Leland Wilkinson

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Education

1975 Ph.D., Yale University
1969 S.T.B., Harvard Divinity School
1966 A.B., Harvard College

Honors

2009 Fellow, American Association for the Advancement of Science
2006 Elected Member, International Statistical Institute
1998 Fellow, American Statistical Association
2010 NISS Distinguished Service Award.
2010 FODAVA Distinguished Lecture, Georgia Tech College of Computing, April 2, 1010.
2009 Invited Speaker, Gordon Conference on Visualization, Oxford, UK.
2008 Youden award, American Society for Quality (Best Paper, *Technometrics*)
1985 Outstanding speaker award, National Computer Graphics Association

Fellowships and Grants

2011-2014 Anomaly Discovery through Visual Characterizations of Point Sets Embedded in High-Dimensional Geometric Spaces. National Science Foundation FODAVA supplement ($185,381)
2008-2011 Visually-Motivated Characterizations of Point Sets Embedded in High-Dimensional Geometric Spaces, National Science Foundation FODAVA grant ($475,000)
1975-76 Young Researcher award, UIC
1971-75 Kent Fellowship, Danforth Foundation
1969-71 USPHS Predoctoral Fellowship
1968 Hopkins Share, Harvard Divinity School

Academic Experience

2007 - Adjunct Professor of Computer Science, University of Illinois at Chicago
1991-2010 Adjunct Professor of Statistics, Northwestern University
1980-91 Associate professor of psychology, University of Illinois at Chicago
1976-80 Assistant professor of psychology, University of Illinois at Chicago
1975-76 Lecturer in psychology, Yale University
1974-75 Instructor in psychology, Yale University

Professional Experience

2016 - Chief Scientist, H2O.ai
2014 - 2016 Principal Research Scientist, Tableau Inc.
2012 - 2014 VP of Data Visualization, Skytree Inc.
2012 - 2012 President, Advise Analytics Inc. (sold the company to Skytree in 2012)
2007 - 2012 Executive VP, SYSTAT Inc.
1994-2007 Senior VP, SPSS Inc.
1984-94 President, SYSTAT Inc. (sold the company to SPSS in 1994)
1978-82 Statistical consultant to Dr. Joseph Marcus, University of Chicago
1978 Visiting Scholar, Israel Institute of Applied Social Research
1975-78 Statistical consultant to Yale Medical School Admissions Committee Research Project
1972-76 Statistical consultant to Dr. Donald Cohen, Yale University Child Study Center
1973 Statistical consultant to Dr. Allan Fontana, VA Hospital, West Haven, CT
1972 Bell-Penn Workshop in Multidimensional Scaling, Philadelphia

Teaching

Graduate

Multivariate Analysis
Scaling
Experimental Design
Linear Models
Statistical Computing
Statistical Graphics

Undergraduate

Probability and Statistics
Research Methods
Test Theory

Editorial

Editorial Board

Program Committee, IEEE VisWeek 1995-2015
International Statistical Review (2010-2012)
The American Statistician (1997-2000)
Multivariate Behavioral Research (1997-2000)
Applied Psycholinguistics (1981-84)

Reviewer

Transactions on Visualization and Computer Graphics
Information Visualization
The American Statistician
Journal of Computational and Graphical Statistics
Psychological Bulletin
Journal of Personality and Social Psychology
Journal of Abnormal Psychology

Journal of Experimental Social Psychology
Multivariate Behavioral Research
Archives of General Psychiatry
National Science Foundation (Information Science and Cognition)
Department of Homeland Security (Visual Analytics)
National Institute of Justice (Statistics)

Service

NSF Workshop on Algorithmic, Mathematical, and Statistical Foundations of Data Science, April, 2016
Board, National Institute of Statistical Sciences (NISS), 2016 -
Board, Institute for Pure and Applied Mathematics (IPAM), 2015 -
Development Committee, American Statistical Association, 2011 - 2012
NAS Panel on Developing Science, Technology, and Innovation Indicators for the Future (STI), 2011-2012
NAS Committee on Applied and Theoretical Statistics, 2003-2007
Vice-Chair of Board, National Institute of Statistical Sciences (NISS), 2003-2008
Chair, Toward Improved Visualization of Uncertain Information Workshop, NAS, March 2005
Organizing Committee, Statistical Analysis of Massive Data Streams, NAS, December, 2002
Chair, Statistical Computing Section, ASA, 2003-2004

Research

Dissertation

1. Wilkinson, L. (1975), The effect of involvement on similarity and preference structures. Ph.D. dissertation, Yale University.

Reviewed Journal Articles

2. Wilkinson, L., Anand, A. and Dang; T.N. (2012). Substantial improvements in the set-covering projection classifier CHIRP (Composite Hypercubes on Iterated Random Projections), IEEE Transactions on Knowledge Discovery from Data, November 2012.

3. Wilkinson, L. (2011). Exact and approximate area-proportional circular Venn and Euler diagrams. *IEEE Transactions on Visualization and Computer Graphics*, (Vol. 18, No. 2), pp. 321-331.

4. Wills, G., and Wilkinson, L. (2009). AutoVis: Automatic visualization, *Information Visualization, 23*, 1-23.

5. Wilkinson, L. and Friendly, M (2009). The History of the Cluster Heat Map. *The American Statistician 63(2)*, 179-184.

6. Wilkinson, L. and Wills, G. (2007) Scagnostics distributions. *Journal of Computational and Graphical Statistics, 17*, 473-491.

7. Wilkinson L., Anand, A., and Grossman, R. (2006). High-Dimensional visual analytics: Interactive exploration guided by pairwise views of point distributions. *IEEE Transactions on Visualization and Computer Graphics*, November/December 2006 (Vol. 12, No. 6) pp. 1363-1372.

8. Wilkinson L. (2006). Revising the Pareto chart. *The American Statistician*, Volume 60, Number 4, November 2006, pp. 332-334.

9. Wachsmuth, A.W., Wilkinson L., Dallal G.E. (2003). Galton's bend: A previously undiscovered nonlinearity in Galton's family stature regression data. *The American Statistician, 57*, 190-1922.

10. Wilkinson, L (1999). Dot plots. *The American Statistician, 53*, 276-281.

11. Wilkinson, L. (1994). Less is more: Two-and three-dimensional graphics for data display. *Behavior Research Methods, Instruments, & Computers, 26*, 172-176.

12. Velleman, P. and Wilkinson, L. (1993) Nominal, ordinal, interval, and ratio typologies are misleading for classifying statistical methodology. *The American Statistician, 47.* 65-72. Reprinted in Borg, I & Mohler, P.Ph. Eds. (1994). *Trends and Perspectives in Empirical Social Research.* Berlin: Walter de Gruyter.

13. Wilkinson, L. (1989), A Cautionary note on the use of factor analysis. *Sociological Methods and Research*, 449-459.

14. Dallal, G.E., and Wilkinson, L. (1986), An analytic approximation to the distribution of Lilliefors's test statistic for normality. *The American Statistician, 40*, 294-296.

15. Carter, J., and Wilkinson, L (1984),. A latent trait analysis of the MMPI. *Multivariate Behavioral Research, 19*, 385-407.

16. Wilkinson, L., and Dallal, G. E. (1981). Tests of significance in forward selection regression with an F-to-enter stopping rule, *Technometrics, 23*, 25-28.

17. Marcus, J., Auerbach, J., Wilkinson, L. Maeir, S., Mark., A., Peles, v., and Burack, C. (1981), Infants at risk for schizophrenia: The Jerusalem infant development study. *Archives of General Psychiatry, 38*, 703-713.

18. Milstein, R. M., Wilkinson, L., Burrow, G. N., and Kessen, W. (1981), Admission decisions and performance during medical school. *Journal of Medical Education, 56*, 77-82.

19. Wilkinson, L. (1980), REGM: A multivariate general linear hypothesis program. *The American Statistician, 34*, 182.

20. Milstein, R. M., Burrow, G. N., Wilkinson, L., and Kessen, W. (1980), Prediction of interview ratings in a medical school admission process. *Journal of Medical Education, 55*, 451-453.

21. Lyons, J., Hirschberg, N., and Wilkinson, L. (1980), The radex structure of the Leary Interpersonal Behavior Circle, *Multivariate Behavioral Research, 15*, 249-257.

22. Trickett, E. J., and Wilkinson, L. (1979), Using individual or group scores on perceived environment scale: Classroom environment scale as example. *American Journal of Community Psychology, 7*, 497-502.

23. Wilkinson, L. (1979), Tests of significance in stepwise regression. *Psychological Bulletin, 86*, 168-174.

24. Wilkinson, L. and Dallal, G.E. (1977). Accuracy of sample moments calculations among widely used statistical programs. *The American Statistician, 31*, 128-131.

25. Milstein, R. M., Burrow, G. N., Wilkinson, L., and Kessen, W. (1976), Prediction of screening decisions in a medical school admission process, *Journal of Medical Education, 51*, 626-633.

26. Wilkinson, L. (1975), REGM: A multivariate general linear hypothesis program for least squares analysis of multivariate data. *Behavior Research Methods and Instrumentation, 7*, 485-486.

27. Pope, K. S., Geller, J. D., and Wilkinson, L. (1975), Fee assessment and outpatient psychotherapy. *Journal of Consulting and Clinical Psychology, 43,* 835-841. Reprinted in *Psychology Today*, July 1976, 10, 19-20.

28. Wilkinson, L. (1975), Response variable hypotheses in the multivariate analysis of variance. *Psychological Bulletin, 82*, 408-412.

29. Wilkinson, L., Saunders, J. T., and Reppucci, N. D. (1975), The development of a behavioral system for an established institution: A preliminary statement. *Journal of Biological Psychology, 16*, 6-11.

30. Wilkinson, L. (1973), An assessment of the dimensionality of Moos social climate scale. *American Journal of Community Psychology, 1*, 342- 350.

31. Wilkinson, L., and Reppucci, N. D. (1973), Perceptions of social climate among participants in token economy and non-token economy cottages in a juvenile correctional institution. *American Journal of Community Psychology, 1*, 36-43.

32. Wilkinson, L. and Huesmann, L. R. (1973), The use of APL in teaching multivariate data analysis. *Behavior Research Methods and Instrumentation, 5*, 209-211.

Reviewed Invited Papers

33. Wilkinson, L. (2008). The future of statistical computing, *Technometrics, 50*, 418-435. (Winner of 2008 Youden award from ASQ).

34. Wilkinson, L., Rope, D.J., Carr, D.B., and Rubin, M.A. (2000) The language of graphics. *Journal of Computational and Graphical Statistics, 9*, 530-543.

35. Wilkinson, L., and Task Force on Statistical Inference. (1999). Statistical methods in psychology journals: Guidelines and explanations. *The American Psychologist, 54* (8), 594-604

36. Wilkinson, L. (1999). Graphs for research for counseling psychology . *The Counseling Psychologist, 27*, 384-407

37. Wilkinson, L. (1992). Graphical displays. *Statistical Methods in Medical Research, 1*, 3-25.

38. Haber, R. N., and Wilkinson, L. (1982), Perceptual components of computer displays. *IEEE Computer Graphics and Applications, 2*, 23-35.

Reviewed Published Papers

39. Dang, T.N., Anand, A., and Wilkinson, L (2012). TimeSeer: Scagnostics for high-dimensional time series. IEEE Transactions on Visualization and Computer Graphics, 14 May 2012.

40. Dang, T.N., Anand, A., and Wilkinson, L (2012), FmFinder: Search and filter your favorite songs. 8th International Symposium, ISVC 2012, Rethymnon, Crete, Greece, July 16-18, 2012. Advances in Visual Computing, Volume 7431, 2012, pp 348-358.

41. Anand, A., Wilkinson, L., and Dang, T.N. (2012) Visual pattern discovery using random projections. IEEE VAST 2012.

42. Wilkinson, L., Anand, A., and Tuan, D.N. (2011). CHIRP: A new classifier based on composite hypercubes on iterated random projections. *KDD '11 Proceedings of the 17th ACM SIGKDD international conference on Knowledge discovery and data mining*, August, 21, San Diego, CA.

43. Anand, A., Wilkinson, L., and Dang, T.N. (2011) Using random projections to identify class-separating variables in high-dimensional spaces. IEEE VAST 2011, 263-264.

44. Dang, T. N., Wilkinson, L., and Anand, A. (2010). Stacking graphic elements to avoid over-plotting. *Proceedings of the IEEE Symposium on Information Visualization 2010*, October, 23-25, Salt Lake City, UT.

45. Anand, A, Wilkinson, L, and Tuan, D.N. (2009). An L-infinity norm visual classifier. *Proceedings of the IEEE International Conference on Data Mining*, 687-692.

46. Wilkinson, L., Anand, A., and Grossman, R. (2005). Graph-Theoretic scagnostics. *Proceedings of the IEEE Symposium on Information Visualization 2005* October, 23-25, Minneapolis, MN, 157- 164.

47. Grossman, R., Sabala, M., Anand, A., Eick, S., Wilkinson, L., Zhang, P., Chaves, J., Vejcik, S. Dillenburg, J., Nelson P., Rorem, D., Alimohideen, J., Leigh, J., Papka, M., Stevens, L. (2001). Real Time Change Detection and Alerts from Highway Traffic Data. SC 2005: 69.

48. Norton, A.A., Rubin, M.A., and Wilkinson, L. (2001), Streaming graphics. *Statistical Computing & Graphics Newsletter*, 11-15.

49. Wilkinson, L. (1997), A graphics algebra. *Computing Science and Statistics: Proceedings of the 21st Symposium on the Interface*, 341- 351.

50. Wilkinson, L. (1996), Reply to Hand, Statistics and the Theory of Measurement. *Journal of the Royal Statistical Society, Series A*, 159, 486-487.

51. Wilkinson, L. (1994), Comment on Cleveland, A Model for Studying Display Methods of Statistical Graphics. *Journal of Computational and Graphical Statistics, 2*, 355-360.

52. Wilkinson, L. and McConathy, D. (1990). Memory for graphs. *Proceedings of the Section on Statistical Graphics of the American Statistical Association*, 25-32.

53. Hill, M.A. and Wilkinson, L. (1990). Dissecting the Alaskan King Crab with SYSTAT and SYGRAPH. *Proceedings of the Section on Statistical Graphics of the American Statistical Association*, 108-113.

54. Wilkinson, L. (1989), Nonlinear Estimation in SYSTAT. *Computing Science and Statistics: Proceedings of the 21st Symposium on the Interface*, 402-404.

55. Wilkinson, L. (1988), Comment on Cleveland and McGill, Graphical Perception: The Visual Decoding of Quantitative Information on Graphical Displays of Data. *Journal of the Royal Statistical Society, Series A*, 150, 224.

56. Wilkinson, L. (1987), MYSTAT: A personal version of SYSTAT. *The American Statistician, 41*, 334.

57. Dallal, G.E. and Wilkinson, L. (1987), On Lilliefors' test for normality: A reply, *The American Statistician, 41*, 188-119.

58. Wilkinson, L. , and Blank, G. (1986), The case of the missing data. *Computing Science and Statistics: Proceedings of the 18th Symposium on the Interface*, 221-225.

59. Wilkinson, L. (1986). Discriminating statistical software. *Computers and the Social Sciences, 2*, 75-77.

60. Wilkinson, L. (1983), SYSTAT: System Statistics. *Proceedings of the American Statistical Association, Statistical Computing Section.*

61. Wilkinson, L. (1982), An experimental evaluation of multivariate graphical point representations, *Human factors in Computer Systems: Proceedings*, Gaithersburg, MD, 202-209.

62. Wilkinson, L. (1981), FACES work, *Journal of Mental Imagery, 5*, 27-29.

63. Wilkinson, L. (1981), Nancy Hirschberg: A memorial. *Multivariate Behavioral Research*,1.

64. Wilkinson, L. and Dallal, G. E.(1978), Accuracy of sample moments calculations: A reply, *The American Statistician, 32*, 113-114.

65. Wilkinson, L. (1979), Permuting a matrix to a simple pattern. *Proceedings of the American Statistical Association*, 409-412.

Reviewed Conference Papers

66. Dang, T.N. and Wilkinson, L. (2014). PixSearcher: Searching Similar Images in Large Image Collections through Pixel Descriptors. Proceedings of the 10th International Symposium on Visual Computing, ISVC 2014.

67. Dang, T.N. and Wilkinson, L. (2014). Transforming Scagnostics to Reveal Hidden Features. Proceedings of IEEE Conference on Visual Analytics Science and Technology, VAST 2014.

68. Dang, T.N. and Wilkinson, L. (2014). ScagExplorer: Exploring Scatterplots by Their Scagnostics. Proceedings of the 7th IEEE Pacific Visualization Symposium, PacificVis 2014.

69. Dang, T.N. and Wilkinson, L. (2012). TimeExplorer: Similarity search time series by their signatures. ISVC 2013, 280-289.

70. Dang, T.N. and Wilkinson L. (2013) TimeSeer: Using scagnostics to cluster huge datasets. IEEE VAST 2012 (best poster award)

71. Dang, T.N. and Wilkinson, L. (2012). TimeSeer: Detecting interesting distributions in multiple time series data. VINCI '12 Proceedings of the 5th International Symposium on Visual Information Communication and Interaction.

72. Dang, T.N. and Wilkinson, L. (2012). Clustering Large Image Collections through Pixel Descriptors. Visweek 2012 Poster.

73. Wilkinson, L. (2012). Making Multiple Imputation Accessible to Non-Statisticians. ENAR Annual Meeting, Washington, DC, April 4, 2012.

74. Wilkinson, L. (2011). A Second Opinion: An Expert System for Data Analysis. ISI 2011, Dublin.

75. Wilkinson, L. (2010). FASTAT: A Second Opinion Statistical Analyzer. International Symposium on Business and Industrial Statistics. Portoroz, Slovenia, July 5-9, 2010.

76. Wilkinson, L. (2010). Expert Analytics with FASTAT The 41st Symposium on the Interface of Computing Science and Statistics Seattle, WA, June 17-19, 2010.

77. Analytical Computing Platforms for the Future . ISBIS-2008. Prague, Czech Republic, July 3, 2008.

78. FASTAT: Statistics without manuals, menus, mice. Statistical Graphics: Data and Information Visualization in Today's Multimedia Society. Jacobs University, Bremen, Germany, June 26, 2008.

79. Comparability. NISS/DIMACS Workshop on Experimental Analysis of Algorithms. Research Triangle Park, March 5, 2008.

80. Automated Visualization of Large Datasets. Invited session, Seeing Science. AAAS. Boston, February 15, 2008.

81. Searching for Patterns in Baseball and Wikipedia. Workshop on Dynamics and Complexity in People and Societies. Northwestern University, October 23, 2007.

82. Sulo, R., Anand, A., Wilkinson, L., Grossman, R., and Eick, S. (2006). Topographically-based real-time traffic anomaly detection in a metropolitan highway system, IEEE VAST poster session.

83. Detecting Anomalies. CDAR/NSA Visualization Technology Briefing. National Center for Data Mining, Department of Computer Science, UIC, May 15, 2006.

84. Wilkinson, L. (2005). Scagnostics. 31st Symposium on the Interface: Computing Science and Statistics. St. Louis, MO, June 8-12.

85. Wilkinson, L. (2005). Graphics Algebra. ISBIS4, Palm Cove, Queensland, Australia, April 13-16.

86. Heatmaps. UCLA IPAM MGA Workshop III: Multiscale structures in the analysis of high-dimensional data. Los Angeles, CA, October 25-29, 2004.

87. Wilkinson, L. (1999). Algebra in the graphics pipeline. Joint Statistical Meetings. Baltimore, MD, August 7-12.

88. Wilkinson, L. (1999). Graphboard: A user interface component for building quantitative graphics. 31st Symposium on the Interface: Computing Science and Statistics. Schaumburg, IL, June 9-12.

89. Wilkinson, L. (1998). Graphics algebra. Association of American Geographers Annual Meeting. Honolulu, Hawaii, August 23-27.

90. Wilkinson, L. (1998). Graphics algebra. Joint Statistical Meetings. Dallas, TX, August 9-13.

91. Wilkinson, L. (1998). The grammar of graphics - a model-driven graphical system. AT&T Workshop on Data Visualization in Statistics. Madison, NJ, July 6-10.

92. Wilkinson, L. (1997). Tables and graphs. 29th Symposium on the Interface: Computing Science and Statistics. Houston, TX, May 14-17

93. Wilkinson, L. (1992). Tree structured data analysis: AID, CHAID, and CART. Sun Valley, ID, Sawtooth Software Conference.

94. Wilkinson, L. (1985), Statistical graphics. Invited paper. National Computer Graphics Association Conference. Dallas, May.

95. Wilkinson, L. (1985), Use of a microcomputer in statistical modeling. Invited paper. Chicago Chapter, American Statistical Association. Chicago.

96. Wilkinson, L. (1984), The Significance of the IEEE P754 Floating Paint Arithmetic Standard for statistical calculations. ASA-IASC-SIAM conference on Frontiers of Computational Statistics. Boston.

97. Wilkinson, L. (1982), Fuzzygrams. Harvard Computer Graphics Week. Cambridge, MA.

98. Milstein, R., Burrow, G. N., Wilkinson, L., and Kessen, W. (1978), Admission decisions and performance during medical school. Paper presented at the annual meeting of the American Education Research Association, San Francisco.

99. Wilkinson, L., and Ramanathan, G.V. (1977). A Scaled Logistic Quasi-Simplex is a Football and its Stress is not a Function of the Number of Points. Technical Report, University of Illinois at Chicago.

100. Wilkinson, L. (1977), Scaling preferences for psychological fields: The simplest structure. Paper presented at the 86th annual meeting of the American Psychological Association, San Francisco.

101. Milstein, R., Burrow, G. N., Wilkinson, L. (1976), Interrelations between interviewer and applicant in medical school admissions. Paper presented at the annual meeting of the American Association of Medical Colleges, San Francisco.

102. Wilkinson, L. and Saunders, J. T. (1975), The social identity of behavior modification: Empirical investigations. Paper presented at the 9th annual convention of the Association for Advancement of Behavior Therapy, San Francisco.

103. Reppucci, N. D., Saunders, J. T., and Wilkinson, L. (1972), The Social psychology of institutional change: General principles for intervention. Paper presented at the 80th annual meeting of the American Psychological Association, Honolulu, HI.

104. Reppucci, N. D., Wilkinson, L., and Saunders, J. T. (1971), The prehistory, port of entry, and mandate for change. Paper presented at the 79th annual meeting of the American Psychological Association, Washington, DC.

105. Saunders, J. T., Reppucci, N. D., and Wilkinson, L. (1971), Toward the development of a rehabilitation program. Paper presented at the 79th annual meeting of the American Psychological Association, Washington, DC.

Book Reviews

106. Wilkinson, L. (2011). Wickham, H. ggplot2: Elegant Graphics for Data Analysis. *Biometrics.*

107. Wilkinson, L. (2009). Howard Wainer: Picturing the uncertain world: How to understand, communicate, and control uncertainty through graphical display. *Journal of the American Society for Information Science and Technology, 61*, 853-854.

108. Wilkinson, L. (2007). Howard Wainer: Books on graphics. *Psychometrika, 72*, 111-113.

109. Wilkinson, L. (1983). A review of the Dual 83/20 68000 system. *Microsystems*, September, 44-46.

110. Wilkinson, L. (1980). Nonmetric data analysis in the social sciences (S. Shye), *Psychometrika*, 998-99.

Books

111. Wilkinson, L. (2005) *The Grammar of Graphics*, 2nd Ed. New York: Springer- Verlag.

112. Wilkinson, L. (1999) *The Grammar of Graphics.* New York: Springer-Verlag.

113. Wilkinson, L., Blank, G., and Gruber, C. G. (1996). *Desktop Data Analysis with SYSTAT.* Engelwood Cliffs, NJ: Prentice-Hall.

Reviewed Chapters

114. Wilkinson, L. (2010). Graphic Display of Data. In H. Cooper, A. Panter, P. Camic, R. Gonzalez, D. Long, and K. Sher (Eds.), *APA Handbook of Research Methods in Psychology.* Washington, DC: American Psychological Association.

115. Wilkinson, L. (2010). The Grammar of Graphics. In E. Wegman and Y. H. Said (Eds.), *Wiley Interdisciplinary Reviews: Computational Statistics*, New York: John Wiley & Sons.

116. Wilkinson, L. (2010). SYSTAT. In E. Wegman and Y. H. Said (Eds.), *Wiley Interdisciplinary Reviews: Computational Statistics*, New York: John Wiley & Sons.

117. Wilkinson, L. (2008). Graph-theoretic graphics. In C. Chen, W. Härdle and A. Unwin (Eds.), *Handbook of Data Visualization.* New York: Springer-Verlag.

118. Wilkinson, L. (2004). The Grammar of Graphics. In J.E. Gentle, W. Haerdle and Y. Mori (Eds.), *Handbook of Computational Statistics.* New York: Springer-Verlag.

119. Wilkinson, L. (2001). Graphics, presentation. In N.J. Smelser and P.B. Baltes (Eds .), *International Encyclopedia of the Social & Behavioral Sciences.* Amsterdam: Elsevier Science.

120. Wilkinson, L. (1998). Graphics transformations in 2-D. In J.G. Webster (Ed.), *Wiley Encyclopedia of Electrical and Electronics Engineering*, Vol. 8. New York: John Wiley & Sons, 444-448.

121. Wilkinson, L. (1994). Practical guidelines for testing statistical software. In Dirschedl, P. and Ostermann, R. (Eds.), *Computational Statistics.* Heidelberg: Physica-Verlag.

122. Wilkinson, L. (1992). Enhancing scatterplot matrices. In Westlake et al. (Eds.), *Survey and Statistical Computing.* London: Elsevier.

123. Wilkinson, L. (1991). Algorithms for choosing the domain and range when plotting a function. In Buja, A. and Tukey, P. (Eds.), *Computing and Graphics in Statistics*. Volume 36 of IMA Volumes in Mathematics and its Applications. New York: Springer Verlag.

124. Wilkinson, L.,Gimbel, B. R., and Koepke, D. (1982), Configural self diagnosis. In Hirschberg, N. (Ed.), *Applied Multivariate Models in the Social Sciences*. Hillsdale, NJ: Erlbaum.

Computer Software

125. Wilkinson, L. (2011). AdviseStat. Chicago, IL: Advise Analytics Inc. (an expert system for data analysis and visualization, now distributed by Skytree Software)

126. Wilkinson, L. (2010). VennEuler. R Package for Venn and Euler Diagrams (CRAN).

127. Wilkinson, L. (2009). Scagnostics. R Package for Graph-Theoretic Scagnostics (CRAN).

128. Wilkinson, L. (1999). SYSTAT, Version 9. Chicago, IL: SPSS Inc. (new nonparametric smoothers module)

129. Wilkinson, L. (1998). SYSTAT, Version 8. Chicago, IL: SPSS Inc. (new spatial statistics module)

130. Wilkinson, L. (1997). SYSTAT, Version 7. Chicago, IL: SPSS Inc. (13 new statistical routines and major revision of graphics)

131. Wilkinson, L. (1988), SYGRAPH: The system for graphics. Evanston, IL: SYSTAT, Inc.

132. Wilkinson, L. (1986), SYSTAT: The system for statistics. Evanston, IL: SYSTAT, Inc.

Patents

133. Wilkinson, L. (2009). System and method for computing analytics on structured data US 7627432 B2

134. Wilkinson, L. (2006). Computer method and apparatus for creating visible graphics by using a graph algebra EP 1175661 B1

Colloquia

135. High-Dimensional Visual Analytics. AIG International, New York, NY, January 19, 2016.

136. High-Dimensional Visual Analytics. Department of Computer Science, University of British Columbia, Vancouver, BC, September 13, 2013.

137. Analytics: Past, Present and Future. Midwest Biopharmaceutical Statistics Workshop, May 20, 2013

138. High-Dimensional Visual Analytics. Netherlands Society of Statistics Annual Meeting, March 21, 2013.

139. High-Dimensional Visual Analytics. Tableau Software, Seattle, WA, December 3, 2012.

140. High-Dimensional Visual Analytics: Exploring Structure using Low-dimensional Projections. Lucasfilm, August 28, 2012.

141. Wilkinson, L. (2011). A Second Opinion. Google, Mountain View, CA, October 21, 2011.

142. Linf: An L-infinity Classifier. University of Michigan, Department of Statistics, March 19, 2010.

143. Automated Visual Analysis using the Grammar of Graphics Foundation. Indiana University School of Informatics and Computing October 16, 2009.

144. Scagnostics. UC Irvine IMBS Colloquium, June 5, 2008.

145. Scagnostics. University of Chicago Statistics Department Colloquium, May 19, 2008.

146. Visualization and Statistics. Hearne Software and University of Melbourne, Australia, February 19, 2008.

147. Automated Visualization of Large Datasets Using the Grammar of Graphics Foundation. Harvard IIC Seminar, October 10, 2007.

148. Scagnostics. Neyman Seminar. UC Berkeley Department of Statistics, October, 2006.

149. Scagnostics. Department of Statistics, Iowa State University, September 25, 2006.

150. High Dimensional Visual Analytics. University of Malaya, January 13, 2006.

151. High Dimensional Visual Analytics. AT&T Laboratories, Florham Park, NJ, December 13, 2005

152. Scagnostics. 40 years of Statistical Computing and Beyond: Conference in honor of John Chambers. Murray Hill, NJ, April, 2005

153. Streaming Graphics (with Dancer). NCDM Lecture Series, University of Illinois at Chicago, February 6, 2004.

154. Three visualization systems based on graphics algebra. Bangalore, India, Indian Academy of Sciences, Raman Research Institute, February 5, 2003.

155. Trends in Statistical Graphics. Statistical Society of Ottawa: Exploring choices for statistical computing and graphics: February 15, 2002.

156. The Grammar of Graphics. Indian Statistical Institute, Calcutta, India, February 4, 2002.

157. The Grammar of Graphics: Designing a System for Displaying Statistical Graphics on the Web. University of Iowa, November 9, 2000.

158. The Grammar of Graphics: Designing a System for Displaying Statistical Graphics on the Web. Cleveland, OH Chapter of ASA, October 4, 2000.

159. Workshop on graphics and visualization. American Statistical Association, Southern California Chapter. Irvine, CA, November 23, 1998.

160. The Grammar of Graphics - A model-driven graphical system. American Statistical Association, Chicago Chapter. Chicago, IL, September 15, 1998.

161. The Grammar of Graphics. University of Chicago Department of Statistics. Chicago, IL, April 6, 1998.

162. The Grammar of Graphics. Fifth Annual Robert Wherry Lecture, Ohio State University, Monday, February 28, 1998.

163. Visualizing data: Getting beyond 3D gimmicks. Database & Client/Server World Conference. Chicago, IL, December 9-11, 1997

164. Tree Structured Data Analysis. SoftStat 97. Heidelberg, March, 1997.

165. Statistics in the Year 2000. Third International Biostatistics Meeting, AMGEN Inc., Thousand Oaks, CA, October, 1996.

166. Alternatives to Significance Tests. American Psychological Association. Toronto, Canada, August, 1996

167. Dot Plots. 17th Meeting of the International Society for Clinical Biostatistics. Budapest, August, 1996.

168. A Graph Algebra. Sydney International Statistical Congress. Sydney, Australia, July, 1996.

169. A Grammar of Graphs. Yale University Department of Statistics Colloquium, January 24, 1996.

170. Object oriented graphics. AT&T Bell Laboratories, October, 1994. Choosing the domain and range of a plotted function. Department of Computer Science, Moscow University. Moscow, USSR, May, 1990.

171. Statistical Graphics and Perception. Council of Biology Editors. Rochester, Minn., May 1989.

172. Statistical Graphics. National Academy of Sciences, Committee on Vision. Washington, D.C., May, 1989.

173. Standards for Statistical Software. Computer Science and Statistics, 21st Symposium on the Interface. Orlando, Florida, March, 1989.

174. Multivariate computer graphics. Department of Psychology, University of Madrid, Spain, 1983.

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