William S. Cleveland

DEPARTMENT OF STATISTICS
PURDUE UNIVERSITY
150 N. UNIVERSITY STREET
WEST LAFAYETTE, IN 47907

EMAIL: WSC@STAT.PURDUE.EDU
OFFICE: MATH BUILDING 500
PHONE: (765) 494-6045
FAX: (765) 494-0558
WEB: WWW.STAT.PURDUE.EDU/∼WSC/

Current Research Interests: Computer networking, machine learning, data mining, statistical models and model building, time series, and data visualization.

Current Position: Professor of Statistics and Courtesy Professor of Computer Science, Purdue University.

Biography

William S. Cleveland is a Professor of Statistics and Courtesy Professor of Computer Science at Purdue University. Previous to this he was a Distinguished Member of Technical Staff in the Statistics Research Department at Bell Labs, Murray Hill; for 12 of his years at Bell Labs he was a Department Head.

His areas of research have included data visualization, computer networking, machine learning, data mining, time series, statistical modeling and model building, visual perception, environmental science, and seasonal adjustment.

Cleveland has been involved in many projects requiring the mining, statistical analysis, and modeling of data from several fields including environmental science, customer opinion polling, visual perception, and computer networking. In the course of this work he has developed many new statistical models and methods, including visualization methods, that are widely used in engineering, science, medicine, and business.

He has participated in the design and implementation of software for the trellis display framework for visualization that he and colleagues developed, and for the loess approach to nonparametric function estimation that he introduced into statistics and machine learning. The software is now a part of many commercial systems.

Cleveland has published over 120 papers on his research in a wide range of scientific journals, refereed proceedings, and books. In the area of data visualization he has written three books and one user's manual, edited two books, and edited a special issue of the Journal of the American Statistical Association. He was the editor-in-chief of the seven volumes of the Collected Works of John W. Tukey, and for ten years was an editor of the Wadsworth Probability and Statistics Series.

His two books *The Elements of Graphing Data* and *Visualizing Data* have been reviewed in many journals from a wide variety of disciplines, and *Elements* was selected for the Library of Science. J. Lodge reviewed *Elements* in *Atmospheric Environment* and wrote: "certain kinds of tendency toward bad graphics could be cured if as many authors as possible would not just read, but, in the words of the Anglican Prayer Book, 'learn, mark, and inwardly digest' this volume." B. Gunter reviewed *Visualizing* in *Technometrics* and wrote: "This is a terrific book — in my opinion, a path-breaking book. Get it. Read it. Practice what it preaches. You will improve the quality of your data analysis."

Cleveland is a principal investigator in the Network Modeling and Simulation Program of DARPA where he works on statistical modeling for generating background packet-level traffic and source-level traffic in simulators, on bandwidth allocation, on validation of network simulator models, and on packet sampling.

Cleveland has twice won the Wilcoxon Prize and once won the Youden prize from the statistics journal *Technometrics*. He is a Fellow of the American Statistical Association, the Institute of Mathematical Statistics, and the American Association of the Advancement of Science, and is an elected member of the International Statistical Institute. In 1996 he was chosen Statistician of the Year by the Chicago Chapter of the American Statistical Association. In 2002 he was selected as a Highly Cited Researcher by the American Society for Information Science & Technology in the newly formed mathematics category.

He was the founding chair of the Graphics Section of the American Statistical Association, and has served on the Council of the Institute of Mathematical Statistics, the Committee on Applied and Theoretical Statistics of the National Research Council, and the Council of the Statistics Section of the American Association of the Advancement of Science.

Cleveland received an A.B. in Mathematics from Princeton; his senior thesis adviser was probabilist William Feller. He received his Ph.D. in Statistics from Yale University; his Ph.D. thesis adviser was statistician Leonard Jimmie Savage.

Papers: Publication Journals

Statistics, Data Mining, and Machine Learning Research Papers
Science
Journal of the American Statistical Association
Journal of Computational and Statistical Graphics
Technometrics
Statistica Sinica
International Statistical Institute Review
Journal of Official Statistics
The Annals of Mathematical Statistics
Journal of Econometrics
Statistics and Computing
The American Statistician
Communications in Statistics

Visualization Research Papers
Science
Journal of the American Statistical Association
Journal of Computational and Statistical Graphics
Statistical Science
Journal de la Société Française de Statistique
Technometrics
Pixel
The American Statistician

Environmental Science Research Papers
Science
Journal of Geophysical Research
Environmental Science and Technology
Journal of the Air Pollution Control Association
Atmospheric Environment
Technometrics

Computer Networking Research Papers
ACM Sigmetrics
IEEE Infocom

Visual Perception Research Papers
Science
Journal of the American Statistical Association
Bell System Technical Journal
Perception
International Journal of Man-Machine Studies
Journal of The Royal Statistical Society
The American Statistician
Journal of Computational and Statistical Graphics

Other Research Papers
Journal of Applied Physics
Lifetime Data Analysis
Marketing Research

Books

Books Written
J. M. Chambers, W. S. Cleveland, B. Kleiner, and P. A. Tukey, *Graphical Methods for Data Analysis*, Chapman and Hall, 1983.

W. S. Cleveland, *The Elements of Graphing Data*, Hobart Press, 1985, 1994.

W. S. Cleveland, *Visualizing Data*, Hobart Press, 1993.

User's Manual Written
R. A. Becker and W. S. Cleveland, *Trellis Graphics User's Manual*, Insightful, Inc., 1996.

Books Edited
Dynamic Graphics for Data Analysis, edited by W. S. Cleveland and M. E. McGill, Wadsworth, Pacific Grove, CA, 1988.

The Collected Works of John W. Tukey: Graphics, edited by W. S. Cleveland, Chapman and Hall, New York, 1987.

Recent and Upcoming Talks

June 2002, Seminar, IP Research Group, Sprint Labs, Burlingame, California

June 2002, Seminar, Department of Statistics, Stanford University, Palo Alto, California

June 2002, Seminar, Research Division, Avaya Labs, Basking Ridge, New Jersey

July 2002, Invited Talk, Annual Meeting, Australian Statistical Society, Canberra, Australia

September 2002, Seminar, Department of Statistics, University of Pennsylvania, Philadelphia, Pennsylvania

September 2002, Panel Session, Performance 2002, Rome, Italy

October 2002, Seminar, Department of Statistics, Columbia University, New York, New York

October 2002, Keynote Talk: IEEE Information Visualization, Boston, Massachusetts

November 2002, Neyman Lecture, Department of Statistics, Berkeley, Berkeley, California

December 2002, Workshop on Statistical Analysis of Massive Data Streams, National Academy of Science, Washington, D.C.

January 2003, Seminar, Department of Statistics, University of Michigan, Ann Arbor, Michigan

February 2003, Seminar, Statistical Science Department, Los Alamos National Laboratory, Los Alamos, New Mexico

March 2003, Invited talk, 35th Symposium on the Interface: Computing Science and Statistics, Salt Lake City, Utah

April 2003, Seminar, Department of Statistics, Penn State University, State College, Pennsylvania

April 2003, Seminar, Department of Statistics, Purdue University, West Lafayette, Indiana

August 2003, Invited talk, Session on Internet Traffic, Annual Meeting of the American Statistical Association, San Francisco, California.

January 2004, Invited talk, Winter Workshop on Data Mining, University of Florida

March 2004, Invited talk, IEEE Infocom, Hong Kong, China

August 2004, Invited talk, International Statistical Institute Special Conference on The Vital Role of Statistical Science in Assuring National Prosperity, Daejon, Korea

April 2005, International Symposium on Business and Industrial Statistics, Cairns Australia