William S. Cleveland Curriculum Vitae

General Information

Email: wsc@bell-labs.com Web Page: stat.bell-labs.com/wsc

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Current Employment: Distinguished Member of Technical Staff, Bell Labs

Address: Bell Labs, 600 Mountain Ave., Murray Hill, NJ 07974

Education

A.B., Princeton University, Mathematics, Thesis Advisor: William Feller

M. Phil., Yale University, Statistics

Ph.D., Yale University, Statistics, Thesis Advisor: Leonard J. Savage

Research Areas

Internet engineering • Visualization • Smoothing • Model building • Visual perception • Environmental science • Time series • Customer opinion polling • Bayesian statistics • Statistical software • Computational methods

Current Grants

DARPA High Performance Networking Program

DARPA Network Modeling and Simulation Program

Editorial

Associate Editor, *Technometrics*, 1970-1975

Editor, Special Section on Statistical Graphics, *Journal of the American Statistical Association*, 1986-1987

Editor, Wadsworth Probability and Statistics Series, 1981-1992

Editor-in-Chief, *The Collected Works of John W. Tukey*, Chapman & Hall/CRC, 1982-1994

Editor, *Volume 5: Graphics*, *The Collected Works of John W. Tukey*, Chapman & Hall/CRC, New York, 1987

Co-editor, *Dynamic Graphics for Statistics*, Chapman & Hall/CRC, New York, 1988

Editor, Special Issue on Internet Measurement and Modeling, *Statistical Science*, 2002

Awards

Wilcoxon Prize, *Technometrics*, 1975

Wilcoxon Prize, *Technometrics*, l977

Fellow, American Statistical Association, 1983

Elected Member, International Statistical Institute, 1983

Youden Prize *Technometrics*, 1987.

Fellow, American Association for the Advancement of Science, 1992

Statistician of the Year, American Statistical Association, Chicago Chapter, 1996

Fellow, Institute of Mathematical Statistics, 1999

Short Course Instruction

George Washington University • Stanford University • University of Michigan • Ciba-Geigy • Merck • American Statistical Association • Association of American Public Opinion Polling • American Meteorological Association • Association of Computing Machinery • Michigan/Maryland Survey Research Program • SoftStat • Australian CSIRO • Institute fuer Datenanalyzen • Icon Multimedia Publishing • National Institutes of Health • MathSoft Inc. • Institut fuer Datenanalyse and Versuchsplanung • U.S. Army

Committees

Member, Statistical Graphics Committee, American Statistical Association, 1979-1982

Chair, Statistical Graphics Committee, American Statistical Association, 1983-1985.

Founding Chair, Section on Statistical Graphics, American Statistical Association, 1985

Member-at-Large, Statistics Section, American Association for the Advancement of Science, 1988-1991

Member, Committee on Applied and Theoretical Statistics, Mathematical Sciences Board, National Research Council, 1988-1991

Member, Council, Institute of Mathematical Statistics, 1989-1992

25 Selected Publications

[1] W. S. Cleveland. A Theory of Model Building. Technical report, Bell Labs, 2002.

[2] W. S. Cleveland and C. Liu. Maximum Likelihood Estimation of Sum-Difference Time Series Models Using the EM Algorithm. Technical report, Bell Labs, 2002.

[3] W. S. Cleveland, L. Denby, and C. Liu. Random Scale Effects. Technical report, Bell Labs, 2002.

[4] J. Cao, W. S. Cleveland, D. Lin, and D. X. Sun. Internet Traffic Tends *Toward* Poisson and Independent as the Load Increases. In C. Holmes, D. Denison, M. Hansen, B. Yu, and B. Mallick, editors, *Nonlinear Estimation and Classification*. Springer, New York, 2002.

[5] J. Cao, W. S. Cleveland, D. Lin, and D. X. Sun. On the Nonstationarity of Internet Traffic. *ACM SIGMETRICS*, pages 102–112, 2001.

[6] L. Clark, W. S. Cleveland, L. Denby, and C. Liu. Modeling Customer Survey Data. In C. Gatsonis, R.E. Kass, A. Carriquiry, A. Gelman, I. Verdinelli, and M. West, editors, *Case Studies in Bayesian Statistics IV*, pages 3–57. Springer, New York, 1999.

[7] R. A. Becker, W. S. Cleveland, and M. J. Shyu. The Design and Control of Trellis Display. *Journal of Computational and Statistical Graphics*, 5:123–155, 1996.

[8] W. S. Cleveland and C. L. Loader. Smoothing by Local Regression: Principles and Methods. In W. Härdle and M. G. Schimek, editors, *Statistical Theory and Computational Aspects of Smoothing*, pages 10–49. Springer, New York, 1996.

[9] W. S. Cleveland. *Visualizing Data*. Hobart Press, Summit, New Jersey, U.S.A., 1993.

[10] W. S. Cleveland. A Model for Studying Display Methods of Statistical Graphics (with Discussion). *Journal of Computational and Statistical Graphics*, 2:323–364, 1993.

[11] W. S. Cleveland, C. L. Mallows, and J. E. McRae. ATS Methods: Nonparametric Regression for Nongaussian Data. *Journal of the American Statistical Association*, 88:821–835, 1993.

[12] W. S. Cleveland and S. J. Devlin. Locally-Weighted Regression: An Approach to Regression Analysis by Local Fitting. *Journal of the American Statistical Association*, 83: 596–610, 1988.

[13] R. B. Cleveland, W. S. Cleveland, J. E. McRae, and I. Terpenning. STL: A Seasonal-Trend Decomposition Procedure Based on Loess (with Discussion). *Journal of Official Statistics*, 6:3–73, 1990.

[14] R. A. Becker and W. S. Cleveland. Brushing Scatterplots. *Technometrics*, 29:127–142, 1987. Reprinted in *Dynamic Graphics for Data Analysis*, edited by W. S. Cleveland and M. E. McGill, Chapman and Hall, New York, 1988.

[15] W. S. Cleveland. *The Elements of Graphing Data*. Chapman and Hall, New York, 1985, 1994.

[16] W. S. Cleveland and R. McGill. Graphical Perception and Graphical Methods for Analyzing Scientific Data. *Science*, 229:828–833, 1985.

[17] W. S. Cleveland. Seasonal and Calendar Adjustment. In D. R. Brillinger and P. R. Krishnaiah, editors, *Time Series in the Frequency Domain, Handbook of Statistics*, volume 3, pages 39–72. North-Holland, New York, 1983.

[18] W. S. Cleveland, P. Diaconis, and R. McGill. Variables on Scatterplots Look More Highly Correlated When the Scales are Increased. *Science*, 216:1138–1140, 1982.

[19] W. S. Cleveland and T. E. Graedel. Photochemical Air Pollution in the Northeast United States. *Science*, 204:1273–1278, 1979.

[20] W. S. Cleveland. Robust Locally Weighted Regression and Smoothing Scatterplots. *Journal of the American Statistical Association*, 74:829–836, 1979.

[21] W. S. Cleveland and J. E. McRae. Weekday-Weekend Ozone Concentrations in the Northeast United States. *Environmental Science and Technology*, 12:558–563, 1978. Reprinted in *Preprint Volume*: *Fifth Conference on Probability and Statistics*, American Meteorological Society, Boston, (1977), 112–117. Reprinted in *Air Quality Meteorology and Atmospheric Ozone*, American Society for Testing Materials, (1978), 407–420.

[22] W. S. Cleveland, B. Kleiner, J. E. McRae, and J. L. Warner. Photochemical Air Pollution: Transport from the New York City Area into Connecticut and Massachusetts. *Science*, 191:179–181, 1976.

[23] W. S. Cleveland and B. Kleiner. A Graphical Technique for Enhancing Scatterplots with Moving Statistics. *Technometrics*, 17:447–454, 1975.

[24] W. S. Cleveland. The Inverse Autocorrelations of a Time Series and Their Applications. *Technometrics*, 14:277–293, 1972. Invited paper with comments by E. Parzen.

[25] W. S. Cleveland. Projection with the Wrong Inner Product and its Application to Regression with Correlated Errors and Linear Filtering of Time Series. *The Annals of Mathematical Statistics*, 42:616–624, 1971.