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BIONICS AND BIOCYBERNETICS BIBLIOGRAPHY, BIODYNAMICS AND BIOENGINEERING DIVISION 1959-1980

COMPILED AND EDITED BY
RICHARD J. ZEMBER

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FOR THE COMMANDER



HENNING E. VON GIERKE, Dr Ing
Director
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Bionics and Biocybernetics Bibliography,
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FOREWORD

This bibliography lists publications issued by the Biodynamics and Bioengineering Division (formerly Biodynamics and Bionics Division) of the Harry G. Armstrong Aerospace Medical Research Laboratory (AAMRL) which fall under the broad topic, "Bionics and Biocybernetics". The word "Bionics", which was coined in AAMRL in 1960, characterizes the study of living prototypes or life-like systems with the goal of applying techniques similar to those used by living systems to solve technological problems and to develop expanded technological capabilities. The purpose of the Bionics program was to focus the modest basic and exploratory research efforts started jointly by this laboratory of the Aerospace Medical Division and by the Avionics Laboratory of the Wright Air Development Division.

The term "Bionics" was rapidly picked up by the technical and lay community all over the world to characterize technology based on living prototypes.

The area of Bionics is extremely broad. It encompasses neurophysiology, sophisticated information processing, pattern recognition, cognition, artificial intelligence, robotics, etc, and can draw knowledge from and add knowledge to almost every technological field. Therefore, the effort became too diffused in the late nineteen seventies to keep it under one roof, and it is now continued by the individual disciplines and organizations which feel primarily responsible for the advancement of specific technologies.

Although the Biodynamic and Bioengineering Division of AAMRL continues research in selected areas such as automatic speech recognition, speech synthesis and autonomous robotics, the full spectrum of Bionics work was discontinued on the biological side in our laboratory as well as on the hardware side in the Avionics Laboratory. This bibliography lists the publications of the AAMRL biological bionics period (1959-1979) which were not included in the more general Division bibliography summarizing all publications related to biodynamics (Effects of Acceleration, Vibration, Impact, Windblast, Escape and Noise), published as AAMRL-TR-85-031 in April, 1985.

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TABLE OF CONTENTS

TITLE	PAGE
Bionics and Biocybernetics	1
Author Index	25
Technical Report Index	30

Bionics and Biocybernetics

- M-1 F.L. Royer, "The Formation of Concepts with Non-Verbal Auditory Stimuli", American Journal of Psychology, Vol. 72, No. 1, March 1959
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Author Index

AMRL, Staff M-6
Abend, K. M-127, 173
Ackerman, E. M-77
Akin, R.L. M-88
Anninos, P.A. M-181
Anthony, A. M-77
Arbib, M.A. M-18, 83, 87
Ashby, W.R. M-35
Balusek, R.A. M-229
Barron, R.L. M-138, 190, 221, 233, 234, 238, 239
Bean, R.C. M-164, 165, 196, 204, 210, 212, 214, 225
Beek, B. M-174, 180, 181
Biernson, G. M-41, 64, 99
Bishop, P.O. M-94
Blum, J. M-150, 151
Blum, M. M-87, 120
Bolen, G.H. M-116, 124, 157
Bond, Z.S. M-248, 254, 260
Braitenberg, V. M-139
Brazier, O.G. M-97, 153, 176
Brueschke, E.E. M-162
Bryan, T.S. M-37
Burckle, R.A. M-263
Butsch, L.M., Jr M-50
Caianiello, E.R. M-141
Caldwell, W.F. M-14, 51, 54
Cannon, M.W. M-142, 155, 240, 259, 264
Carl, J.W. M-178, 186, 187, 197, 216, 227, 240
Carter, S.D. M-113
Casby, J.U. M-98
Cashin, J.L. M-17, 218, 244, 246, 257, 262
Cavonius, C.R. M-183, 208
Chan, H. M-165
Chandrasekaran, B. M-167, 170, 171, 199, 200
Chapman, R.M. M-183, 208
Cheng, S.M. M-53
Chung, S.H. M-140, 148
Cleveland, D. M-233, 238, 239
Colomb, R.M. M-104
Coulter, N.A., Jr M-5, 79
Cowan, J.D. M-18, 45
Csermely, T.J. M-174, 180, 181
Davies, O.M. M-93
Derrick, M.R. M-238, 239, 252
Edgar, S.L. M-111
Ellis, D.O. M-28

Author Index

Fischer, J.C.	M-205
Flaugher, J.	M-102, 103
Fox, S.S.	M-129
Freeman, J.A.	M-182
Gagnon, R.A.	M-221, 250, 251, 255, 269
Gehrich, J.L.	M-218
Gesteland, R.C.	M-82, 140, 201
Gill, R.A.	M-188
Gillingham, K.	M-71
Gilstrap, L.O., Jr	M-185, 192, 233
Glaesser, E.	M-14, 54
Gluss, B.	M-31, 32
Godfrey, J.J.	M-243
Goldstein, A.J.	M-195, 198, 205, 215, 226, 235
Goodall, M.C.	M-15, 16, 47
Graul, E.H.	M-268
Griffith, V.V.	M-116, 124
Gruenke, R.A.	M-125, 154
Habermehl, A.	M-268
Hall, C.F.	M-216
Hanna, G.R.	M-75
Harley, T.J., Jr	M-149, 173, 179, 199, 200
Harth, E.M.	M-111, 143, 174, 180, 181
Hartrum, T.C.	M-263
Hawkins, J.K.	M-231
Heller, G.E.	M-172
Henrichon, E.G., Jr	M-203
Hermann, H.T.	M-12, 13, 46, 72
Hoeft, L.O.	M-33, 62, 77, 81
Homans, A.C.	M-57
Horvath, W.J.	M-7, 8, 129
Hughes, H.M.	M-229
Idelsohn, J.M.	M-191
Inselberg, A.	M-53
Johnson, E.R.	M-234, 245
Kabrisky, M.	M-105, 115, 197
Kanal, L.N.	M-149, 167, 179, 207, 258
Kaplan, K.R.	M-84
Kasson, J.M.	M-177
Kilmer, W.L.	M-65, 150, 151, 232
Kirsch, J.A.	M-152
Kornacker, K.	M-44
Kozuma, H.T.	M-58
Krause, H.E.	M-223
Krause, R.M.	M-25
Krohn, K.	M-119

Author Index

Leet, D.G.	M-246, 261
Lessard, C.S.	M-229
Lettvin, J.Y.	M-61, 66, 80, 82, 106, 140
Levy, D.M.	M-219
Lewis, E.R.	M-128, 145
Lim, D.J.	M-194, 206, 211, 217, 253
Lindsay, R.D.	M-174, 180
Lipetz, L.E.	M-10, 11, 27, 85
Liu, Y.K.	M-230
Margen, S.	M-91
Mateosian, R.	M-119
Mathur, D.K.	M-203
McCabe, B.F.	M-71
McCulloch, W.S.	M-9, 18, 19, 26, 38, 42, 66, 67, 117, 150, 151
Melnick, W.	M-211
Minard, L.D., Sr	M-92
Mohlman, H.T.	M-223
Moore, D.R.	M-137
Moore, J.W.	M-80, 106
Moore, T.J.	M-101, 109, 159, 184, 209, 213, 242, 244, 257, 262
Mucciardi, A.N.	M-228, 234, 245
Mundie, J.R.	M-17, 52, 62, 91, 109, 110, 126, 133, 154, 168, 172, 195, 198, 202, 209, 213, 215, 235, 249, 256
Natapoff, A.	M-108
Normann, N.A.	M-98
Ockerman, D.L.	M-89
Oestreicher, H.L.	M-39, 50, 70, 114, 130, 132, 136, 137, 166, 169, 223, 236, 266
Orr, E.C.	M-234
Osborne, D.	M-249
Pantle, A.J.	M-241, 247, 265
Parker, D.E.	M-110, 126
Peters, A.C.	M-86
Peters, R.W.	M-2, 4, 59, 60, 123
Pickard, W.F.	M-66, 80, 106, 122
Pitts, W.H.	M-66, 82, 140
Place, S.G.	M-76
Randall, N.C.	M-149
Rapoport, A.	M-7, 8, 129
Ray, G.	M-230
Rhodes, J.	M-119
Rink, R.E.	M-220
Robbins, D.O.	M-208
Rock, J.C.	M-224, 235, 249
Roppel, R.M.	M-55, 86, 113
Royer, F.L.	M-1

Author Index

Runge, R. G.	M-121, 146
Sackschewsky, V. E.	M-33, 39
Salter, K. G.	M-200
Shen, D. W. C.	M-170
Shinabarger, E. W.	M-17
Sklansky, J.	M-73, 74, 84, 100
Small, R. B.	M-129
Snyder, A.	M-99
Stark, L.	M-3, 12, 13, 36, 46
Steele, J. E.	M-34, 158
Steer, R. W.	M-249
Stewart, J. L.	M-14, 20, 22, 23, 24, 30, 40, 43, 54, 69, 118, 156, 177
Stockman, G. C.	M-258
Sublette, I. H.	M-107
Sutro, L. L.	M-147, 232
Swartwood, R. V.	M-227
Takata, M.	M-80, 106
Tallman, O. H., II	M-175, 193
Taub, A.	M-78, 94
Thorne, D. L.	M-189
Trageser, J. H.	M-48
Uemura, M.	M-121, 146
Ulrich, M. T.	M-91
Van Ry, C. D.	M-56
Vaughn, G. L.	M-256
Veith, G. C., Jr	M-190
Viglione, S. S.	M-121, 146
Vogt, H. L.	M-223
Von Foerster, H.	M-53, 63
Von Gierke, H. E.	M-131, 134, 135, 160, 163, 222, 237, 267, 268
Wall, P. D.	M-68, 95
Warmuth, D. B.	M-256
Watanabe, S.	M-96, 144
Watson, C. S.	M-49
Webster, F. A.	M-97, 153, 176
Weiss, H. S.	M-17
Welch, J. R., Jr	M-184
West, J. C.	M-5
Wickelgren, B. G.	M-112
Willis, P. A.	M-29
Wilson, R. A.	M-157
Winogard, S.	M-45
Wuerthele, W. E.	M-124
Yeh, R.	M-53
Yilmaz, H.	M-21
Young, J. M.	M-90

Author Index

Young, L.R.
Ziskin, M.C.

M-36
M-161, 202

Tech Report Index

TR-64-039	AD-602966	M-73
TR-64-080	AD-608284	M-79
TR-64-116	AD-610286	M-81
TR-65-003	AD-613075	M-84
TR-65-020	AD-611719	M-77
TR-65-024	AD-614249	M-85
TR-65-088	AD-622273	M-86
TR-65-114	AD-628684	M-96
TR-65-119		M-100
TR-65-171	AD-631487	M-98
TR-65-172	AD-628055	M-97
TR-65-177	AD-638387	M-91
TR-65-193	AD-628873	M-99
TR-65-237	AD-633301	M-32
TR-66-050	AD-638718	M-101
TR-66-064	AD-756796	M-113
TR-66-087	AD-649556	M-75
TR-66-101	AD-650567	M-102, 103
TR-66-128	AD-646441	M-104
TR-66-174	AD-650492	M-107
TR-66-225	AD-652853	M-116
TR-66-229	AD-653207	M-118
TR-67-010	AD-667570	M-127
TR-67-060	AD-655907	M-121
TR-67-104	AD-667809	M-125
TR-67-112	AD-667569	M-126
TR-67-121	AD-660848	M-124
TR-67-132	AD-669574	M-128
TR-67-176	AD-699593	M-109
TR-67-185	AD-708119	M-155
TR-67-187	AD-670193	M-129
TR-67-191	AD-712243	M-110
TR-67-192	AD-673373	M-153
TR-67-207	AD-758963	M-163
TR-67-236	AD-672976	M-154
TR-68-029	AD-759320	M-130
TR-68-031	AD-675183	M-123
TR-68-038	AD-687083	M-161
TR-68-040	AD-675180	M-156
TR-68-054	AD-678071	M-157
TR-68-078		M-168
TR-68-098	AD-708130	M-159
TR-68-137	AD-760372	M-220
TR-68-138	AD-771254	M-171
TR-68-142	AD-770688	M-173
TR-68-153	AD-730831	M-160

Tech Report Index

TR-68-154	AD-686740	M-161
TR-68-155	AD-697071	M-175
TR-68-184		M-130
TR-68-185		M-131
TR-68-186	AD-740483	M-132
TR-68-189	AD-692719	M-173
TR-68-194	AD-697411	M-176
TR-69-004	AD-738709	M-163
TR-69-005	AD-738756	M-164
TR-69-055	AD-705650	M-182
TR-69-062	AD-700150	M-178
TR-69-089	AD-712099	M-189
TR-69-092	AD-706855	M-184
TR-69-095	AD-732226	M-209
TR-69-106	AD-711453	M-183
TR-70-045	AD-717157	M-192
TR-70-046	AD-738729	M-205
TR-70-052	AD-714576	M-190
TR-70-055	AD-728300	M-179
TR-70-056	AD-728276	M-180
TR-70-062	AD-724488	M-197
TR-70-063	AD-728519	M-204
TR-70-065	AD-716411	M-191
TR-70-082	AD-721212	M-198
TR-70-083	AD-722063	M-199
TR-70-086	AD-755343	M-157
TR-70-105	AD-741618	M-211
TR-70-108	AD-725783	M-203
TR-70-109	AD-731147	M-208
TR-70-117	AD-721466	M-200
TR-70-119	AD-724072	M-201
TR-70-123	AD-761306	M-196
TR-70-131	AD-730285	M-206
TR-70-135	AD-727067	M-202
TR-70-140	AD-730286	M-207
TR-70-146	AD-738712	M-193
TR-71-008	AD-722989	M-181
TR-71-046	AD-739288	M-210
TR-71-070	AD-760373	M-225
TR-71-072	AD-766433	M-194
TR-71-073	AD-770763	M-214
TR-71-091	AD-748720	M-212
TR-71-094	AD-764829	M-195
TR-71-110	AD-741922	M-213
TR-71-111	AD-772409	M-216
TR-72-022	AD-748161	M-215

Tech Report Index

TR-72-031	AD-770762	M-226
TR-72-034	AD-756918	M-223
TR-72-035	AD-754934	M-217
TR-72-036		M-218
TR-72-070	AD-770953	M-220
TR-72-082	AD-759264	M-224
TR-73-015	AD-A005921	M-235
TR-73-023		M-236
TR-73-028	AD-A027803	M-234
TR-73-031	AD-767273	M-227
TR-73-040	AD-773858	M-229
TR-73-041	AD-773855	M-230
TR-73-061	AD-776056	M-231
TR-73-066	AD-773860	M-232
TR-73-067	AD-781080	M-237
TR-73-074	AD-773808	M-228
TR-73-076	AD-776065	M-233
TR-73-086	AD-770992	M-222
TR-73-096	AD-77167C	M-221
TR-73-119	AD-781079	M-238
TR-73-130	AD-783804	M-239
TR-74-041	AD-A002604	M-242
TR-74-043	AD-785366	M-240
TR-74-062	AD-786457	M-241
TR-74-063	AD-A006957	M-243
TR-74-090	AD-A025792	M-251
TR-75-001	AD-A022900	M-253
TR-75-012	AD-A014815	M-244
TR-75-059	AD-A022898	M-249
TR-75-060	AD-A025964	M-250
TR-75-061	AD-A018074	M-246
TR-75-070	AD-A027928	M-256
TR-75-076	AD-A029044	M-245
TR-75-078	AD-A022903	M-248
TR-75-105	AD-A032784	M-259
TR-76-014	AD-A028134	M-252
TR-76-015	AD-A028969	M-257
TR-76-021	AD-A031091	M-254
TR-76-028	AD-A031090	M-255
TR-76-033	AD-A029004	M-258
TR-76-077		M-247
TR-76-084	AD-A036222	M-260
TR-77-010	AD-A040473	M-261
TR-77-018	AD-A037510	M-262
TR-77-043	AD-A041649	M-263
TR-77-083	AD-A049127	M-264
TR-80-001		M-268

END

1-87

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