

AD-A252 928 ON PAGE

Form Approved
OMB No. 0704-0188Public
gathering
collection
Davis

1 hour per response, including the time for reviewing instructions, searching existing data sources, collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Avenue, Washington, DC 20540, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AG

3. REPORT TYPE AND DATES COVERED

FINAL 1 Jan 89 - 31 Aug 91

4. TITLE AND SUBTITLE

"RESEARCH IN STATISTICAL INFERENCE" (U)

5. FUNDING NUMBERS

61102F

2304/A5

6. AUTHOR(S)

Dr. Raymond J. Carroll

AFOSR-89-020680

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Texas A&M University
Dept of Statistics
Box 3578
College Station, TX 778438. PERFORMING ORGANIZATION
REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

AFOSR/NM
Bldg 410
Bolling AFB DC 20332-644810. SPONSORING / MONITORING
AGENCY REPORT NUMBER

AFOSR-89-0240

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT

Approved for public release;
Distribution unlimited

12b. DISTRIBUTION CODE

UL

13. ABSTRACT (Maximum 200 words)

During this period of research a substantial research program continued in statistical inference, one that has seen the publication of nearly 100 papers and a book since the initiation of support. The papers written or revised in 1991-1992 are: (1) "An Assymptotic Theory for Sliced Inverse Regression", T. Hsing & R.J. Carroll (2) "Measurement Error Regression with Unknown Link: Dimension Reduction & Data Visualization", Raymond Carroll & Ker-Chau Li (3) "Further Remarks on Robustness in the Logistic Regression Model", R.J. Carroll & Shane Pederson (4) "Semiparametric Comparison of Regression Curves Via Normal Likelihoods", R.J. Carroll & Peter Hall (5) "Theoreticas Aspects of Ill-Posed Problems in Statistics", A.C.M. Van Rooij, F.H. Ruymgaart & R.J. Carroll.

14. SUBJECT TERMS

15. NUMBER OF PAGES

2

16. PRICE CODE

17. SECURITY CLASSIFICATION
OF REPORT

UNCLASSIFIED

18. SECURITY CLASSIFICATION
OF THIS PAGE

UNCLASSIFIED

19. SECURITY CLASSIFICATION
OF ABSTRACT

UNCLASSIFIED

20. LIMITATION OF ABSTRACT

SAR

FINAL REPORT: GRANT AFOSR-89-0240

Raymond J. Carroll, P. I.

OVERVIEW

I was funded by AFOSR from 1975-88 while I was at the University of North Carolina, and from 1988-91 on the current grant. During the 1991-92 fiscal year, I have been on a no cost extension to the current grant, which has not been renewed. I list below the activities which were supported by the current grant.

PUBLICATIONS

- [1] Altschul, S. F., Carroll, R. J. & Lipman, D. J. (1989). Weights for data related by a tree. *Journal of Molecular Biology*, 207, 647-651.
- [2] Stefanski, L. A. & Carroll, R. J. (1990). Deconvoluting kernel density estimators. *Statistics*, 21, 165-184.
- [3] Yin, Y. & Carroll, R. J. (1990). A simple robust diagnostic for heteroscedasticity based on the Spearman rank correlation. *Letters in Statistics and Probability*, 10, 69-76.
- [4] Carroll, R. J. & Hall, P. (1990). Nonparametric estimation of optimal performance criteria in quality engineering. *Annals of Statistics*, 18, 281-302.
- [5] Härdle, W. & Carroll, R. J. (1990). Biased crossvalidation for a kernel regression estimator and its derivatives. *Österreichische Zeitschrift für Statistik und Informatik*, 20, 53-64.
- [6] van Rooij, A., Ruymgaart, F. & Carroll, R. J. (1992). Theoretical aspects of ill-posed problems in statistics. *Acta Applicandae Mathematicae*, 24, 113-140.
- [7] Simpson, D. G., Ruppert, D. & Carroll, R. J. (1991). One-step GM-estimates and stability of inferences in linear regression *Journal of the American Statistical Association*, to appear.
- [8] Carroll, R. J. & Ruppert, D. (1991). Prediction intervals and quantile estimation in nonlinear regression with transformation and/or weighting. *Technometrics*, 33, 197-210.
- [9] Hsing, T. & Carroll, R. J. (1992). Asymptotic properties of sliced inverse regression. *Annals of Statistics*, to appear.

Invited Talks

North Carolina State University
 University of Iowa
 University of Maryland
 Conference on Applied Statistics, Atlantic City
 UCLA
 Rand Corporation
 University of Minnesota
 CBMS Errors in Variables Conference
 IMA Robustness Conference, Minnesota
 Johns Hopkins University
 University of New Mexico
 Los Alamos National Laboratory
 University of Waterloo
 Yale University
 University of Wisconsin
 Cornell Workshop on Function Estimation
 Purdue University
 Montana State University

1988

1988

1988

1988

1989

1989

1989

1989

1989

1989

1990

1990

1990

1990

1990

1990

1990

1990

Accession For
 NTIS GRA&I ✓
 STAC TAB
 Unannounced
 Justification
 Distribution/
 Availability

DTIC QUALITY INSPECTED 2

92-19913



92 7 23 0.61

Dist	Avail and Special
A-1	

Penn State University	1990
Alaska ASA Chapter	1990
Conference on Discrete Choice Models, Louvaine le Neuve	1990
Australian National University	1991
LaTrobe University	1991
University of Tasmania	1991
Regression Conference, Australian Statistical Association	1991
Australian Graduate School of Management (Innaugural Statistics Lectures)	1991
Statistics Week, University of Miami (Ohio)	1991
University of Alaska, Fairbanks	1991
Penn State University	1991
ENAR National Meeting, Atlanta	1991
North Carolina Chapter, American Statistical Association	1991
Bureau of Labor Statistics	1992
University of Texas at Austin	1992
National Institute of Occupational Safety and Health	1992
ENAR Spring Meeting, Cincinnati	1992
Swiss Statistics Society Spring Meeting	1992
Eli Lilly Conference on Population Pharmacokinetics	1992
Purdue Decision Theory Conference	1992
GLIM 92, München, Germany	1992

HONORS RECEIVED

COPSS President's Award (IMS, ASA, ENAR, WNAR, CSS), 1988.

Ordinary Member, International Statistical Institute, elected 1991.

Distinguished Lecturer in Statistics, Australian Graduate School of Management, 1991.

EDITORIAL RESPONSIBILITIES

Editor, *Journal of the American Statistical Association*, Theory and Methods Section, 1988-1990.

Associate Editor, *Journal of the American Statistical Association*, Theory and Methods Section, (1979-1987), Applications Section (1992-), *Journal of Statistical Planning & Inference* (1992-), *Annals of Statistics* (1983-1988), *Chemometrics and Intelligent Laboratory Systems* (1986-), and *Statistics* (1987-).

APPOINTMENTS

Institute of Mathematical Statistics, Elected Council Member, 1991-94.

Institute of Mathematical Statistics, Committee on Fellows, 1989-1991. (Chair, 1991)

Session Organizer, 1992 Special Topics Meeting of the Institute of Mathematical Statistics, State College, Pennsylvania.

National Institutes of Health, Division of Computer Resources and Technology. Chair of site visit committee for Laboratory for Statistical Methodology, 1991.

National Institutes of Health, Special Study Sections for Statistics, 1988-present (chair, March 1990, July 1990).

Program Chair, 1991 Annual Meeting of the Institute of Mathematical Statistics, Atlanta, Georgia.

Session Organizer, 1989, Annual Meeting of the Institute of Mathematical Statistics, Washington.

Committee member for selection of the President and Council of the Institute of Mathematical Statistics, 1980, 1987, 1989.