al. Alternative Techniques for the Efficient Acquisition of Haptic Data. *SIGMETRICS '01: Proceedings of the 2001 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems*, Cambridge, Massachusetts, USA, 334-335, from <http://doi.acm.org/10.1145/378420.378830>, 2001.
- Shamonsky, D. J. *Tactile, Spatial Interfaces for Computer-Aided Design: Superimposing Physical Media and Computation*, Univ Microfilms International, 2004.
- Sheedy, J. E.; Subbaram, M.; Hayes, J. R. Filters on Computer Displays - Effects on Legibility, Performance and Comfort. *Behaviour & Information Technology* **2003**, 22 (6), 427-433.
- Shelton, B. E. *How Augmented Reality Helps Students Learn Dynamic Spatial Relationships*, Univ Microfilms International, 2004.
- Sherrick, C. Vibrotactile Pattern Perception: Some Findings and Applications. In M. A. Heller, & W. Schiff (Eds.), *Psychology of touch*, (pp. 189-217), Lawrence Erlbaum Associates, Inc, 1991.
- Shi, J.; Oraifige, I. A.; Hall, F. R. Adding Haptic Feedback to Engineering Simulation. *ISICT '03: Proceedings of the 1st International Symposium on Information and Communication Technologies*, Dublin, Ireland, 237-241, 2003.
- Shieh, K.; Lai, C.; Ellingstad, V. S. Effects of Report Order, Identification Method, and Stimulus Characteristics on Multidimensional Stimulus Identification. *Perceptual & Motor Skills* **1996**, 82 (1), 99-111.
- Shiffrin, R. M.; Schneider, W. Controlled and Automatic Human Information Processing: II. Perceptual Learning, Automatic Attending and a General Theory. *Psychological Review* **1977**, 84 (2), 127-190.
- Shimojo, M.; Shinohara, M.; Fukui, Y. Human Shape Recognition Performance for 3D Tactile Display. *ICSMC '97: IEEE International Conference on Systems, Man, and Cybernetics: 'Computational Cybernetics and Simulation'*, Orlando, Florida, USA, 4 3192-3197, 1997.
- Shub, Y.; Ashkenazi, I. E.; Reinberg, A. Differences Between Left- and Right-Hand Reaction Time Rhythms: Indications of Shifts in Strategies of Human Brain Activity. *Cognitive Brain Research* **1997**, 6 (2), 141-146.

- Shumway-Cook, A.; Woollacott, M. Attentional Demands and Postural Control: The Effect of Sensory Context. *Journals of Gerontology: Series A: Biological Sciences & Medical Sciences* **2000**, 55 (1), M10-M16.
- Simpson, B.; Bolia, R.; Draper, M. Spatial Audio Display Concepts Supporting Situation Awareness for Operators of Unmanned Aerial Vehicles. *Air Force Research Laboratory* **2004**, 61-64.
- Sinha, A. K.; Landay, J. A. Capturing User Tests in a Multimodal, Multidevice Informal Prototyping Tool. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 117-124, from <http://doi.acm.org/10.1145/958432.958457>, 2003.
- Siracusa, M.; Morency, L.; Wilson, K.; Fisher, J.; Darrell, T. A Multi-Modal Approach for Determining Speaker Location and Focus. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 77-80, from <http://doi.acm.org/10.1145/958432.958449>, . 2003
- Sirevaag, E. J.; Kramer, A. F.; Wickens, C. D.; Reisweber, M. Assessment of Pilot Performance and Mental Workload in Rotary Wing Aircraft. *Ergonomics* **1993**, 36 (9), 1121-1140.
- Sit, R. A.; Fisk, A. D. Age-Related Performance in a Multiple-Task Environment. *Human Factors* **1999**, 41 (1), 26-34.
- Sitti, M.; Hashimoto, H. Teleoperated Touch Feedback From the Surfaces at the Nanoscale: Modeling and Experiments. *IEEE/ASME Transactions on Mechatronics* **2003**, 8 (2), 287-298.
- Sjöström, C. Using Haptics in Computer Interfaces for Blind People. *CHI '01: CHI '01 Extended Abstracts on Human Factors in Computing Systems*, Seattle, Washington, USA, 245-246, from <http://doi.acm.org/10.1145/634067.634213>, 2001.
- Skitka, L. J.; Mosier, K.; Burdick, M. D. Accountability and Automation Bias. *International Journal of Human-Computers Studies* **2000**, 52 (4), 701-717.
- Sklar, A. E.; Sarter, N. B. Good Vibrations: Tactile Feedback in Support of Attention Allocation and Human-Automation Coordination in Event-Driven Domains. *Human Factors* **1999**, 41 (4), 543-552.
- Smallman, H. S.; Boynton, R. M. On the Usefulness of Basic Color Coding in an Information Display. *Displays* **1993**, 14 (3), 158-165.
- Smallman, H. S.; Boynton, R. M. Segregation of Basic Colors in an Information Display. *Journal of the Optical Society of America, A, Optics, Image & Science* **1990**, 7 (10), 1985-1994.

- Smith, C. M. Human Factors in Haptic Interfaces. *Crossroads* **1997**, 3 (3), 14-16.
- Snibbe, S. S.; MacLean, K. E.; Shaw, R.; Roderick, J.; Verplank, W. L.; Scheeff, M. Haptic Techniques for Media Control. *UIST '01: Proceedings of the 14th Annual ACM Symposium on User Interface Software and Technology*, Orlando, Florida, USA, 199-208, from <http://doi.acm.org/10.1145/502348.502387>, 2001.
- So, R. H. Y.; Chung, G. K. M.; Goonetilleke, R. S. Target-Directed Head Movements in a Head-Coupled Virtual Environment: Predicting the Effects of Lags Using Fitts' Law. *Human Factors* **1999**, 41 (3), 474-486.
- Sokoler, T.; Nelson, L.; Pedersen, E. R. Low-Resolution Supplementary Tactile Cues for Navigational Assistance. *Human Computer Interaction with Mobile Devices* **2002**, 2411, 369-372.
- Solis, J.; Marcheschi, S.; Portillo, O.; Raspolli, M.; Avizzano, C. A.; Bergamasco, M. The Haptic Desktop: A Novel 2D Multimodal Device. *ROMAN '04: IEEE 13th International Workshop on Robot and Human Interactive Communication*, Kurashiki, Okayama Japan, 521-526, 2004.
- Somberg, B. L.; Salthouse, T. A. Divided Attention Abilities in Young and Old Adults. *Journal of Experimental Psychology: Human Perception & Performance* **1982**, 8 (5), 651-663.
- Sommerich, C. M.; Joines, S. M. B.; Psihogios, J. P. Effects of Computer Monitor Viewing Angle and Related Factors on Strain, Performance, and Preference Outcomes. *Human Factors* **2001**, 43 (1), 39-55.
- Spence, C.; Driver, J.; Pavani, F. Crossmodal Influences on Tactile Perception: The Role of Attention in Multimodal Integration. *International Journal of Psychology* **2000**, 35 (3-4), 220-220.
- Spence, C. Multisensory Attention and Tactile Information-Processing. *Behavioural Brain Research* **2002**, 135 (1), 57-64.
- Spence, C. Crossmodal Attentional Capture: A Controversy Resolved? In C. L. Folk, & B. S. Gibson (Eds.), *Attraction, Distraction and Action: Multiple Perspectives on Attentional Capture*, (pp. 231-262), Elsevier Science, 2001.
- Spence, C.; Baddeley, R.; Zampini, M.; James, R.; Shore, D. I. Multisensory Temporal Order Judgments: When Two Locations are Better Than One. *Perception & Psychophysics* **2003**, 65 (2), 318-328.
- Spence, C.; Driver, J. Cross-Modal Links in Attention Between Audition, Vision, and Touch: Implications for Interface Design. *International Journal of Cognitive Ergonomics* **1997**, 1 (4), 351-373.

- Spence, C.; Driver, J. Audiovisual Links in Endogenous Covert Spatial Attention. *Journal of Experimental Psychology: Human Perception & Performance* **1996**, 22 (4), 1005-1030.
- Spence, C.; Read, L. Speech Shadowing While Driving: On the Difficulty of Splitting Attention Between Eye and Ear. *Psychological Science* **2003**, 14 (3), 251-256.
- Srinivasan, M. A.; Basdogan, C. Haptics in Virtual Environments: Taxonomy, Research Status, and Challenges. *Computers & Graphics* **1997**, 21 (4), 393-404.
- Stager, P.; Laabs, G. J. The Effect of Divided Attention on Probe Reaction Time in Multiple-Task Performance. *Canadian Journal of Psychology* **1977**, 31 (4), 174-183.
- Stanney, K.; Samman, S.; Reeves, L.; Hale, K.; Buff, W.; Bowers, C.; et al. A Paradigm Shift in Interactive Computing: Deriving Multimodal Design Principles From Behavioral and Neurological Foundations. *International Journal of Human-Computer Interaction* **2004**, 17 (2), 229-257.
- Stanton, N. A.; Baber, C. Alarm-Initiated Activities - An Analysis of Alarm Handling by Operators Using Text-Based Alarm Systems in Supervisory Control-Systems. *Ergonomics* **1995**, 38 (11), 2414-2431.
- Stapleton, L. Perceptual Attention to Contact Analogue Head-Up Displays. In Y. I. Noy (Ed.), *Ergonomics and Safety of Intelligent Driver Interfaces*, (pp. 261-271), Lawrence Erlbaum Associates, Inc, 1997.
- Stasko, J.; Miller, T.; Pousman, Z.; Plaue, C.; Ullah, O. Personalized Peripheral Information Awareness Through Information Art. *UbiComp '04: The Sixth International CONFERENCE on Ubiquitous Computing*, Nottingham, England, 2004.
- Stedmon, A. W.; Kalawsky, R. S.; Hill, K.; Cook, C. A. Old Theories, New Technologies: Cumulative Clutter Effects Using Augmented Reality. *IV '99: Proceedings of the 1999 IEEE International Conference on Information Visualization*, London, England, 132-137, 1999.
- Stewart, J.; Bederson, B. B.; Druin, A. Single Display Groupware: A Model for Co-Present Collaboration. *CHI '99: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Pittsburgh, Pennsylvania, United States, 286-293, from <http://doi.acm.org/10.1145/302979.303064>, 1999.
- Stopher, P. R.; Bullock, P.; Jiang, Q. Visualizing Trips and Travel Characteristics From GPS Data. *Road & Transport Research Journal* **2003**, 12 (2), 3-14.
- Strosslin, T.; Krebsner, C.; Arleo, A.; Gerstner, W. Combining Multimodal Sensory Input for Spatial Learning. *Artificial Neural Networks - ICANN 2002* **2002**, 2415, 87-92.

- Stuwe, R.; Baur, B. Modern Fighter Pilot Performance Enhancement. *Military Technology* **2002**, 26 (11), 22-23.
- Summers, I.; Chanter, C.; Southall, A.; Brady, A. Results From a Tactile Array on the Fingertip. *Conference Proceedings of EuroHaptics 2001*, Birmingham, UK, 26-28, 2001.
- Sun, X. H.; Zhang, K. In-Vehicle Navigation Information Display: Integration of Visual and Auditory Presentation. *International Journal of Psychology* **2004**, 39 (5-6), 38-38.
- Suzuki, K. Effects of Divided Attention to Visual and Auditory-Stimuli on Event-Related Potentials. *Japanese Journal of Psychology* **1991**, 62 (2), 67-74.
- Swan, L.; Otani, H.; Loubert, P. V.; Sheffert, S. M.; Dunbar, G. L. Improving Balance by Performing a Secondary Cognitive Task. *British Journal of Psychology* **2004**, 95, 31-40.
- Swindells, C.; Unden, A.; Sang, T. TorqueBAR: An Ungrounded Haptic Feedback Device. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 52-59, from <http://doi.acm.org/10.1145/958432.958445>, 2003.
- Szewczyk, J. Difficulties With the Novices' Comprehension of the Computer-Aided Design (CAD) Interface: Understanding Visual Representations of CAD Tools. *Journal of Engineering Design* **2003**, 14 (2), 169-185.
- Tachi, S.; Komoriya, K.; Sawada, K.; Nishiyama, T.; Itoko, T.; Kobayashi, M., et al. Telexistence Cockpit for Humanoid Robot Control. *Advanced Robotics* **2003**, 17 (3), 199-217.
- Tan, H. Z.; Gray, R.; Young, J. J.; Traylor, R. A Haptic Back Display for Attentional and Directional Cueing. *Haptics-e* **2003**, 3 (1).
- Tan, D. S.; Gergle, D.; Scupelli, P.; Pausch, R. With Similar Visual Angles, Larger Displays Improve Spatial Performance. *CHI '03: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 217-224, from <http://doi.acm.org/10.1145/642611.642650>, 2003.
- Tan, D. S.; Stefanucci, J. K.; Proffitt, D. R.; Pausch, R. The Infocockpit: Providing Location and Place to Aid Human Memory. *PUI '01: Proceedings of the 2001 Workshop on Perceptive User Interfaces*, Orlando, Florida, USA, 1-4, from <http://doi.acm.org/10.1145/971478.971526>, 2001.
- Tan, H. Z.; Pentland, A. Tactual Displays for Wearable Computing. *ISWC '97: Proceedings of the First International Symposium on Wearable Computers*, Cambridge, Massachusetts, USA, 84-89, 1997.

- Tan, H. Z. Perceptual User Interfaces: Haptic Interfaces. *Communications of the ACM* **2000**, 43 (3), 40-41.
- Tang, H.; Beebe, D. An Oral Tactile Interface for Two-Way Communication. *1st Annual International Conference on Microtechnologies in Medicine and Biology*, Lyon, France, 639-643, 2000.
- Tang, H.; Beebe, D. An Oral Tactile Interface for Two-Way Communication. *MMB '00: Proceedings of the 1st Annual International Conference on Microtechnologies in Medicine and Biology*, Lyon, France, 639-643, 2000.
- Tang, H.; Beebe, D. J.; Kramer, A. F. Comparison of Tactile and Visual Feedback for a Multi-State Input Mechanism. *IEMBS '97: Proceedings of the 19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Chicago, Illinois, USA, 4 1697-1700, 1997.
- Tang, H.; Beebe, D. J.; Kramer, A. F. A Multilevel Input System With Force-Sensitive Elements. *International Journal of Human-Computer Studies* **2001**, 54 (4), 495-507.
- Tannen, R. S.; Nelson, W. T.; Bolia, R. S.; Warm, J. S.; Dember, W. N. Evaluating Adaptive Multisensory Displays for Target Localization in a Flight Task. *International Journal of Aviation Psychology* **2004**, 14 (3), 297-312.
- Tannen, R. S. *Multimodal Displays for Target Localization in a Flight Task*, Univ Microfilms International, 2000.
- Tarasewich, P.; Bhimdi, T.; Dideles, M. Testing Visual Notification Cues on a Mobile Device. *CHI '04: CHI '04 Extended Abstracts on Human Factors in Computing Systems*, Vienna, Austria, 1562, from <http://doi.acm.org/10.1145/985921.986138>, 2004.
- Teder-Sälejärvi, W. A.; Münte, T. F.; Sperlich, F.; Hillyard, S. A. Intra-Modal and Cross-Modal Spatial Attention to Auditory and Visual Stimuli. An Event-Related Brain Potential Study. *Cognitive Brain Research* **1999**, 8 (3), 327-343.
- Temple, J. G.; Warm, J. S.; Dember, W. N.; Jones, K.; LaGrange, C.; Matthews, G. The Effects of Signal Salience and Caffeine on Performance, Workload, and Stress in an Abbreviated Vigilance Task. *Human Factors* **2000**, 42 (2), 183-194.
- Tessendorf, D.; Chewar, C. M.; Ndiwalana, A.; Pryor, J.; McCrickard, D. S.; North, C. An Ordering of Secondary Task Display Attributes. *CHI '02: CHI '02 Extended Abstracts on Human Factors in Computing Systems*, Minneapolis, Minnesota, USA, 600-601, from <http://doi.acm.org/10.1145/506443.506503>, 2002.
- Thralls, C.; Tufte, E. R.; Zachry, M. An Interview With Edward R. Tufte. *Technical Communication Quarterly* **2004**, 13 (4), 447-462.

- Tinti, C.; Cornoldi, C.; Marschark, M. Modality-Specific Auditory Imaging and the Interactive Imagery Effect. *European Journal of Cognitive Psychology* **1997**, 9 (4), 417-436.
- Tombu, M. *A Central Capacity Sharing Model of Dual-Task Performance: Theory and Data*, Univ Microfilms International, 2004.
- Tombu, M.; Jolicœur, P. A Central Capacity Sharing Model of Dual-Task Performance. *Journal of Experimental Psychology: Human Perception & Performance* **2003**, 29 (1), 3-18.
- Touraine, D.; Bourdot, P.; Bellik, Y.; Bolot, L. A Framework to Manage Multimodal Fusion of Events for Advanced Interactions Within Virtual Environments. *EGVE '02: Proceedings of the Workshop on Virtual Environments*, Barcelona, Spain, 159-168, 2002.
- Town, C. Fusion of Visual and Ultrasonic Information for Environmental Modelling. *CVPR '04: Conference on Computer Vision and Pattern Recognition Workshop*, Baltimore, Maryland, USA, 124-124, 2004.
- Town, C. P. Goal-Directed Visual Inference for Multi-Modal Analysis and Fusion. *VIE '03: Proceedings of the International Conference on Visual Information Engineering*, Guildford, UK, 278-281, 2003.
- Traylor, R.; Tan, H. Z. Development of a Wearable Haptic Display for Situation Awareness in Altered-Gravity Environment: Some Initial Findings. *HAPTIC '02: Proceedings of the 10th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Orlando, Florida, USA, 159-164, 2002.
- Trouvain, B.; Schlick, C. A Study of Audio and Visual Context Switch Indicators in a Multirobot Navigation Task. *SMC '04: IEEE International Conference on Systems, Man and Cybernetics*, the Hague, the Netherlands, 3 2821-2826, 2004.
- Tsui, T.; Atsumi, B.; Kanamori, H.; Miyao, M. Required Performance of Display Devices in Consideration of Visual Characteristics of Elderly People: About Luminance and Character Size. *JSAE Review* **2002**, 23 (2), 265-270.
- Tsukada, K.; Yasumura, M. ActiveBelt: Belt-Type Wearable Tactile Display for Directional Navigation. *Ubicomp 2004: Ubiquitous Computing, Proceedings* **2004**, 3205, 384-399.
- Tufano, D. R. Automotive HUDs: The Overlooked Safety Issues. *Human Factors* **1997**, 39 (2), 303-311.
- Tvaryanas, A. P. Visual Scan Patterns During Simulated Control of an Uninhabited Aerial Vehicle (UAV). *Aviation, Space, and Environmental Medicine* **2004**, 75 (6), 531-538.
- Underwood, G.; Chapman, P.; Brocklehurst, N.; Underwood, J.; Crundall, D. Visual Attention While Driving: Sequences of Eye Fixations Made by Experienced and Novice Drivers. *Ergonomics* **2003**, 46 (6), 629-646.

- Unger, B. J.; Nicolaidis, A.; Berkelman, P. J.; Thompson, A.; Lederman, S.; Klatzky, R. L.; et al. Virtual Peg-in-Hole Performance Using a 6-DOF Magnetic Levitation Haptic Device: Comparison With Real Forces and With Visual Guidance Alone. *HAPTIC '02: Proceedings of the 10th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Orlando, Florida, USA, 263-270, 2002.
- Vaghi, I.; Greenhalgh, C.; Benford, S. Coping With Inconsistency Due to Network Delays in Collaborative Virtual Environments. *VRST '99: Proceedings of the ACM Symposium on Virtual Reality Software and Technology*, London, UK, 42-49, from <http://doi.acm.org/10.1145/323663.323670>, 1999.
- Van Boven, R. W.; Johnson, K. O. The Limit of Tactile Spatial Resolution in Humans: Grating Orientation Discrimination at the Lip, Tongue, and Finger. *Neurology* **1994**, 44, 2361-2366.
- Van Erp, J. Presenting Directions With a Vibrotactile Torso Display. *Ergonomics* **2005**, 48 (3), 302-313.
- Van Erp, J. B. F. Vibrotactile Spatial Acuity on the Torso: Effects of Location and Timing Parameters. *First Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Pisa, Italy, 2005.
- Van Erp, J. B. F. Guidelines for the Use of Vibro-Tactile Displays in Human Computer Interaction. In S. A. Wall, B. Riedel, A. Crossan & M. R. McGee (Eds.), *Proceedings of eurohaptics 2002*, (pp. 18-22), 2002.
- Van Erp, J. B. F.; Jansen, C.; Dobbins, T.; Van Veen, H. A. H. C. *Vibrotactile Waypoint Navigation at Sea and in the Air: Two Case Studies*, 2004.
- Van Erp, J. B. F.; Van Veen, H. A. H. C. A Multi-Purpose Tactile Vest for Astronauts in the International Space Station, 405-408, from <http://search.epnet.com/login.aspx?direct=true&db=psyhref&an=2004.22278.0040026>, 2003.
- Van Erp, J. B. F.; Veltman, J. A.; Van Veen, H. A. H. C.; Oving, A. B. Tactile Torso Display as Countermeasure to Reduce Night Vision Goggles Induced Drift. *The RTO Human Factors and Medicine (HFM) Panel Symposium on Spatial Disorientation in Military Vehicles: Causes, Consequences and Cures*, La Coruna, Spain, from <http://search.epnet.com/login.aspx?direct=true&db=psyhref&an=2004.22278.0040030>, 2002.
- Van Erp, J. B. F.; Veltman, J. A.; Van Veen, H. A. H. C. A Tactile Cockpit Instrument to Support Altitude Control. *HFES '03: Human Factors and Ergonomics Society 47th Annual Meeting*, Santa Monica, California, USA, (47) 114-118, from <http://search.epnet.com/login.aspx?direct=true&db=psyhref&an=2004.22278.0040029>, 2003.

- Van Erp, J.; Duistermaat, M. *Tactile Guidance for Land Navigation*; No. TNO DV3 2005 C 013; Soesterberg, NE: TNO Human Factors, 2005.
- Van Erp, J.; Meppelink, R.; van Veen, H. *A Touchy Car*; No. TM-01-B001; Soesterberg, The Netherlands: TNO Human Factors, 2002.
- Van Erp, J.; Padmos, P. Image Parameters for Driving With Indirect Viewing Systems. *Ergonomics* **2003**, 46 (15), 1471-1499.
- Van Erp, J.; van den Dobbelsteen, J. *On the Design of Tactile Displays*; No. TM-98-B012; Soesterberg, The Netherlands: TNO Human Factors, 1998.
- Van Erp, J.; Verschoor, M. *Uni and Cross Modal Tracking of Visual and Vibrotactile Stimuli*; No. TM-00-B002; Soesterberg, The Netherlands: TNO Human Factors, 2000.
- Van Erp, J.; Werkhoven, P. J. Spatial Characteristics of Vibro-Tactile Perception on the Torso, *DTIC*, 1-42, 1999.
- Van Erp, J. B.; Vogels, I. M. L. C. *Vibrotactile Perception: A Literature Review*; Technical Report No. TM-98-B011; Soesterberg, The Netherlands: TNO Human Factors, 1998.
- Van Erp, J. B. F. The Multi-Dimensional Nature of Encoding Tactile and Haptic Interactions: From Psychophysics to Design Guidelines. *Proceedings of the Human Factors and Ergonomics Society*, San Francisco, 2006.
- Van Erp, J. B. F. Tactile displays: Spin-Off From the Military Cockpit to Uninhabited Vehicles. *Proceedings of the NATO HFM Symposium "Human Factors of Uninhabited Military Vehicles as Force Multipliers"*, Biarritz, France, 2006.
- Van Erp, J. B. F.; Carter, J.; Andrew, I. ISO's Work on Tactile and Haptic Interaction Guidelines. *Proceedings of Eurohaptics*, Paris, 467-470.
- Van Erp, J. B. F.; Groen, E. L.; Bos, J. E.; Van Veen, H. A. H. C. A Tactile Cockpit Instruments Supports the Control of Self-Motion During Spatial Disorientation. *Human Factors* **2006**, 48 (2), 219-228.
- Van Erp, J. B. F.; Saturday, I.; Jansen, C. Application of Tactile Displays in Sports: Where to, How, and When to Move. *Proceedings of Eurohaptics 2006*, Paris, 105-109.
- Van Erp, J. B. F.; Van Veen, H. A. H. C. Touch Down: The Effect of Artificial Touch Cues on Orientation of Microgravity. *NeuroScience Letters* **2006**, 404, 78-82.
- Van Erp, J. B. F.; Van Veen, H. A. H. C. Vibro-Tactile Information Presentation in Automobile. *Eurohaptics 2001*, Birmingham, UK, 99-104, 2001.

- Van Erp, J. B. F.; Van Veen, H. A. H. C.; Saturday, I.; Jansen, C.; Werkhoven, P. J. Vibrotactile Displays: Spin-Off From Challenging Environments to Sport. Paper presented at the *Proceedings IEA2006 Congress*, Amsterdam, 2006.
- Van Erp, J. B. F.; Verschoor, M. H. *Uni and Cross Model Tracking of Visual and Vibro-Tactile Stimuli*, 2000.
- Van Erp, J. B. F.; Werkhoven, P. J. Validation of Principles for Tactile Navigation Displays. *Proceedings of the 50th Annual Meeting of the Human Factors and Ergonomics Society*, San Francisco, 2006.
- Van Erp, J. B. F. Tactile Navigation Display. *Haptic Human-Computer Interaction, Proceedings 2001*, 2058, 165-173.
- Van Erp, J. B. F. Tactile Displays in Virtual Environments. *What is Essential for Virtual Environments to Meet Military Training Goals?* 2000.
- Van Erp, J. B. F.; Van Veen, H. A. H. C. Vibrotactile In-Vehicle Navigation System. *Transportation Research Part F-Traffic Psychology and Behaviour 2004*, 7 (4-5), 247-256.
- Van Erp, J. B. F.; VanVeen, H. A. H. C.; Jansen, C.; Dobbins, T. Waypoint Navigation With a Vibrotactile Waist Belt. *ACM Transactions on Applied Perception (TAP) 2005*, 2 (2), 106-117.
- Van Erp, J. B. F.; Verschoor, M. H. Cross-Modal Visual and Vibrotactile Tracking. *Applied Ergonomics 2004*, 35 (2), 105-112.
- Van Erp, J. B. F.; Werkhoven, P. J. Vibro-Tactile and Visual Asynchronies: Sensitivity and Consistency. *Perception 2004*, 33 (1), 103-111.
- Van Esch-Bussemakers, M. P.; Cremers, A. H. M. User Walkthrough of Multimodal Access to Multidimensional Databases. *ICMI '04: The 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 220-226, 2004.
- Van Esch-Bussemakers, M. P.; Cremers, A. H. M. User Walkthrough of Multimodal Access to Multidimensional Databases. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 220-226, from <http://doi.acm.org/10.1145/1027933.1027970>, 2004.
- Van Mensvoort, M. K. What you See is What you Feel: Exploiting the Dominance of the Visual Over the Haptic Domain to Simulate Force-Feedback With Cursor Displacements. *DIS '02: Proceedings of the Conference on Designing Interactive Systems*, London, England, 345-348, from <http://doi.acm.org/10.1145/778712.778761>, 2002.
- Van Veen, H. A. H. C.; Van Erp, J. B. F. *Tactile Information-Presentation in the Cockpit. Lecture Notes in Computer Science*, 2001.

- VanRullen, R.; Reddy, L.; Koch, C. Visual Search and Dual Tasks Reveal Two Distinct Attentional Resources. *Journal of Cognitive Neuroscience* **2004**, *16* (1), 4-14.
- Varakin, D. A.; Levin, D. T.; Fidler, R. Unseen and Unaware: Implications of Recent Research on Failures of Visual Awareness for Human-Computer Interface Design. *Human-Computer Interaction* **2004**, *19* (4), 389-422.
- Varga, M.; McQueen, S.; Rossi, A. Information Visualization in Battle Management. *RTO IST Symposium on New Information Processing Techniques for Military Systems*, Istanbul, Turkey, 2000.
- Verrillo, R. T. Effect of Spatial Parameters on the Vibrotactile Threshold. *Journal of Experimental Psychology* **1966**, *71*, 570-575.
- Ververs, P. M.; Wickens, C. D. Head-Up Displays: Effects of Clutter, Display Intensity, and Display Location on Pilot Performance. *International Journal of Aviation Psychology* **1998**, *8* (4), 377-403.
- Vicente, K. J.; Ethier, C. R. Why Fluid Dynamics Matters for Display Design in Process Control: Commentary on Bennett and Malek. *Human Factors* **2000**, *42* (3), 451-454.
- Vincenzi, D. A.; Mouloua, M.; Hancock, P. A. *Human Performance, Situation Awareness and Automation: Current Research and Trends, Vol 1&2 HPSAA II*, Lawrence Erlbaum Associates, Publishers, 2004.
- Vitense, H. S.; Jacko, J. A.; Emery, V. K. Multimodal Feedback: An Assessment of Performance and Mental Workload. *Ergonomics* **2003**, *46* (1-3), 68-87.
- Vitense, H. S. *Multimodal Interface: Auditory, Haptic, and Visual Feedback*, Univ Microfilms International, 2002.
- Vitense, H. S.; Jacko, J. A.; Emery, V. K. Multimodal Feedback: Establishing a Performance Baseline for Improved Access by Individuals With Visual Impairments. *ASSETS '02: Proceedings of the 5th International ACM Conference on Assistive Technologies*, Edinburgh, Scotland, 49-56, from <http://doi.acm.org/10.1145/638249.638260>, 2002.
- Vo, M. T. A Framework and Toolkit for the Construction of Multimodal Learning Interfaces. Carnegie Mellon University. *Partial Information in Multimodal Dialogue*, 1-9, 1998.
- Vo, M. T.; Waibel, A. Modeling and Interpreting Multimodal Inputs: A Semantic Integration Approach. *CMU-CS-97-192*, 1-22, 1997.
- Vogels, I. M. L. C. Selective Attention and the Perception of Visual-Haptic Asynchrony. *Eurohaptics 2001*, Birmingham, UK, 167-169, 2001.
- Vogels, I. M. L. C. Detection of Temporal Delays in Visual-Haptic Interfaces. *Human Factors*, *46* (1), 118-134.

- Vogels, I. M. L. C. Detection of Temporal Delays in Visual-Haptic Interfaces. *Human Factors* **2004**, 46 (1), 118-134.
- Vora, J.; Nair, S.; Gramopadhye, A. K.; Duchowski, A. T.; Melloy, B. J.; Kanki, B. Using Virtual Reality Technology for Aircraft Visual Inspection Training: Presence and Comparison Studies. *Applied Ergonomics* **2002**, 33 (6), 559-570.
- Wai, Yu; Brewster, S. Comparing Two Haptic Interfaces for Multimodal Graph Rendering. *HAPTIC '02: Proceedings of the 10th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, Orlando, Florida, USA, 3-9, 2002.
- Walker, S. P.; Salisbury, J. K. Large Haptic Topographic Maps: Marsview and the Proxy Graph Algorithm. *SI3D '03: Proceedings of the 2003 Symposium on Interactive 3D Graphics*, Monterey, California, USA, 83-92, from <http://doi.acm.org/10.1145/641480.641499>, 2003.
- Wall, S. A.; Brewster, S. A. Assessing Haptic Properties for Data Representation. *CHI '03: CHI '03 Extended Abstracts on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 858-859, from <http://doi.acm.org/10.1145/765891.766034>, 2003.
- Wall, S.; Brewster, S. Hands-on Haptics: Exploring Non-Visual Visualization Using the Sense of Touch. *CHI '05: CHI '05 Extended Abstracts on Human Factors in Computing Systems*, Portland, Oregon, USA, 2140-2141, from <http://doi.acm.org/10.1145/1056808.1057127>, 2005.
- Waller, D.; Knapp, D.; Hunt, E. Spatial Representations of Virtual Mazes: The Role of Visual Fidelity and Individual Differences. *Human Factors* **2001**, 43 (1), 147-158.
- Wang, S. Multiple-Point Localization on Skin. *Psychological Science (China)* **1997**, 20 (1), 1-6.
- Wang, Y.; MacKenzie, C. L. The Role of Contextual Haptic and Visual Constraints on Object Manipulation in Virtual Environments. *CHI '00: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, The Hague, The Netherlands, 532-539, from <http://doi.acm.org/10.1145/332040.332494>, 2000.
- Ware, C.; Knight, W. Using Visual Texture for Information Display. *ACM Transactions on Graphics (TOG)* **1995**, 14 (1), 3-20.
- Watter, S. *Parallel Response Selection in Dual-Tasks*, Univ Microfilms International, 2004.
- Weinstein, L. F.; Wickens, C. D. Use of Nontraditional Flight Displays for the Reduction of Central Visual Overload in the Cockpit. *International Journal of Aviation Psychology* **1992**, 2 (2), 121-142.
- Wellington, S. J.; Crowder, R. M. A Non-Tactile Sensor for Seam Tracking and Vision Applications. *International Conference on Control* **1994**, Coventry, USA, 1 822-826.
- Werkhoven, P.; van Erp, J. *Perception of Vibro-Tactile Asynchronies*; No. TM-98-B013; 1998.

- Werkhoven, P. J.; Bakker, N. H. Which Track to Sail With the Virtual Ship. *TNO Human Factors Research Institute*, 1998.
- Westerman, S. J.; Cribbin, T. Mapping Semantic Information in Virtual Space: Dimensions, Variance and Individual Differences. *International Journal of Human-Computers Studies* **2000**, 53 (5), 765-787.
- Westerman, S. J.; Cribbin, T.; Wilson, R. Virtual Information Space Navigation: Evaluating the Use of Head Tracking. *Behaviour & Information Technology* **2001**, 20 (6), 419-426.
- Wickens, C. D. Multiple Resources and Performance Prediction. *Theoretical Issues in Ergonomics Science* **2002**, 3 (2), 159-177.
- Wickens, C. D. Processing Resources in Attention. In R. Parasuraman, & R. Davies (Eds.), *Varieties of Attention*, (pp. 63-101), 1984.
- Wickens, C. D. Multiple Task Performance. In A. E. Kazdin (Ed.), *Encyclopedia of Psychology* (pp. 352-354), Washington D.C.: APA, 2000.
- Wickens, C. D.; Goh, J.; Helleberg, J.; Talleur, D. A. *Modality Differences in Advanced Cockpit Displays: Comparing Auditory Vision and Redundancy for Navigational Communications and Traffic Awareness*; No. ARL-02-8/NASA-02-6; Aviation Research Lab Institute of Aviation, 2002.
- Wickens, C. D. Virtual Reality and Education. *ICSMC '92: IEEE International Conference on Systems, Man and Cybernetics*, Chicago, Illinois, USA, 1 842-847, 1992.
- Wickens, C. D. Resource Theory and Dual Task-Performance - Implications for Strategies and Processes Underlying the P300. *Psychophysiology* **1981**, 18 (2), 199-199.
- Wickens, C. D. Control-Theory in Biology and Experimental-Psychology. *Contemporary Psychology* **1978**, 23 (10), 726-727.
- Wickens, C. D. Aviation Displays. In P. S. Tsang, & M. A. Vidulich (Eds.), *Principles and Practice of Aviation Psychology*, (pp. 147-200), Lawrence Erlbaum Associates, Publishers, 2003.
- Wickens, C. D. Pilot Action and Tasks: Selection, Execution, and Control. In P. S. Tsang, & M. A. Vidulich (Eds.), *Principles and Practice of Aviation Psychology*, (pp. 239-263), Lawrence Erlbaum Associates, Publishers, 2003.
- Wickens, C. D. Multiple Resources and Performance Prediction. *Theoretical Issues in Ergonomics Science* **2002**, 3 (2), 159-177.
- Wickens, C. D. Situation Awareness and Workload in Aviation. *Current Directions in Psychological Science* **2002**, 11 (4), 128-133.

- Wickens, C. D. Aviation Psychology. In A. E. Kazdin (Ed.), *Encyclopedia of Psychology*, Vol. 1, (pp. 351-353), American Psychological Association; Oxford University Press, 2000.
- Wickens, C. D. Driving and Highway Safety. In A. E. Kazdin (Ed.), *Encyclopedia of Psychology*, Vol. 3, (pp. 91-93), American Psychological Association; Oxford University Press, 2000.
- Wickens, C. D. Multiple Task Performance. In A. E. Kazdin (Ed.), *Encyclopedia of Psychology*, Vol. 5, (pp. 352-354), American Psychological Association; Oxford University Press, 2000.
- Wickens, C. D. Frames of Reference for Navigation. In D. Gopher, & A. Koriati (Eds.), *Attention and Performance XVII: Cognitive Regulation of Performance: Interaction of Theory and Application*, (pp. 113-144), The MIT Press, 1999.
- Wickens, C. D. *Engineering Psychology and Human Performance (2nd ed.)*, HarperCollins Publishers, 1992.
- Wickens, C. D. Attention and Skilled Performance. In D. H. Holding (Ed.), *Human Skills (2nd ed.)*, (pp. 71-105), John Wiley & Sons, 1989.
- Wickens, C. D. Information Processing, Decision-Making, and Cognition. In G. Salvendy (Ed.), *Handbook of Human Factors*, (pp. 72-107), John Wiley & Sons, 1987.
- Wickens, C. D. Processing Resources in Attention, Dual Task Performance, and Workload Assessment. *Catalog of Selected Documents in Psychology* **1982**, 12 (1), 16.
- Wickens, C. D. The Effects of Divided Attention on Information Processing in Manual Tracking. *Journal of Experimental Psychology: Human Perception & Performance* **1976**, 2 (1), 1-13.
- Wickens, C. D. *The Effects of Time Sharing on the Performance of Information Processing Tasks: A Feedback Control Analysis*, Univ Microfilms International, 1975.
- Wickens, C. D.; Alexander, A. L.; Ambinder, M. S.; Martens, M. Erratum: The Role of Highlighting in Visual Search Through Maps. *Spatial Vision* **2005**, 18 (1), 129.
- Wickens, C. D.; Alexander, A. L.; Ambinder, M. S.; Martens, M. The Role of Highlighting in Visual Search Through Maps. *Spatial Vision* 2004, 17 (4), 373-388.
- Wickens, C. D.; Andre, A. D. Proximity Compatibility and Information Display: Effects of Color, Space, and Objectness on Information Integration. *Human Factors* **1990**, 32 (1), 61-77.
- Wickens, C. D.; Goh, J.; Helleberg, J.; Horrey, W. J.; Talleur, D. A. Attentional Models of Multitask Pilot Performance Using Advanced Display Technology. *Human Factors* **2003**, 45 (3), 360-380.

- Wickens, C. D.; Gopher, D. Control Theory Measures of Tracking as Indices of Attention Allocation Strategies. *Human Factors* **1977**, 19 (4), 349-365.
- Wickens, C. D.; Helleberg, J.; Xu, X. Pilot Maneuver Choice and Workload in Free Flight. *Human Factors* **2002**, 44 (2), 171-188.
- Wickens, C. D.; Kessel, C. Processing Resource Demands of Failure Detection in Dynamic Systems. *Journal of Experimental Psychology: Human Perception & Performance* **1980**, 6 (3), 564-577.
- Wickens, C. D.; Kramer, A. F. Engineering Psychology. *Annual Review of Psychology* **1985**, 36, 307-348.
- Wickens, C. D.; Kramer, A. F.; Donchin, E. The Event-Related Potential as an Index of the Processing Demands of a Complex Target Acquisition Task. *Annals of the New York Academy of Sciences* **1984**, 425, 295-299.
- Wickens, C. D.; Liu, Y. Codes and Modalities in Multiple Resources: A Success and a Qualification. *Human Factors* **1988**, 30 (5), 599-616.
- Wickens, C. D.; Long, J. Object Versus Space-Based Models of Visual Attention: Implications for the Design of Head-Up Displays. *Journal of Experimental Psychology: Applied* **1995**, 1 (3), 179-193.
- Wickens, C. D.; Merwin, D. H.; Lin, E. L. Implications of Graphics Enhancements for the Visualization of Scientific Data: Dimensional Integrality, Stereopsis, Motion, and Mesh. *Human Factors* **1994**, 36 (1), 44-61.
- Wickens, C. D.; Mountford, S. J.; Schreiner, W. Multiple Resources, Task-Hemispheric Integrity, and Individual Differences in time-Sharing. *Human Factors* **1981**, 23 (2), 211-229.
- Wickens, C. D.; Mountford, S. J.; Schreiner, W. *Task Dependent Differences and Individual Differences in Dual Task Performance*; U.S. Naval Biodynamics Laboratory, 1980.
- Wickens, C. D.; Sandry, D. L. Task-Hemispheric Integrity in Dual Task Performance. *Acta Psychologica* **1982**, 52 (3), 227-247.
- Wickens, C. D.; Sandry, D.; Micalizzi, J. A Validation of the Spatial Variant of the Sternberg Memory Search Task: Search Rate, Response Hand and Task Interference. *Catalog of Selected Documents in Psychology* , **1982** 12 (1), 16.
- Wickens, C. D.; Seidler, K. S. Information Access in a Dual-Task Context: Testing a Model of Optimal Strategy Selection. *Journal of Experimental Psychology: Applied* **1997**, 3 (3), 196-215.

- Wickens, C. D.; Thomas, L. C.; Young, R. Frames of Reference for the Display of Battlefield Information: Judgment-Display Dependencies. *Human Factors* **2000**, 42 (4), 660-675.
- Wickens, C. D.; Vidulich, M.; Sandry-Garza, D. Principles of S-C-R Compatibility With Spatial and Verbal Tasks: The Role of Display-Control Location and Voice-Interactive Display-Control Interfacing. *Human Factors* **1984**, 26 (5), 533-543.
- Wickens, C.; Kramer, A.; Vanasse, L.; Donchin, E. Performance of Concurrent Tasks: A Psychophysiological Analysis of the Reciprocity of Information-Processing Resources. *Science* **1983**, 221 (4615), 1080-1082.
- Wickens, D. D.; Moody, M.; Shearer, P. W. Lack of Memory for Nonattended Items in Dichotic Listening. *Journal of Experimental Psychology: Human Learning & Memory* **1976**, 2 (6), 712-719.
- Williams, Robert L. II; Srivastava, M.; Howell, J. N.; Conatser, Robert R., Jr.; Eland, D. C.; Burns, J. M.; et al. The Virtual Haptic Back for Palpatory Training. *ICMI '04: Proceedings of the 6th International Conference on Multimodal Interfaces*, State College, Pennsylvania, USA, 191-197, from <http://doi.acm.org/10.1145/1027933.1027966>, 2004.
- Williams, T. R.; Mulligan, C.; Koprowicz, K.; Miller, J.; Reimann, C.; Wang, D. Does Isolating a Visual Element Call Attention to it? Results on an Eye-Tracking Investigation of the Effects of Isolation on Emphasis. *Technical Communications* **2005**, 52 (1), 21-26.
- Williams, J.; Michelitsch, G. Designing Effective Haptic Interaction: Inverted Damping. *CHI '03: CHI '03 Extended Abstracts on Human Factors in Computing Systems*, Ft. Lauderdale, Florida, USA, 856-857, from <http://doi.acm.org/10.1145/765891.766033>, 2003.
- Williams, K. W. Impact of Aviation Highway-in-the-Sky Displays on Pilot Situation Awareness. *Human Factors* **2002**, 44 (1), 18-27.
- Wilska, A. On the Vibrational Sensitivity in Different Regions of the Body Surface. *Acta Physiologica Scandinavica* **1954**, 31, 284-289.
- Wilson, G. F.; Russell, C. A. Real-Time Assessment of Mental Workload Using Psychophysiological Measures and Artificial Neural Networks. *Human Factors* **2003**, 45 (4), 635-643.
- Wobbrock, J. O.; Myers, B. A.; Aung, H. H.; LoPresti, E. F. Text Entry from Power Wheelchairs: Edgewrite for Joysticks and Touchpads. *ASSETS '04: Proceedings of the ACM SIGACCESS Conference on Computers and Accessibility*, Atlanta, Georgia, USA, 110-117, from <http://doi.acm.org/10.1145/1028630.1028650>, 2004.
- Woodruff, A.; Landay, J.; Stonebraker, M. VIDA: (Visual Information Density Adjuster). *CHI '99: CHI '99 Extended Abstracts on Human Factors in Computing Systems*, Pittsburgh, Pennsylvania, USA, 19-20, from <http://doi.acm.org/10.1145/632716.632730>, 1999.

- Wourms, D. F.; Mansfield, L.; Cunningham, P. Status Update of Alternative Control and Display Technologies. *Human Systems IAC (HSIAC)* **2001**, 1.
- Wu, J.; Duh, C.; Ouhyoung, M.; Wu, J. Head Motion and Latency Compensation on Localization of 3D Sound in Virtual Reality. *VRST '97: Proceedings of the ACM Symposium on Virtual Reality Software and Technology*, Lausanne, Switzerland, 15-20, from <http://doi.acm.org/10.1145/261135.261140>, 1997.
- Xiao, B.; Lunsford, R.; Coulston, R.; Wesson, M.; Oviatt, S. Modeling Multimodal Integration Patterns and Performance in Seniors: Toward Adaptive Processing of Individual Differences. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 265-272, from <http://doi.acm.org/10.1145/958432.958480>, 2003.
- Xu, Y. *Tactile Stimulators for Haptic Interfaces*; No. ARO 37503.1-MAST1; U.S. Army Research Office: Research Triangle Park, NC, 1998.
- Xun, X.; Guo, S.; Zhang, K. The Effect of Inputting Modality of Secondary Task on Tracking Performance and Mental Workload. *Acta Psychologica Sinica* **1998**, 30 (3), 343-347.
- Yang, U.; Kim, G.; Jounghyun. Increasing the Effective Egocentric Field of View With Proprioceptive and Tactile Feedback. *VR '04: Proceedings of the IEEE Virtual Reality Conference*, Chicago, Illinois, USA, 27-34, 2004.
- Yeh, M.; Merlo, J. L.; Wickens, C. D. Head Up Versus Head Down: The Costs of Imprecision, Unreliability, and Visual Clutter on Cue Effectiveness for Display Signaling. *Human Factors* **2003**, 45 (3), 390-407.
- Yeh, M.; Wickens, C. D. Attentional Filtering in the Design of Electronic Map Displays: A Comparison of Color Coding, Intensity Coding, and Decluttering Techniques. *Human Factors* **2001**, 43 (4), 543-562.
- Yeh, M.; Wickens, C. D. Display Signaling in Augmented Reality: Effects of Cue Reliability and Image Realism on Attention Allocation and Trust Calibration. *Human Factors* **2001**, 43 (3), 355-365.
- Yeh, M.; Wickens, C. D.; Seagull, F. J. Target Cuing in Visual Search: The Effects of Conformality and Display Location on the Allocation of Visual Attention. *Human Factors* **1999**, 41 (4), 524-542.
- Yeh, Y.; Wickens, C. D. Dissociation of Performance and Subjective Measures of Workload. *Human Factors* **1988**, 30 (1), 111-120.
- Yoshikawa, T.; Henmi, K. Human Skill Transfer Using Haptic Virtual Reality Technology. *Experimental Robotics VI* **2000**, 250, 351-360.

- Young, M. S.; Stanton, N. A. Malleable Attentional Resources Theory: A New Explanation for the Effects of Mental Underload on Performance. *Human Factors* **2002**, 44 (3), 365-375.
- Yu, W.; Brewster, S. Comparing Two Haptic Interfaces for Multimodal Graph Rendering. *HAPTICS '02: Proceedings of the 10th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, 2002.
- Yu, W.; Cheung, K.; Brewster, S. A. Automatic Online Haptic Graph Construction. *Proceedings of Eurohaptics 2002*, Edinburgh, UK, 128-133, 2002.
- Zahariev, M. A.; MacKenzie, C. L. Auditory, Graphical and Haptic Contact Cues for a Reach, Grasp, and Place Task in an Augmented Environment. *ICMI '03: Proceedings of the 5th International Conference on Multimodal Interfaces*, Vancouver, British Columbia, Canada, 273-276, from <http://doi.acm.org/10.1145/958432.958481>, 2003.
- Zancanaro, M.; Stock, O.; Strapparava, C. Multimodal Interaction for Information Access: Exploiting Cohesion. *Comput Intelligence* **1997**, 13 (4), 439-464.
- Zeilek, J. S.; Asmar, D. A Robot's Spatial Perception Communicated Via Human Touch. *ICSMC '03: Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Washington, D.C., USA, 1 454-461, 2003.
- Zeyada, Y.; Hess, R. A. Computer-Aided Assessment of Flight Simulator Fidelity. *Journal of Aircraft* **2003**, 40 (1), 173-180.
- Zhai, S. Characterizing Computer Input With Fitts' Law Parameters--The Information and Non-Information Aspects of Pointing. *International Journal of Human-Computer Studies* **2004**, 61 (6), 791-809.
- Zhou, Z.; Cheok, A. D.; Yang, X.; Qiu, Y. An Experimental Study on the Role of Software Synthesized 3D Sound in Augmented Reality Environments. *Interacting with Computers* **2004**, 16 (5), 989-1016.
- Zuidhoek, S.; Visser, A.; Bredero, M. E.; Postma, A. Multisensory Integration Mechanisms in Haptic Space Perception. *Experimental Brain Research* **2004**, 157 (2), 265-268.
- Zuschlag, M.; Hayashi, M.; Oman, C.; Alexander, A. L.; Wickens, C. D.; Hardy, T. J.; et al. Displays. In D. A. Vincenzi, M. Mouloua & P. A. Hancock (Eds.), *Human Performance, Situation Awareness and Automation: Current Research and Trends, Vol 1&2 HPSAA II*, (pp. 142-198), Lawrence Erlbaum Associates, Publishers, 2004.

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