

# WILLIAM H. WOODALL

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## Academic Background:

**Ph.D. in Statistics**, Virginia Polytechnic Institute and State University, December 1980.

Dissertation: "A Markov Chain Representation of Certain Sequential Tests."

Advisor: Marion R. Reynolds, Jr.

**M.S. in Statistics**, Virginia Polytechnic Institute and State University, 1974.

**B.S. in Mathematics** (Magna Cum Laude), Millsaps College, 1972.

## Professional Experience:

**Professor of Statistics** in the Department of Statistics, Virginia Tech (2000-present).

**Russell Professor of Statistics** in the Department of Management Science and Statistics at the University of Alabama (1995-2000). C&BA Board of Visitors Research Professor of Statistics (1992-1994). Director of Applied Statistics Program (1993-1998). Associate Professor (1989-1992).

**Adjunct Professor** in the Department of Statistics at the University of Southwestern Louisiana. (1989-1990). (Associate Professor 1986-1989; Assistant Professor 1982-1986).

**Visiting Professor** in the Department of Statistics at Virginia Polytechnic Institute and State University. (Summer, 1988).

**Assistant Professor** in the Department of Business Statistics and Data Processing at Mississippi State University. (January 1981 - May 1982).

**Statistical Consulting** experience involving design of experiments, computing, and interpretation of data from many fields including business, biology, chemistry, agriculture, psychology and engineering. (1978-present).

**Assistant Actuary** with responsibility for product development for Southern Farm Bureau Life Insurance Company, Jackson, Mississippi. Passed seven of the ten exams of the Society of Actuaries. (1975-1978).

## **Awards and Honors:**

Shewhart Medal, American Society for Quality, 2002

Box Medal, European Network of Business and Industrial Statistics, 2012

Fellow of the American Statistical Association (1997)

Fellow of the American Society for Quality (2000)

Elected Member of the International Statistical Institute (2004)

Honoree, Quality and Productivity Research Conference, Long Beach, CA, 2012

Jack Youden Prize for best expository papers in *Technometrics* (1995, 2003)

ASQ Brumbaugh Award (2000, 2006)

Søren Bisgaard Award from *Quality Engineering*, 2012

1997 Best Paper Award for *IIE Transactions on Quality and Reliability*

Ellis Ott Foundation Award for best paper in quality control, 1987

Lloyd S. Nelson Award, ASQ Statistics Division, 2014

W. J. Youden Memorial Address, Fall Technical Conference of ASA and ASQ, 2004

Isobel Loutit Invited Address, Statistical Society of Canada, 2009

W. L. Gore Lecture, University of Delaware, 2014

David Sprott Distinguished Speaker, University of Waterloo, 2015

Selected by *Quality Progress* of ASQ as one of 21 “Voices of Quality” for 21<sup>st</sup> Century

Pamplin MBA Faculty Award, Virginia Tech (2003-2004)

Thomas D. Moore Endowed Undergraduate Teaching Award, University of Alabama, 1998.

Statistics Club Professor of the Year, Virginia Tech 2001-2002, 2011-2012

Boyd Harshbarger Award for excellence in first year of graduate school, Virginia Tech

Certificate of Teaching Excellence, Virginia Tech, 1980

## Courses Taught:

Undergraduate courses in applied statistics, mathematical statistics, time series analysis, and statistical quality control. Graduate courses in applied statistics, statistical quality control, advanced statistical quality control, stochastic processes, mathematical statistics, time series analysis, experimental design, nonparametric methods, and Six Sigma.

## Publications:

(see Google Scholar page at <http://scholar.google.com/citations?user=5y13-1EAAAAJ&hl=en>)

## Refereed Journal Articles:

1. Woodall, W. H., and Reynolds, M. R., Jr. (1983), "A Discrete Markov Chain Representation of SPRT's," *Communications in Statistics - Sequential Analysis*, 2(1), 27-44.
2. Woodall, W. H. (1983), "The Distribution of the Run Length of One-Sided CUSUM Procedures for Continuous Random Variables," *Technometrics*, 25(3), 295-301.
3. Woodall, W. H. (1984), "On the Markov Chain Approach to the Two-Sided CUSUM Procedure," *Technometrics*, 26(1), 41-46.
4. Ncube, M. M. and Woodall, W. H. (1984), "A Combined Shewhart-Cumulative Score Quality Control Procedure," *Applied Statistics*, 33(3), 259-265.
5. Woodall, W. H. (1985), "The Statistical Design of Quality Control Charts," *The Statistician*, 34(2), 155-160. Reprinted in *Quest for Quality* (1987), edited by Mehram Sepehri, Industrial Engineering and Management Press, Atlanta, Georgia.
6. Woodall, W. H. and Ncube, M. M. (1985), "Multivariate CUSUM Quality Control Procedures," *Technometrics*, 27(3), 285-292.
7. Woodall, W. H. (1986), "The Design of CUSUM Quality Control Charts," *Journal of Quality Technology*, 18(2), 99-102.
8. Tuprah, K. and Woodall, W. H. (1986), "Bivariate Dispersion Quality Control Charts," *Communications in Statistics - Simulation and Computation*, 15(2), 505-522.
9. Champ, C. W. and Woodall, W. H. (1987), "Exact Results for Shewhart Control Charts with Supplementary Runs Rules," *Technometrics*, 29(4), 393-399. (Ellis Ott Foundation Award)
10. Davis, R. B. and Woodall, W. H. (1988), "Performance of the Control Chart Trend Rule Under Linear Shift," *Journal of Quality Technology*, 20(4), 260-262.

11. Adams, B. M. and Woodall, W. H. (1989), "An Analysis of Taguchi's On-Line Process Control Method Under a Random Walk Model," *Technometrics*, 31(4), 401-413.
12. Champ, C. W. and Woodall, W. H. (1990), "A Program to Evaluate the Run Length Distribution of Shewhart Control Charts with Supplementary Runs Rules," *Journal of Quality Technology*, 22(1), 68-73.
13. Davis, R. B., Homer, A., and Woodall, W. H. (1990), "Performance of the Zone Control Chart," *Communications in Statistics - Theory and Methods*, 19(5), 1581-1587.
14. Champ, C. W., Woodall, W. H., and Moshen, H. A. (1991), "A Generalized Quality Control Procedure," *Statistics and Probability Letters*, 11(3), 211-218.
15. Maragah, H. D. and Woodall, W. H. (1992), "The Effect of Autocorrelation on the Retrospective X-Chart," *Journal of Statistical Computation and Simulation*, 40, 29-42.
16. Lowry, C. A., Woodall, W. H., Champ, C. W., and Rigdon, S. E. (1992), "A Multivariate Exponentially Weighted Moving Average Control Chart," *Technometrics*, 34(1), 46-53.
17. Woodall, W. H. (1992), "A Note on Maximum Z-Scores for Control Charts for Individuals," *Communications in Statistics - Theory and Methods*, 21(11), 3211-3217.
18. Woodall, W. H. and Adams, B. M. (1993), "The Statistical Design of CUSUM Charts," *Quality Engineering*, 5 (4), 559-570.
19. Nayeypour, M. R. and Woodall, W. H. (1993), "An Analysis of Taguchi's On-Line Quality Monitoring Procedures for Attributes," *Technometrics*, 35(1), 53-60.
20. Tsui, K.-L. and Woodall, W. H. (1993), "Multivariate Control Charts Based on Loss Functions," *Sequential Analysis*, 12 (1), 79-92.
21. Wade, M. R. and Woodall, W. H. (1993), "A Review and Analysis of Cause-Selecting Control Charts," *Journal of Quality Technology*, 25(3), 161-169.
22. Bullington, R. G., Lovin, S., Miller, D. M., and Woodall, W. H. (1993), "Improvement of an Industrial Thermostat Using Designed Experiments," *Journal of Quality Technology*, 25(4), 262-270.
23. Davis, R. E. and Woodall, W. H. (1994), "A Study of Parabolic Control Limits for the EWMA Control Chart," *Communications in Statistics - Simulation and Computation*, 23 (1), 17-26.

24. Gray, J. Brian and Woodall, W. H. (1994), "On the Maximum Size of Standardized and Internally Studentized Residuals in Regression Analysis," *American Statistician*, 48(2), 111 - 113.
25. Sullivan, J. H. and Woodall, W. H. (1994), "A Comparison of Fuzzy Forecasting and Markov Modeling," *Fuzzy Sets and Systems*, 64(3), 279-293.
26. Redden, D. T. and Woodall, W. H. (1994), "Properties of Certain Fuzzy Linear Regression Methods," *Fuzzy Sets and Systems*, 64(3), 361-375.
27. Laviolette, M., Seaman, J. W., Jr., Barrett, J. D., and Woodall, W. H. (1995), "A Probabilistic and Statistical View of Fuzzy Methods," (with discussion) *Technometrics*, 37(3), 249-292. (Presented in the *Technometrics* session of the 1994 Joint Statistical Meetings in Toronto, Canada.) (Youden Prize).
28. Woodall, W. H. and Thomas, E.V. (1995), "Statistical Process Control with Several Components of Common Cause Variability," *IIE Transactions*, 27(6), 757-764.
29. Margavio, T. M., Conerly, M. D., Woodall, W. H., and Drake, L. G. (1995), "Alarm Rates for Quality Control Charts," *Statistics and Probability Letters*, 24(3), 219-224.
30. Lowry, C. A., Champ, C. W., and Woodall, W. H. (1995), "Performance of Control Charts for Monitoring Process Variation," *Communications in Statistics - Simulation and Computation*, 24 (2), 409-437.
31. Sullivan, J. H., Barrett, J. D., and Woodall, W. H. (1995), "Interpreting the Retrospective  $T^2$  Control Chart Based on Individual Observations," invited paper in the *Indian Association for Productivity, Quality, and Reliability Transactions*, special issue dedicated to the memory of Professor P. K. Bose, 20, 183-195.
32. Sullivan, J. H. and Woodall, W. H. (1996), "A Control Chart for Preliminary Analysis of Individual Observations," *Journal of Quality Technology*, 28(3), 265-278.
33. Redden, D. T. and Woodall, W. H. (1996), "Further Examination of Fuzzy Linear Regression," *Fuzzy Sets and Systems*, 79(2), 203-211.
34. Sullivan, J. H. and Woodall, W. H. (1996), "A Comparison of Multivariate Quality Control Charts for Individual Observations," *Journal of Quality Technology*, 28(4), 398-408.
35. Barrett, J. D. and Woodall, W. H. (1997), "A Probabilistic Alternative to Fuzzy Logic Controllers," *IIE Transactions - Quality and Reliability Engineering*, 29(6), 459-467. (Best Paper Award).

36. Woodall, W. H. (1997), "Control Charting Based on Attribute Data: Bibliography and Review," *Journal of Quality Technology*, 29(2), 172-183.
37. Champ, C. W. and Woodall, W. H. (1997), "Signal Probabilities of Runs Rules Supplementing a Shewhart Control Chart," *Communications in Statistics-Simulation and Computation*, 26(4), 1347-1360.
38. Jones, L. A. and Woodall, W. H. (1997), "A Runs Rule Alternative to Level Crossings in Statistical Process Control," *Journal of Statistical Computation and Simulation*, 59(4), 315-331.
39. Jones, L. A. and Woodall, W. H. (1998), "The Performance of Bootstrap Control Charts," *Journal of Quality Technology*, 30(4), 362-375.
40. Jones, L. A., Woodall, W. H., and Conerly, M. D. (1999), "Exact Properties of Demerit Control Charts," *Journal of Quality Technology*, 31(2), 207-216.
41. Sullivan, J. H. and Woodall, W. H. (1998), "Adapting Control Charts for the Preliminary Analysis of Multivariate Observations," *Communications in Statistics - Simulation and Computation*, 27 (4), 953-979.
42. Barrett, J. D. and Woodall, W. H. (1999), "A Simple Probabilistic Representation of the Product-Sum Fuzzy Logic Controller," *Communications in Statistics-Stochastic Models*, 15, 201-225.
43. Woodall, W. H. and Montgomery, D. C. (1999), "Research Issues and Ideas in Statistical Process Control," *Journal of Quality Technology*, 31(4), 376-386.
44. Sullivan, J. H. and Woodall, W. H. (1999), "Estimating Markov Transition Matrices Using Uncertain Observed States," *Stochastic Analysis and Applications*, 17(2), 253-274.
45. Sullivan, J. H. and Woodall, W. H. (2000), "Change-Point Detection of Mean Vector or Covariance Matrix Shifts Using Multivariate Individual Observations," *IIE Transactions - Quality and Reliability Engineering*, 32(6), 537-549.
46. Woodall, W. H. (2000), "Controversies and Contradictions in Statistical Process Control," (with discussion), *Journal of Quality Technology*, 32(4), 341-378. (Brumbaugh Award)
47. Jiang, W., Tsui, K.-L., and Woodall, W. H. (2000), "A New SPC Monitoring Method: The ARMA Chart," *Technometrics*, 42(4), 399-410.
48. Woodall, W. H. and Montgomery, D. C. (2000), "Using Ranges to Estimate Variability," *Quality Engineering*, 13(2), 211-217.

49. Cleveland, C. D., Jr., Sullivan, J. H., Batson, R. G., and Woodall, W. H. (2001), "A Program for Retrospective Change-Point Analysis of Individual Observations," *Journal of Quality Technology*, 33(2), 242-257.
50. Stoumbos, Z. G., Reynolds, M. R., Jr., Ryan, T. P., and Woodall, W. H. (2000), "The State of Statistical Process Control as We Proceed into the 21<sup>st</sup> Century," *Journal of the American Statistical Association*, 95(451), 992-998. (Reprinted in *Statistics for the 21<sup>st</sup> Century*, Chapman and Hall, 2001, edited by A.E. Raftery, M.A. Tanner, and M.T. Wells).
51. Linna, K. W. and Woodall, W. H. (2001), "The Effect of Measurement Error on the Performance of Shewhart Control Charts," *Journal of Quality Technology*, 33(2), 213-222.
52. Linna, K. W., Woodall, W. H., and Busby, K. L. (2001), "The Performance of Multivariate Control Charts in the Presence of Measurement Error," *Journal of Quality Technology*, 33(3), 349-355.
53. Davis, R. B. and Woodall, W.H. (2002), "Evaluating and Improving the Synthetic Control Chart," *Journal of Quality Technology*, 34(2), 200-208.
54. Woodall, W. H., Koudelik, R., Tsui, K.-L., Kim, S.B., Stoumbos, Z.G., and Carvounis, C.P. (2003), "A Review and Analysis of the Mahalanobis-Taguchi System," *Technometrics*, 45(1), 1-30. (With discussion by R. Jugulum, G. Taguchi, S. Taguchi, and J. O. Wilkins; D. M. Hawkins; and B. Abraham and A. M. Variyath.) (Youden Prize)
55. Noorossana, R., Woodall, W.H., and Amiriparian, S. (2002), "On the Economic Design of Multivariate Control Charts," *Communications in Statistics – Theory and Methods*, 31(9), 1665-1673.
56. Tucker, G. T., Woodall, W. H., and Tsui, K. -L. (2002), "A Control Chart Method for Ordinal Data," *American Journal of Mathematical and Management Sciences*, 22, 31-48.
57. Kim, K., Mahmoud, M. A., and Woodall, W. H. (2003), "On the Monitoring of Linear Profiles," *Journal of Quality Technology*, 35(3), 317-328.
58. Mahmoud, M. A. and Woodall, W. H. (2004), "Phase I Analysis of Linear Profiles with Calibration Applications", *Technometrics*, 46(4), 377-391.
59. Woodall, W. H., Spitzner, D. J., Montgomery, D. C., and Gupta, S. (2004), "Using Control Charts to Monitor Process and Product Quality Profiles", *Journal of Quality Technology* 36(3), 309-320. (Corrigendum, *JQT* 2006, 38(2), 197.)

60. Ryan, T. P. and Woodall, W. H. (2005), "The Most-Cited Statistical Papers," *Journal of Applied Statistics* 32(5), 461-474.
61. Woodall, W. H. and Mahmoud, M. A. (2005), "The Inertial Properties of Quality Control Charts", *Technometrics* 47(4), 425-436. (Presented at the *Technometrics* Session of the 49<sup>th</sup> Fall Technical Conference, St. Louis, MO)
62. Gupta, S., Montgomery, D. C., and Woodall, W. H. (2006), "Performance Evaluation of Two Methods for Online Monitoring of Linear Calibration Profiles", *International Journal of Production Research*, 44(10), 1927-1942.
63. Mahmoud, M. A., Parker, P. A., Woodall, W. H., and Hawkins, D. M. (2007), "A Change Point Method for Linear Profile Data", *Quality & Reliability Engineering International*, 23(2), 247-268.
64. Williams, J. D., Woodall, W. H., Birch, J. B., and Sullivan, J. H. (2006), "Distribution of Hotelling's  $T^2$  Statistic Based on the Successive Differences Covariance Matrix Estimator", *Journal of Quality Technology*, 38(3), 217-229.
65. Jensen, W. A., Jones-Farmer, L. A., Champ, C. W., and Woodall, W. H. (2006), "Effects of Parameter Estimation on Control Chart Properties: A Literature Review", *Journal of Quality Technology* 38(4), 349-364.
66. Runger, G. C., Barton, R. R., Del Castillo, E., and Woodall, W. H. (2007), "Optimal Monitoring of Multivariate Data for Fault Detection", *Journal of Quality Technology*, 39(2), 159-172.
67. Woodall, W. H. (2006), "Use of Control Charts in Health-Care and Public-Health Surveillance" (with discussion), *Journal of Quality Technology*, 38(2), 89-104. (Brumbaugh Award)
68. Joner, M. D., Jr., Woodall, W. H., Reynolds, M. R., Jr., and Fricker, R. D., Jr. (2008), "A One-Sided MEWMA Chart for Health Surveillance", *Quality and Reliability Engineering International* 24 (5), 503-518.
69. Marshall, J. B., Spitzner, D. J., and Woodall, W. H. (2007), "Use of the Local Knox Statistic for the Prospective Monitoring of Disease Occurrences in Space and Time", *Statistics in Medicine* 26 (7), 1579-1593.
70. Jensen, W. A., Birch, J. B., and Woodall, W. H. (2007), "High Breakdown Estimation for Phase I Multivariate Control Charts", *Quality and Reliability Engineering International* 23, 615-629.



71. Sego, L. H., Woodall, W. H., and Reynolds, M. R., Jr. (2008), "A Comparison of Surveillance Methods for Small Incidence Rates", *Statistics in Medicine* 27(8), 1225 - 1247.
72. Williams, J. D., Birch, J. B., Woodall, W. H., and Ferry, N. M. (2007), "Statistical Monitoring of Heteroscedastic Dose-Response Profiles from High-Throughput Screening", *Journal of Agricultural, Biological and Environmental Statistics* 12(2), 216-235.
73. Jensen, W. A., Birch, J. B., and Woodall, W. H. (2008), "Monitoring Correlation within Linear Profiles Using Mixed Models", *Journal of Quality Technology* 40(2), 167-183.
74. Woodall, W. H., Marshall, J. B., Joner, M. D., Jr., Fraker, S. E., and Abdel-Salam, A. G. (2008), "On the Use and Evaluation of Prospective Scan Methods in Health-Related Surveillance", *Journal of the Royal Statistical Society, Series A*, 171(1), 223-237.
75. Joner, M. D., Jr., Woodall, W. H., and Reynolds, M.R., Jr. (2008), "Detecting a Rate Increase Using a Bernoulli Scan Statistic", *Statistics in Medicine* 27, 2555-2575.
76. Woodall, W. H. and Borrór, C. M. (2008), "Some Relationships between Gage R&R Criteria", *Quality and Reliability Engineering International* 24, 99-106.
77. Sego, L H., Reynolds, M. R., Jr., and Woodall, W. H. (2009), "Risk-Adjusted Monitoring of Survival Times", *Statistics in Medicine* 28, 1386-1401.
78. Mohammed, M. A., Worthington, P., and Woodall, W. H. (2008), "Plotting Basic Control Charts: Tutorial Notes for Healthcare Practitioners", *Quality and Safety in Health Care* 17, 137-145.
79. Williams, J. D., Woodall, W. H., and Birch, J. B. (2007), "Statistical Monitoring of Nonlinear Product and Process Quality Profiles", *Quality and Reliability Engineering International* 23(7), 925-941.
80. Fraker, S. E., Woodall, W. H., and Mousavi, S. (2008), "Performance Metrics for Surveillance Schemes", *Quality Engineering* 20, 451-464.
81. Fraker, S. E., Woodall, W. H., and Burkom, H. S. (2008), "A Note on the Poisson Likelihood Ratio Test Statistic for Kulldorff's Scan Methods". *Communications in Statistics – Theory and Methods* 37(7), 998-1001.
82. Mahmoud, M. A., Woodall, W. H., and Davis, R. E. (2008), "Performance Comparison of Some Likelihood Ratio-Based Statistical Surveillance Schemes". *Journal of Applied Statistics* 35(7), 783-798.

83. Woodall, W. H. (2007), "Current Research in Profile Monitoring", *Produção* 17(3), 420-425. (Invited paper)
84. Montgomery, D. C. and Woodall, W. H. (2008), "An Overview of Six Sigma", *International Statistical Review* 76(3), 329-346. (Invited paper)
85. Mahmoud, M. A., Morgan, J. P., and Woodall, W. H. (2010), "The Monitoring of Simple Linear Regression Profiles with Two Observations per Sample", *Journal of Applied Statistics* 37 (8), 1249-1263.
86. Woodall, W. H. (2009), "A Conversation with Donald J. Wheeler", *Quality Engineering* 21 (4), 357-365.
87. Tsui, K.-L., Han, S. W., Jiang, W., and Woodall, W. H. (2012), "A Review and Comparison of Likelihood-based Charting Methods", *IIE Transactions* 44, pp. 724-743.
88. Ryan, A. G. and Woodall, W. H. (2010), "Control Charts for Poisson Count Data with Varying Sample Sizes", *Journal of Quality Technology* 42 (3), 260-275.
89. Mahmoud, M. A. and Woodall, W. H. (2010), "An Evaluation of the Double Exponentially Weighted Moving Average Control Chart", *Communications in Statistics – Simulation and Computation* 39, 933-949.
90. Jiang, W., Han, S. W., Tsui, K-L., and Woodall, W. H. (2011), "Spatiotemporal Surveillance in the Presence of Spatial Correlation", *Statistics in Medicine* 30(5), 569-583.
91. Szarka, J. L., III, Gan, L., and Woodall, W. H. (2011), "Comparison of the Early Aberration Reporting System (EARS) W2 Methods to an Adaptive Threshold Method", *Statistics in Medicine* 30(5), 489-504.
92. Mahmoud, M. A., Henderson, G. R., Epprecht, E. K., and Woodall, W. H. (2010), "Estimating the Standard Deviation in Quality Control Applications", *Journal of Quality Technology* 42(4), 348-357.
93. Megahed, F. M., Woodall, W. H., and Camelio, J. A. (2011), "A Review and Perspective on Control Charting with Image Data", *Journal of Quality Technology* 43(2), 83-98.
94. Megahed, F. M., Kensler, J.L.K., Bedair, K., and Woodall, W. H. (2011), "A Note on the ARL of Two-sided Bernoulli-based CUSUM Control Charts", *Journal of Quality Technology* 43(1), 43-49.

95. Ryan, A. G., Wells, L.J., and Woodall, W. H. (2011), "Methods for Monitoring Multiple Proportions When Inspecting Continuously", *Journal of Quality Technology* 43(3), 237-248.
96. Megahed, F. M., Fraker, S. E., and Woodall, W. H. (2012), "A Note on Two Performance Metrics for Public-Health Surveillance Schemes", *Journal of Applied Probability and Statistics* 7(1), 35-41.
97. He, S., Huang, W., and Woodall, W. H. (2012), "CUSUM Charts for Monitoring a Zero-Inflated Poisson Process", *Quality and Reliability Engineering International* 28(2), 181-192.
98. Szarka, J. L., III and Woodall, W. H. (2011), "A Review and Perspective on Surveillance of Bernoulli Processes", *Quality and Reliability Engineering International* 27, 735-752.
99. Szarka, J. L., III and Woodall, W. H. (2012), "On the Equivalence of the Bernoulli and Geometric CUSUM Charts", *Journal of Quality Technology* 44(1), 54-62.
100. Wells, L. J., Megahed, F. M., Camelio, J. A., and Woodall, W. H. (2012), "A Framework for Variation Visualization and Understanding in Complex Manufacturing Systems", *Journal of Intelligent Manufacturing* 23, 2025-2036.
101. Megahed, F. M., Wells, L. J., Camelio, J. A., and Woodall, W. H. (2012), "A Spatiotemporal Method for the Monitoring of Image Data", *Quality and Reliability Engineering International* 28, 967-980.
102. Zhang, M., Peng, Y., Schuh, A., Megahed, F. M., and Woodall, W. H. (2013), "Geometric Charts with Estimated Parameters", *Quality and Reliability Engineering International* 29, 209-223.
103. Lee, J., Wang, N., Xu, L., Schuh, A., and Woodall, W. H. (2013), "The Effect of Parameter Estimation on Upper-Sided Bernoulli CUSUM Charts", *Quality and Reliability Engineering International* 29, 639-651.
104. Xu, L., Wang, S., Peng, Y., Morgan, J.P., Reynolds, M.R., Jr., and Woodall, W. H. (2012), "The Monitoring of Linear Profiles with a GLR Control Chart", *Journal of Quality Technology* 44(4), 348-362.
105. Box, G. E. P. and Woodall, W. H. (2012), "Innovation, Quality Engineering, and Statistics", *Quality Engineering* 24, 20-29. (Søren Bisgaard Award)
106. Wells, L. J., Megahed, F. M., Niziolek, C., Camelio, J. A., and Woodall, W. H. (2013), "Statistical Process Monitoring Approach for High Density Point Clouds", *Journal of Intelligent Manufacturing* 24, 1267-1279.

107. Zhang, Y., He, Z., Zhang, C., and Woodall, W. H. (2014), "Control Charts for Monitoring Linear Profiles with Within-profile Correlation Using Gaussian Process Models", *Quality and Reliability Engineering International* 30(4), 487-501
108. Schuh, A., Camelio, J. A., and Woodall, W. H. (2014), "Control Charts for Accident Frequency: A Motivation for Real-Time Occupational Safety Monitoring". *International Journal of Injury Control and Safety Promotion* 21(2), 154-163.
109. Woodall, W. H. and Montgomery, D. C. (2014), "Some Current Directions in the Theory and Application of Statistical Process Monitoring", *Journal of Quality Technology* 46(1), 78-94.
110. Zhang, M., Megahed, F. M., and Woodall, W.H. (2014), "Exponential CUSUM Charts with Estimated Control Limits", *Quality and Reliability Engineering International* 30, 275-286.
111. Chen, Y., Birch, J. B., and Woodall, W. H. (2015), "Cluster-Based Profile Analysis in Phase I". *Journal of Quality Technology* 47(1), 14-29.
112. Schuh, A., Woodall, W. H., and Camelio, J. A. (2013), "The Effect of Aggregating Data When Monitoring a Poisson Process", *Journal of Quality Technology*, 45(3), 260-272.
113. Purdy, G. G., Richards, S. C., and Woodall, W. H. (2015), "Surveillance of Nonhomogeneous Poisson Processes". *Technometrics* 57(3), 388-394.
114. Dickinson, R. M., Roberts, D. A. O., Ryan, A. G., Woodall, W. H., and Vining, G. G. (2014), "CUSUM Charts for Monitoring the Characteristic Life of Censored Weibull Lifetimes". *Journal of Quality Technology* 46(4), 340-358.
115. Aly, A. A., Mahmoud, M. A., and Woodall, W. H. (2015). "A Comparison of the Performance of Phase II Simple Linear Profile Control Charts when Parameters are Estimated". *Communications in Statistics – Simulation and Computation* 44, 1432-1440.
116. Jones-Farmer, L. A., Woodall W. H., Steiner, S. H., and Champ, C. W. (2014). "An Overview of Phase I Analysis for Process Improvement and Monitoring". *Journal of Quality Technology* 46(3), 265-280. (Lloyd S. Nelson Award)
117. Woodall, W. H. and del Castillo, E. (2014). "An Overview of George Box's Contributions to Process Monitoring and Feedback Adjustment", *Applied Stochastic Models for Business and Industry* 30, 53-61. (Invited paper for special issue on George E. P. Box)

118. Shafae, M. S., Dickinson, R. M., Woodall, W. H., and Camelio, J. A. (2015). "CUSUM Charts for Monitoring Weibull-Distributed Time between Events". *Quality and Reliability Engineering International* 31, 839-849.
119. Saleh, N. A., Mahmoud, M. A., Keefe, M. J., and Woodall, W. H. (2015). "The Difficulty in Designing  $\bar{X}$ -bar and  $X$ - Control Charts with Estimated Parameters". *Journal of Quality Technology* 47(2), 127-138.
120. Tian, W., Sun, H., Zhang, X., and Woodall, W.H. (2015). "The Impact of Varying Patient Populations on the In-control Performance of the Risk-adjusted Bernoulli CUSUM Chart". *International Journal for Quality in Health Care* 27(1), 31–36.
121. Saleh, N. A., Mahmoud, M. A., Jones-Farmer, L. A., Zwetsloot, I., and Woodall, W. H. (2015). "Another Look at the EWMA Control Chart with Estimated Parameters". *Journal of Quality Technology* 47(4), 363-382.
122. Shen, X., Tsui, K.-L., Woodall, W. H. and Zou, C. (2016). "Self-starting Monitoring Scheme for Poisson Count Data with Varying Population Sizes". *Technometrics* 58(4), 460-471.
123. Chen, Y., Birch, J. B., and Woodall, W. H. (2015). "A Phase I Cluster-Based Method for Analyzing Nonparametric Profiles", *Quality and Reliability Engineering International* 31, 1675-1689.
124. Aly, A.A., Saleh, N.A., Mahmoud, M.A., and Woodall, W. H. (2015), "A Re-evaluation of the Adaptive Exponentially Weighted Moving Average Control Chart when Parameters are Estimated". *Quality and Reliability Engineering International* 31, 1611-1622.
125. Woodall, W. H., Fogel, S. L., and Steiner, S. H. (2015). "The Monitoring and Improvement of Surgical Outcome Quality". *Journal of Quality Technology* 47(4), 383-399.
126. Chen, Y., Birch, J. B., and Woodall, W. H. (2016). "Effect of Phase I Estimation on Phase II Control Chart Performance with Profile Data" *Quality and Reliability Engineering International* 32(1), 79-87.
127. Huang, W., Shu, L., Woodall, W. H., and Tsui, K.-L. (2016). "CUSUM Procedures with Probability Control Limits for Monitoring Processes with Variable Sample Sizes". *IIE Transactions*, 48(8), 759-771.
128. Zhang, X. and Woodall, W. H. (2015). "Dynamic Probability Control Limits for Risk-adjusted Bernoulli CUSUM Charts". *Statistics in Medicine* 34, 3336-3348.

129. Keefe, M. J., Woodall, W. H., and Jones-Farmer, L. A. (2015). "The Conditional In-control Performance of Self-starting Control Charts". *Quality Engineering* 27(4), 488-499.
130. Faraz, A., Woodall, W. H., and Heuchenne, C. (2015). "Guaranteed Conditional Performance of the  $S^2$  Control Chart with Estimated Parameters". *International Journal of Production Research* 53(14), 4405-4413.
131. Keefe, M. J., Franck, C. T., and Woodall, W. H. (2017). "Monitoring Foreclosure Rates with a Spatially Risk-adjusted Bernoulli CUSUM Chart for Concurrent Observations". *Journal of Applied Statistics*, 44(2), 325-341.
132. Woodall, W. H., Zhao, M., Paynabar, K., Sparks, R., and Wilson, J. D. (2017). "An Overview and Perspective on Social Network Monitoring", *IISE Transactions*, 49(3), 354-365.
133. Saleh, N. A., Zwetsloot, I. M., Mahmoud, M. A., and Woodall, W. H. (2016). "CUSUM Charts with Controlled Conditional Performance under Estimated Parameters", *Quality Engineering*, 28(4), 402-415.
134. Steiner, S. H. and Woodall, W. H. (2016). "Debate: What is the Best Method to Monitor Surgical Performance?", *BMC Surgery*. 16:15 DOI 10.1186/s12893-016-0131-8.
135. Zhang, X. and Woodall, W. H. (2017). "Reduction of the Effect of Estimation Error on the In-control Performance of Risk-adjusted Bernoulli CUSUM Chart with Dynamic Probability Control Limits", *Quality and Reliability Engineering International*, 33, 381-386.
136. Zhang, X. and Woodall, W. H. (2017). "Dynamic Probability Control Limits for Lower and Two-sided Risk-adjusted Bernoulli CUSUM Charts". *Quality and Reliability Engineering International* 33, 607-616.
137. Zhang, X., Loda, J. and Woodall, W. H. (2017). "Dynamic Probability Control Limits for Risk-adjusted CUSUM Charts based on Multi-responses". *Statistics in Medicine* 36, 2547-2558.
138. Mao, H., Ginther, C. N., and Woodall, W. H. (2017). "An Evaluation of Wheeler's Method for Monitoring the Rate of Rare Events". *Quality and Reliability Engineering International* 33, 503-513.
139. Woodall, W. H. (2017). "Bridging the Gap between Theory and Practice in Basic Statistical Process Monitoring". *Quality Engineering* 29(1), 2-15.

140. Zwetsloot, I. M. and Woodall, W. H. (2017). "A Head-to-Head Comparative Study of the Conditional Performance of Control Charts based on Estimated Parameters", *Quality Engineering* 29(2), 244-253.
141. Keefe, M. J., Loda, J. B., Elhabashy, A. E., and Woodall, W. H. (2017). "Improved Implementation of the Risk-adjusted Bernoulli CUSUM Chart to Monitor Surgical Outcome Quality", *International Journal for Quality in Health Care* 29(3), 343-348.
142. Zhao, M. J., Driscoll, A. R., Fricker, R. D., Jr., Sengupta, S., Spitzner, D. J. and Woodall, W. H. (2017). "Performance Evaluation of Social Network Anomaly Detection Using a Moving Window Based Scan Method", Submitted to *Quality and Reliability Engineering International*.
143. Wilson, J. D., Stevens, N. T. and Woodall, W. H. (2017). "Modeling and Detecting Change in Time-varying Networks via a Dynamic Degree Corrected Stochastic Block Model", Submitted to *Transactions on Network Science and Engineering*.
144. Rigdon, S. E., and Woodall, W. H. (2017). "Using the Predictive Distribution to Determine Control Limits for the Bayesian MEWMA Chart", *Communications in Statistics – Simulation and Computation* 46(10), 7818-7826.
145. Elhabashy, A. E., Wells, L.J., Camelio, J.A., and Woodall, W. H. (2017). "A Cyber-Physical Security Framework for Production Systems: A Quality Control Perspective", Under revision for resubmission to *Journal of Intelligent Manufacturing*.
146. Yu, L, Woodall, W. H., and Tsui, K.-L. (2017). "Detecting Node Propensity Changes in the Degree-corrected Stochastic Block Model", Under second revision for *Social Networks*.
147. Zhao, M. J., Driscoll, A. R., Sengupta, S., Stevens, N. T., Fricker, R. D., Jr., and Woodall, W. H. (2017). "The Effect of Temporal Aggregation Level in Social Network Monitoring", Submitted to *Technometrics*.
148. Zwetsloot, I. and Woodall, W. H. (2017). "A Review of Sampling and Aggregation Strategies for Basic Statistical Process Monitoring". Submitted to the *Journal of Quality Technology*.
149. Zheng, H., Woodall, W. H., and DeLisle, S. (2018). "Can Long-Term Historical Data from Electronic Medical Records Improve Surveillance for Epidemics of Acute Respiratory Infections? A Systematic Evaluation, to appear in *PLOS ONE*.

### Refereed Proceedings Papers:

1. Woodall, W. H. (1987), "Conflicts Between Deming's Philosophy and the Economic Design of Control Charts," *Frontiers in Statistical Quality Control 3*, eds. Lenz, H. - J., Wetherill, G. B., and Wilrich, P. -Th., Heidelberg, Germany: Physica-Verlag, 242-248.
2. Adams, B. M., Lowry, C. A., and Woodall, W. H. (1992), "The Use (and Misuse) of False Alarm Probabilities in Control Chart Design," *Frontiers in Statistical Quality Control 4*, eds. Lenz, H. -J., Wetherill, G. B., and Wilrich, P. -Th., Physica-Verlag Heidelberg, 155-168.
3. Woodall, W. H., Tsui, K-L., and Tucker, G. R. (1997), "A Review of Statistical and Fuzzy Control Charts Based on Categorical Data," *Frontiers in Statistical Quality Control 5*, eds. Lenz, H. - J., and Wilrich, P. - Th., Heidelberg, Germany: Physica-Verlag, 83-89.
4. Stoumbos, Z. G., Jones, L. A., Woodall, W. H., and Reynolds, M. R., Jr. (2000), "On Nonparametric Multivariate Control Charts Based on Data Depth," *Frontiers in Statistical Quality Control 6*, H.-J. Lenz, and P.-Th. Wilrich (eds.), Heidelberg, Germany: Springer-Verlag, 208-228.
5. Woodall, W. H., Grigg, O. A., and Burkom, H. S. (2010), "Research Issues and Ideas on Health-Related Monitoring", *Frontiers in Statistical Quality Control 9*, edited by H. J. Lenz, P. -Th. Wilrich, and W. Schmid, Berlin - Heidelberg, Germany: Springer Verlag, 145-155.
6. Gan, L., Woodall, W. H., and Szarka, J. L., III (2012). "Adaptive Threshold Methods for Monitoring Rates in Public Health Surveillance", *Frontiers in Statistical Quality Control 10*, edited by H. J. Lenz, P. -Th. Wilrich, and W. Schmid, Berlin - Heidelberg, Germany: Springer Verlag, 131-142.
7. Woodall, W. H. and Driscoll, A. G. (2015). "Some Recent Results on Monitoring the Rate of a Rare Event", *Frontiers in Statistical Quality Control 11*. Knoth, S. and Schmid, W. (Eds.), Springer, pp. 15-27.

### Chapters in Books:

1. Woodall, W. H., and Adams, B. M. (1990), "Statistical Process Control," Chapter 7 of *Handbook of Statistical Methods for Engineers and Scientists*, edited by Harrison Wadsworth, McGraw-Hill Book Company. (Revised for Second Edition, 1998).
2. Woodall, W. H. and Faltin, F. W. (1996), "An Overview and Perspective on Control Charting," Chapter 2 of *Statistical Applications in Process Control*, edited by J. B. Keats and D. C. Montgomery, Arizona State University, Marcel-Dekker, 7-20.
3. Stoumbos, Z. G., Reynolds, M. R., Jr., and Woodall, W. H. (2003), "Control Chart Schemes for Monitoring the Mean and Variance of Processes Subject to Sustained Shifts and Drifts,"



in the *Handbook of Statistics: Statistics in Industry*, Volume 22, eds. C. R. Rao and R. Khattree, Amsterdam, Netherlands: Elsevier Science, 553-571.

4. Woodall, W.H., Adams, B.M., and Benneyan, J.C. (2012), "The Use of Control Charts in Healthcare", Chapter 12 in *Statistical Methods in Healthcare*, edited by F. W. Faltin, R. Kenett, and F. Ruggeri, John Wiley & Sons, Inc. (pp. 253-267)

### **Discussions:**

1. Woodall, W. H. (1980), Discussion of "Testing for Significant Differences Between Actual and Expected Results," *Transactions of the Society of Actuaries*, XXXII, 599.
2. Woodall, W. H., and Maragah, H. D. (1990), Discussion of "Exponentially Weighted Moving Average Control Schemes - Properties and Enhancements," by J. M. Lucas and M. S. Saccucci, *Technometrics*, 32, 17-18. (Invited)
3. Woodall, W. H. (1990), Discussion of "CUSUM Charts with Variable Sampling Intervals," by M. R. Reynolds, Jr., R. W. Amin, and J. C. Arnold, *Technometrics*, 32, 389-391. (Invited)
4. Faltin, F. W. and Woodall, W. H. (1991), Discussion of "Some Statistical Process Control Methods for Autocorrelated Data," by D. C. Montgomery and C. M. Mastrangelo, *Journal of Quality Technology*, 23, 194-197. (Invited)
5. Woodall, W. H. (1993), Discussion of "Is Industrial Statistics Out of Control?" by David Banks, *Statistical Science*, 8, 397-399. (Invited)
6. Adams, B. M., Woodall, W. H., and Superville, C. R. (1993), Discussion of "Run Length Distributions of Special Cause Control Charts for Correlated Processes" by D. G. Wardell, H. Moskowitz, and R. D. Plante, *Technometrics*, 36, 19-22. (Invited).
7. Sullivan, J. H., Woodall, W. H., and Gardner, M. M. (1995), Discussion of "Shewhart Type Charts in Non-Standard Situations" by K. C. B. Roes and R. J. M. M. Does, *Technometrics*, 37, 31-35. (Invited).
8. Woodall, W. H., Crowder, S. V., and Wade, M. R. (1995), Discussion of "On Properties of Q-Charts for Variables," "Geometric Q-Charts for High Quality Processes," "On Properties of Binomial Q-Charts for Attributes," and "On Properties of Poisson Q-Charts for Attributes," by C. P. Quesenberry, *Journal of Quality Technology*, 27, 328-332. (Invited).
9. Montgomery, D. C., and Woodall, W. H. (co-editors) (1997), "A Panel Discussion on Statistically-Based Process Monitoring and Control," *Journal of Quality Technology*, 29, 121-162.

10. Woodall W. H. (2009), Discussion of “Optimal Sequential Surveillance for Finance, Public Health, and Other Areas” by Marianne Frisén, *Sequential Analysis* 28(3), 338-341. (Invited)
11. Reynolds, M. R., Jr., and Woodall, W. H. (2010), Discussion of “Life and Work of Bhaskar Kumar Ghosh” by Pranab Kumar Sen, *Sequential Analysis* 29, 19-21. (Invited)
12. Woodall, W. H., Birch, J. B., and Du, P. (2010), “Comment on ‘Nonparametric Profile Monitoring by Mixed Effects Modeling’ by P. Qiu, C. Zou, and Z. Wang”, *Technometrics* 52 (3), 285-287. (Invited)
13. Woodall, W. H. and Tsui, K-L. (2011), “Comments on ‘Some Methodological Issues in Biosurveillance’ by R. D. Fricker, Jr.”, *Statistics in Medicine* 30(5) 430-433. (Invited)
14. Woodall, W.H. (2012), “Comments on ‘Statistical Methods for Healthcare Regulation: Rating, Screening, and Surveillance’ by D. Spiegelhalter, C. Sherlaw-Johnson, M. Bardsley, I. Blunt, C. Wood, and O. Grigg” *Journal of the Royal Statistical Society – Series A.* 175 (1), 42. (Invited)
15. Woodall, W. H. (2014). Discussion of “Latent Structures Based-Multivariate Statistical Process Control: A Paradigm Shift” by Alberto Ferrer, *Quality Engineering* 26, 92-95. (Invited)
16. Woodall, W. H., Kodali, L. and Yashchin, E. (2017). Discussion of “Scaling Up Process Characterization” by John Sall, *Quality Engineering* 30(1), 88-92. (Invited)

#### **Book Reviews:**

1. Woodall, W. H. (1986), Review of *Understanding Statistical Process Control* by D. J. Wheeler and D. S. Chambers, *Technometrics*, 28, 402.
2. Woodall, W. H. (1989), Review of *Quality Engineering in Production Systems* by G. Taguchi, E. A. Elsayed, and T. Hsiang, *Journal of Quality Technology*, 21, 297-298.
3. Woodall, W. H. (1991), Review of *SPC and Continuous Improvement* by Mal Owen, *Technometrics*, 34, 100-101.
4. Woodall, W. H. (1993), Review of *Statistical Methods for Testing, Development and Manufacturing* by Forrest W. Breyfogle, III, *The American Statistician*, 47(3), 235-236.
5. Conerly, M. D., and Woodall, W. H. (1995), Review of *Statistics for Business* by J. D. Cryer and R. B. Miller, *American Statistician*, 48, 347.
6. Woodall, W. H. (2004), Review of *Improving Healthcare with Control Charts* by Raymond G. Carey, *Journal of Quality Technology*, 36, 336-338.

7. Woodall, W. H. (2005), Review of *Introduction to Statistical Quality Control*, 5<sup>th</sup> Edition, by Douglas C. Montgomery, *Journal of Quality Technology*, 37, 251-252.
8. Woodall, W. H. (2005), Review of *Statistical Engineering* by Stefan H. Steiner and R. Jock Mackay, *Journal of Quality Technology*, 37, 317-318.
9. Woodall, W. H. (2006), Review of *SPC for Right-Brain Thinkers: Process Control For Non-Statisticians* by Lon Roberts, *Journal of Quality Technology*, 38, 379-380.
10. Woodall, W. H. (2007). Review of *Statistical Quality Design and Control*, 2<sup>nd</sup> Edition, by R. E. DeVor, T. Chang and J. W. Sutherland, *Journal of Quality Technology*, 39, 88-89.
11. Woodall, W. H. (2014), Review of *Introduction to Statistical Process Control* by Peihua Qiu, *Journal of Quality Technology* 46(2), 181-183.

#### **Letters to Editors:**

1. Woodall, W. H. (1986), "Weaknesses of the Economic Design of Control Charts," Letter to the Editor, *Technometrics*, 28, 408-410.
2. Woodall, W. H. (1991) Letter to the Editor, *Quality Engineering*, 3 (3), vii-viii.
3. Woodall, W. H. (1993), Letter to the Editor, *Quality Engineering*, 5 (4), vii-viii.
4. Woodall, W. H. (1993), Letter to the Editor, *ASQC Statistics Division Newsletter*, 14(1), 4.
5. Woodall, W. H. and Davis, R. E. (1993), Letter to the Editor, *IEEE Transactions on Fuzzy Systems*, 2, 43-45.
6. Woodall, W. H. (1996), Letter to the Editor, *Quality Progress*, 29 (11), 91-92.
8. Woodall, W. H. (1997), Letter to the Editor, *ASQ Statistics Division Newsletter*, 16 (7), 5.
9. Ryan, T.P. and Woodall, W. H. (2011), "Comment on Schell, Michael J. (2010). "Identifying Key Statistical Papers from 1985 to 2002 Using Citation Data for Applied Biostatisticians". *The American Statistician*, 64, 310-317.", *The American Statistician*, 65(2), 140.
10. Letter with R. D. Fricker, Jr. (2016), "Play it again, and again, Sam", in response to "Dr. Fisher's Casebook, 'Play it again, Sam.'" *Significance* 13(4), p. 46.

### **Refereed Abstract:**

1. Ryan, S., Johnson, N., Woodall, W. H., and Fogel, S. (2016). "Both Emergent and Elective Colo-rectal Surgery Patients Benefit from Enhanced Recovery", National Surgical Quality Improvement Program (NSQIP) national meeting, San Diego, July 16-19.

### **Proceedings, Newsletter Articles, Encyclopedia Entries, and Essays (non-refereed):**

1. Woodall, W. H. (1985), "A Critique of Economic Models for Designing Quality Control Charts," *Proceedings of the 45th Session of the International Statistical Institute*, Amsterdam, Netherlands.
2. Davis, R. B. and Woodall, W. H. (1991), "Evaluation of a Control Chart for Ratios," *Proceedings of the 22nd Annual Pittsburgh Conference on Modeling and Simulation*.
3. Woodall, W. H., and Faltin, F. W. (1993), "Autocorrelated Data and SPC," *ASQC Statistics Division Newsletter*, 13(4), 18-21.
4. Sullivan, J. H., and Woodall, W. H. (1996), "Improved Preliminary Multivariate Quality Control for Individual Observations," *ASA Proceedings of the Section on Physical and Engineering Sciences*, 356-361.
5. Ajmani, V., Randles, R., Vining, G., and Woodall, W. H. (1997), "Robustness of Multivariate Control Charts," *Proceedings of the Section on Quality and Productivity*, American Statistical Association, Alexandria, VA, 152-157.
6. Sullivan, J. H., and Woodall, W. H. (1998), "A Likelihood Ratio Multivariate Change-Point Method," *American Statistical Association Proceedings*, Section on Physical and Engineering Sciences, 168-173.
7. Linna, K. W., and Woodall, W. H. (1998), "The Use of Covariates and the Effect of Measurement Error in Statistical Process Control," *American Statistical Association Proceedings*, Section on Quality and Productivity, 98-103.
8. Spitzner, D. J., and Woodall, W. H. (2003). "High-Dimensional Directional Testing for Monitoring Functional Profiles", *Proceedings of the American Statistical Association*, 225-236.
9. Woodall, W. H. (2004). Biography of Walter Andrew Shewhart, *Encyclopedia of Statistical Sciences*, 2<sup>nd</sup> Edition, edited by N. Balakrishnan, Campbell Read, Samuel Kotz, and Brani Vidakovic, John Wiley & Sons, Inc. New York. (DOI: 10.1002/0471667196.ess5078)

10. Woodall, W. H. (2007). "Profile Monitoring", entry in Volume 3 of *Encyclopedia of Statistics in Quality and Reliability* edited by Fabrizio Ruggeri, Frederick Faltin, and Ron Kenett, John Wiley & Sons Ltd., 1507-1512.
11. Woodall, W. H. (2017). "Thoughts on *The Road to Quality Control – The Industrial Application of Statistical Quality Control* by Homer M. Sarasohn", an essay to appear in the recently translated book to be published by John Wiley & Sons.

## **Ph.D. Students:**

### **University of Southwestern Louisiana**

1. Matoteng Ncube, "Some New Quality Control Procedures," Summer, 1984. (Professor, University of West Florida).
2. Kwami Tuprah, "Dispersion Quality Control Procedures," Spring, 1985. (Associate Professor, Fayetteville State University).
3. Charles W. Champ, "Exact Results for Shewhart Control Charts with Supplementary Runs Rules," Fall, 1986. (Professor, Georgia Southern University).
4. Benjamin M. Adams, "Economically Optimal On-Line Quality Control Procedures," Fall, 1988. (Retired Professor, University of Alabama).
5. Cynthia A. Lowry, "A Multivariate Exponentially Weighted Moving Average Control Chart," Spring 1989.
6. Hazem D. Maragah, "The Effect of Autocorrelation on Quality Control Charts," Spring 1989. (Associate Professor, Drexel University).
7. Mohamad R. Nayebpour, "Economic Design of On-Line Quality Control Procedures for Attribute Characteristics," Spring 1990. (University of St. Thomas)
8. Rassoul Noorossana, "Empirical Bayes Process Control Procedures," Summer 1990. (Professor, Iran University of Science and Technology).

### **University of Alabama**

9. Mark R. Wade, "A Study of Q-Charts and Cause-Selecting Charts," Summer 1992. (Deceased).
10. Joe Sullivan, "A Comparison of Fuzzy Forecasting and Markov Modeling," Spring 1994. (Retired Professor, Mississippi State University).

11. David T. Redden, "A Comparison of Fuzzy Linear Regression Methods and Statistical Regression Models," Spring 1995. (Professor, University of Alabama – Birmingham)
12. Robert E. Davis, "A Markov Chain Representation of the Shirayev-Roberts Procedure," Spring 1995. (CRIF Group)
13. J. Douglas Barrett, "A Probabilistic Alternative to Fuzzy Logic Controllers," Spring 1995. (Professor, University of North Alabama).
14. Gary R. Tucker, "A Quality Control Chart Based on Ordinal Categorical Data," Summer, 1995, co-chaired with Professor Kwok Tsui of the School of Industrial and Systems Engineering, Georgia Tech. (DataSciResearch)
15. L. Allison Jones, "Topics on Data Intensive and Computationally Intensive Control Charting Methods," December 1997. (Professor, Miami University - Ohio).
16. Kenneth W. Linna, "Control Chart Performance under Linear Covariate Measurement Processes," December 1999. (Associate Professor, Auburn University at Montgomery).

#### **Virginia Tech**

17. Keunpyo Kim, "Process Monitoring with Multivariate Data: Varying Sample Sizes and Linear Profiles" December 2003, co-chaired with Marion R. Reynolds, Jr. (MedImmune)
18. Mahmoud A. Mahmoud, "The Monitoring of Linear Profiles and the Inertial Properties of Control Charts," Fall 2004. (Professor, University of Cairo)
19. James D. Williams, "Contributions to Profile Monitoring and Multivariate Statistical Process Control," Fall 2004, co-chaired with Jeffery B. Birch. (Eli Lilly)
20. Landon Segó, "Applications of Control Charts in Medicine and Epidemiology," Spring 2006, co-chaired with Marion R. Reynolds, Jr. (Pacific Northwest National Laboratory)
21. Michael D. Joner, Jr., "Univariate and Multivariate Surveillance Methods for Detecting Increases in Incidence Rates," co-chaired with Marion R. Reynolds, Jr., Spring, 2007. (Procter & Gamble).
22. Shannon E. Fraker, "Evaluation of Scan Methods used in Monitoring of Public Health Surveillance Data," Fall 2007. (Joint Research and Development, Inc.)

23. J. Brooke Marshall, "Prospective Spatio-Temporal Surveillance Methods for the Detection of Disease Clusters", co-chaired with Dan Spitzner of the University of Virginia, Summer 2009. (Merck & Co., Inc.)
24. Denisa A. Olteanu, "Cumulative Sum Control Charts for Censored Reliability Data," co-chaired with G. G. Vining, Spring 2010. (Olteanu & Roberts Analytics LLC)
25. Linmin (Lucia) Gan, "Adaptive Threshold Method for Monitoring Rates in Public Health Surveillance", Spring 2010. (Monsanto)
26. Anne G. Ryan, "Surveillance of Poisson and Multinomial Processes", Spring 2011. (Assistant Professor of Practice, Virginia Tech)
27. John L. Szarka, III, "Surveillance of Negative Binomial and Bernoulli Processes", Spring 2011. (W. L. Gore)
28. Hongzhang Zheng, "On Development and Performance Evaluation of Some Biosurveillance Methods", Summer 2011. (Goldman Sachs)
29. Fadel M. Megahed, "The Use of Image and Point Cloud Data in Statistical Process Control", Industrial & Systems Engineering student co-chaired with Jaime Camelio, Spring 2012. (Miami University - Ohio)
30. Xiang Zhang, "Dynamic Probability Control Limits for Risk-Adjusted Bernoulli Cumulative Sum Charts", Fall 2015 (Pfizer)
31. Meng J. Zhao, "Analysis and Evaluation of Social Network Anomaly Detection", Fall 2017 (Eli Lilly).

### **Grants Received:**

1. "A Study of the CUSUM Inspection Plan Used to Monitor the Quality of Exported U.S. Grain," Federal Grain Inspection Service of U.S. Department of Agriculture, Specific Cooperative Agreement No.58-43YK-6-0011, Amount: \$50,600, 1986.
2. Research project with Union Camp Corporation, Lafayette, Louisiana, Amount: \$13,000, 1987-88.
3. Alcoa Foundation Research Grants, "Statistical Control Charts for Data Violating Classical Assumptions," Amount: \$7,500, 1988, "Economic Design of Control Charts Under Realistic Assumptions," Amount: \$7,500, 1989.

4. National Science Foundation, Operations Research and Production Systems, “Multivariate Methods for On-Line and Off-Line Quality Control and Improvement,” DMII-9908013, Amount: \$84,000, UA Supplement (\$19,000), 1999-2001. Collaborative research with Kwok Tsui, Georgia Tech.
5. Editor of *Journal of Quality Technology*, 1999-2003, support from American Society for Quality: Amount: approximately \$197,800.
6. National Science Foundation, “Using Control Charts to Monitor Process and Product Quality Profiles,” DMII-0354859, Amount \$50,000, 2004-2005. Collaborative research with Doug Montgomery, Arizona State University.
7. Merck & Co., Inc., “Study of Vaccine Safety Monitoring Methods”, 2008-2009, \$28,750.
8. Merck & Co., Inc., “Monitoring Vaccine Effectiveness”, 2009-2010, \$43,000.
9. National Science Foundation, “Quality Mining – A Novel Framework for Quality Monitoring and Control for Data Rich Manufacturing Systems”, CMMI-0927323, Amount \$304,500. 2009-2012. Co-PI with Jaime Camelio, Industrial and Systems Engineering, Virginia Tech.
10. National Science Foundation, “GOALI: Robust Quality Control Tools for Cyber-Physical Manufacturing Systems: Assessing and Eliminating Cyber-Attack Vulnerabilities”, CMMI-1436365, Amount \$398,930. 2014-2017. Co-PI with Jamie Camelio, Lee Wells and Paul Miller.

## **Professional Service:**

**Editor:** *Journal of Quality Technology* (2001-2003)

**Associate Editor:** *Technometrics* (1987-1995, 2013-2014)

**Member of Editorial Review Board:**

*Journal of Quality Technology* (1988-present)

*ASQC Basic References in Quality Control: Statistical Techniques*

*IIE Transactions -- Quality and Reliability Engineering* (1996-present)

*Quality Engineering* (2008-present)

*Quality and Reliability Engineering International* (2012-present)

**Referee or Reviewer for:**

*Advances in Decision Sciences*

*Advances in Disease Surveillance*

*Advances in Engineering Software*



*American Statistician*  
*Annals of Statistics*  
*Annals of the Institute of Statistical Mathematics (Japan)*  
*Applied Mathematics Research eXpress*  
*Applied Statistics*  
*Applied Stochastic Models in Business and Industry (ASMBI) Journal*  
*ASME Journal of Manufacturing Science and Engineering*  
*ASQC Annual Quality Congress*  
*ASQC Statistics Division Newsletter*  
*Athens University of Economics and Business*  
*Australian and New Zealand Journal of Statistics*  
*Biometrical Journal*  
*Biometrika*  
*BMC Health Services Research*  
*BMC Medical Informatics and Decision Making*  
*BMJ Quality & Safety*  
*British Medical Journal*  
*Canadian Journal of Statistics*  
*College Mathematics Journal*  
*Communications in Statistics*  
*Computational Statistics and Data Analysis*  
*Computers & Operations Research*  
*CRC Press LLC*  
*Frontiers in Statistical Quality Control*  
*Fuzzy Sets and Systems*  
*Health Care Management Science*  
*IEEE Transactions on Fuzzy Systems*  
*IIE (Institute of Industrial Engineers) Transactions*  
*Indian Association for Productivity, Quality, and Reliability Transactions*  
*Information Fusion*  
*International Journal for Quality in Health Care*  
*International Journal of Business and Economics*  
*International Journal of Forecasting*  
*International Journal of Management Concepts and Philosophy*  
*International Journal of Mathematics and Mathematical Sciences*  
*International Journal of Physical Sciences*  
*International Journal of Production Research*  
*International Journal of Quality & Reliability Management*  
*International Statistical Review*  
*Israeli Ministry of Science, Technology and Space*  
*Italian Ministry of Education, University, and Research*  
*Japan Journal of Industrial and Applied Mathematics*  
*John Wiley & Sons, Inc.*  
*Journal of Applied Statistics*

*Journal of Educational and Behavioral Statistics*  
*Journal of Multivariate Analysis*  
*Journal of Official Statistics*  
*Journal of Probability and Statistics*  
*Journal of Quality Technology*  
*Journal of Statistical Computation and Simulation*  
*Journal of Statistical Planning and Inference*  
*Journal of Statistical Software*  
*Journal of the American Statistical Association*  
*Journal of the Royal Statistical Society – Series A*  
*Journal of Transportation and Statistics*  
King Fahd University of Petroleum & Minerals  
Latin American Theoretical Informatics Symposium  
*Management Research News*  
*Management Science*  
*Mathematical Problems in Engineering*  
McMaster University (Canada)  
*Metrika*  
*Metrologia*  
Nanyang Technological University (Singapore)  
National Research Foundation – South Africa  
National Science Foundation  
*Naval Research Logistics Quarterly*  
*Occupational Medicine*  
*Pakistan Journal of Statistics*  
*PLOS ONE*  
*Quality & Reliability Engineering International*  
*Quality Engineering*  
*Quality Technology and Quantitative Management*  
Research Council of Canada  
*Revista Colombiana de Estadística*  
*Sankhyā*  
*Scientia Iranica Journal*  
Society for Industrial and Applied Mathematics (SIAM)  
*Statistica Neerlandica*  
*Statistica Sinica*  
*Statistical Methods in Medical Research*  
*Statistical Papers*  
*Statistical Science*  
*Statistics and Computing*  
*Statistics and Probability Letters*  
*Statistics in Medicine*  
*Statistics, Politics, and Policy*  
*Technometrics*

The University of Chicago Press  
U.S. Army Research Office  
Universidad Nacional de Colombia  
University Grants Committee, Hong Kong  
University of Malaya (Malaysia)  
University of Newcastle (Australia)  
University of Padova (Italy)  
University of Western Sydney (Australia)  
Victoria University of Technology (Australia)  
*Virginia Journal of Science*  
*Wiley Encyclopedia of Operations Research and Management Science*

**Professional Society Memberships:**

American Statistical Association (Fellow)  
  
American Society for Quality (Fellow)  
  
Royal Statistical Society (Fellow)  
  
International Statistical Institute (Elected Member)  
  
Institute of Industrial Engineers (Senior Member) – Inactive  
  
Society of Actuaries (Associate) – Inactive

**Other Professional Activities:**

Member of Research Committee of ASA Section on Quality and Productivity  
  
Program Co-Chairman of the 1986 Fall Technical Conference of ASA and ASQC, Charlotte, North Carolina  
  
Peer Review Committee for the Louisiana Board of Regents (1983-84)  
  
Program Chairman for Section on Physical and Engineering Sciences of ASA for ENAR Spring Regional Meetings, Dallas, Texas, March 1987  
  
Member of Steering Committee for 1987 and 1988 National Symposia on Statistical Quality Control, Arizona State University  
  
Program Chairman for Section on Physical and Engineering Sciences of ASA for Joint Statistical Meetings, New Orleans, Louisiana, August, 1988.

Regional Councilor, Statistics Division of American Society for Quality Control (Region 15: Mississippi, Alabama, Tennessee, Georgia, Florida) (1989-1994)

Member of Board of Directors, Quality and Productivity Research Conference (1988-90)

Associate Secretary, IMS Special Topics Meeting on Statistics in Industry, Philadelphia, Pennsylvania, June 1991.

Invited Paper Session organizer, Section on Physical and Engineering Sciences of ASA for Joint Statistical Meetings, Atlanta, Georgia, August 1991.

Council of Sections Representative (1992-1994) American Statistical Association Section on Quality and Productivity.

Member of ASA Continuing Education Evaluation Subcommittee (1993-1995)

Scientific Program Committee, Sixth-Eleventh International Workshops on Intelligent Statistical Quality Control: Würzburg, Germany (1998), Waterloo, Canada (2001), Warsaw, Poland (2004), Beijing, China (2008), Seattle, WA (2010), Sydney (2013) and Hamburg, Germany (2016).

ASA Deming Lectureship Committee (2003-2008)

Advisory Committee, Quality, Statistics, and Reliability Section of INFORMS (2003-2005)

Shewhart Medal Committee of the American Society for Quality, 2003-2006

Brumbaugh Award Committee of ASQ, 2002-2004

Lloyd S. Nelson Award Committee of the Statistics Division of ASQ, 2006

ASQ Deming Medal Committee (2008-2018)

Program Committee for 2<sup>nd</sup> Stu Hunter Research Conference, Phoenix, AZ (2014)

## **Presentations:**

1. "Markov Chains and Sequential Probability Ratio Tests," Virginia Academy of Science, University of Virginia, May 1980.
2. "Run Length Distribution of One-Sided CUSUM Control Charts," Joint Statistical Meetings, Cincinnati, Ohio, August 1982.

3. "Multivariate CUSUM Quality Control Procedures," Joint Statistical Meetings, Toronto, Canada, August 1983.
4. "Multivariate Quality Control," Invited paper, Conference for Texas Statisticians, Waco, Texas, April 1984.
5. Chairman and Discussant for the session on Statistical Quality Control, SREB Summer Research Conference, Arkadelphia, Arkansas, June 1984.
6. "The Statistical Design of Quality Control Charts," Joint Statistical Meetings, Philadelphia, Pennsylvania, August 1984.
7. "Multivariate CUSUM Quality Control Procedures," Invited paper for the 28th Annual Fall Technical Conference of ASQC and ASA, London, Ontario, Canada, October 1984.
8. Discussant for the session on Statistical Quality Control, SREB Summer Research Conference, Boone, North Carolina, June 1985.
9. "A Critique of Economic Models for Designing Quality Control Charts," International Statistical Institute, Amsterdam, Netherlands, August 1985.
10. "The Economic Design of Quality Control Charts," Spring Regional Meetings of ENAR, ASA, and IMS, Atlanta, Georgia, March 1986.
11. Invited Participant at the Third International Workshop on Statistical Quality Control, Copenhagen, Denmark, June 1986.
12. "The Use of Multivariate Control Charts," Invited paper, International Research Conference on Reliability and Quality, University of Missouri-Columbia, June 1986.
13. "Conflicts between Deming's Philosophy and the Economic Design of Control Charts," Joint Statistical Meetings, Chicago, Illinois, August 1986.
14. Discussant for the session on CUSUM Theory and Applications, Joint Statistical Meetings, Chicago, Illinois, August 1986.
15. "The Design of Quality Control Charts," 30th Annual Fall Technical Conference of ASQC and ASA, Charlotte, North Carolina, October 1986.
16. "The Design of Quality Control Charts," Colloquium Presentation, Department of Statistics, Virginia Tech, November 1986.
17. "The Design and Use of Quality Control Charts," Colloquium Presentation, Department of Management Science and Statistics, University of Alabama, April 1987.

18. "Current Research in Statistical Process Control," Gordon Research Conference on Statistics in Chemistry and Chemical Engineering, New Hampton, New Hampshire, July 1987.
19. "Evaluation of the CUSUM Inspection Plan for Exported U.S. Grain," Joint Statistical Meetings, San Francisco, California, August 1987.
20. "Exact Results for Shewhart Control Charts with Supplementary Runs Rules," *Technometrics* session of the 31st Annual Fall Technical Conference, Atlantic City, New Jersey, October 1987.
21. Discussant at the Second National Symposium on Statistical Process Control: Keeping Pace with Automated Manufacturing, Arizona State University, November 1987.
22. "Exact Results for Shewhart Control Charts with Supplementary Runs Rules," Colloquium Presentation, Department of Statistics, Rice University, February 1988.
23. "Economically Optimal On-Line Quality Control Procedures," Alcoa Technical Center, Alcoa Center, Pennsylvania, October 1988.
24. "Optimal On-Line Process Control," Third National Symposium on Statistics in Design and Process Control: Keeping Pace with Automated Manufacturing, Arizona State University, November 1988.
25. Discussion of "Exponentially Weighted Moving Average Control Schemes - Properties and Enhancements," *Technometrics* session of the 33rd Annual Fall Technical Conference, Houston, Texas, October 1989.
26. "Forecasting and SPC Applications of the Exponentially Weighted Moving Average," Alcoa Technical Center, Alcoa Center, Pennsylvania, December 1989.
27. "An Analysis of Taguchi's On-Line Quality Control Methods for Attribute Characteristics," Invited paper, ASA Winter Conference, Orlando, Florida, January 1990.
28. "An Analysis of Taguchi's On-Line Quality Control Procedures for Attribute Characteristics," Colloquium Presentation, Department of Statistics and Management Science, University of Michigan, February 1990.
29. "The Use (and Abuse) of False Alarm Probabilities in Control Chart Design," 4th International Workshop on Statistical Quality Control, Baton Rouge, Louisiana, May 1990.

30. "Taguchi's Approach to On-Line Quality Control," SRCOS Summer Research Conference, Mobile, Alabama, June 1990.
31. Discussant at the Fifth National Symposium on Statistics and Design in Automated Manufacturing, Arizona State University, February 1991.
32. Moderator and Discussion Leader, Gordon Research Conference on Statistics in Chemistry and Chemical Engineering, New Hampton, New Hampshire, July 1991.
33. "Statistical Process Control with Several Components of Common Cause Variability," Joint Statistical Meetings, Atlanta, Georgia, August 1991.
34. Invited participant on Control Chart Panel, 36th Annual Fall Technical Conference, Philadelphia, PA, October 1992.
35. Discussant at the Sixth National Symposium on Statistics and Design in Automated Manufacturing, Arizona State University, February 1993.
36. "An Overview and Perspective on Statistical Process Control," General Electric Corporate Research and Development, Schenectady, NY, May 1993.
37. "Alarm Rates for Quality Control Charts," Joint Statistical Meetings, San Francisco, California, August 1993.
38. "Current Research Topics in Quality," Roundtable Discussion Leader, ASA Section on Quality and Productivity, Joint Statistical Meetings, San Francisco, California, August 1993.
39. Discussant of the *Technometrics* invited paper, "Run Length Distributions of Special Cause Control Charts for Correlated Processes," by D. G. Wardell, H. Moskowitz, and R. D. Plante, 37th Annual Fall Technical Conference, Rochester, NY, October 1993.
40. "Autocorrelated Data and SPC," Section on Quality and Productivity Invited Paper, Winter Conference of American Statistical Association, Atlanta, GA, January 1994.
41. "A Probabilistic Alternative to the Fuzzy Logic Controller," General Electric Corporate Research and Development, Schenectady, NY, March 1994.
42. "A Probabilistic View of Fuzzy Statistical Methods," *Technometrics* invited paper, Joint Statistical Meetings, Toronto, August 1994.
43. "A Review of Statistical and Fuzzy Quality Control Charts Based on Categorical Data," Fifth International Workshop on Intelligent Statistical Quality Control, University of Osaka Prefecture, Osaka, Japan, September 1994.

44. “Do We Need Fuzzy Logic?” Colloquium Presentation, Department of Statistics, Virginia Tech, September 1995.
45. “Control Charts Based on Attribute Data,” The Second World Congress of Nonlinear Analysts, Athens, Greece, July 10-17, 1996.
46. Discussant for the Session on Quality Control for Attribute Data, Joint Statistical Meetings, Chicago, August 1996.
47. “An Overview of Comparisons Between Fuzzy and Statistical Methods,” Joint Statistical Meetings, Anaheim, California, August 1997.
48. “Research Issues and Ideas in Statistical Process Control,” Invited Paper, Annual Meeting of the Statistical Society of Canada, Sherbrooke, Quebec, June 1998.
49. “Research Issues and Ideas in Statistical Process Control,” Colloquium Presentation, Department of Industrial and Operations Engineering, University of Michigan, March 1999.
50. “Controversies and Contradictions in Statistical Process Control,” Invited Paper, Virginia Tech Statistics Department 50<sup>th</sup> Anniversary Conference, Blacksburg, VA, August 1999. Presented at Mississippi State University in November 1999 and at the University of Miami in December 1999.
51. “Controversies and Contradictions in Statistical Process Control,” presented in the *JQT* session of the Fall Technical Conference of ASQ and ASA, Minneapolis, MN, October 2001.
52. “A Review and Analysis of the Mahalanobis-Taguchi System,” Joint Statistical Meetings, Atlanta, GA, August, 2001, the VII<sup>th</sup> International Workshop on Intelligent Statistical Quality Control, Waterloo, Ontario, September 2001 and at the 2002 Taipei International Statistical Symposium, Taipei, Taiwan, July 2002. (Invited)
53. “The Monitoring of Linear Profiles”, 2002 Quality and Productivity Research Conference, Tempe, Arizona, June 2002. (Invited). Also presented at the Hong Kong University of Science and Technology in July 2002 and the Joint Statistical Meetings in New York, NY, August 2002.
54. “The Six-Sigma Roadmap”, Roanoke/Radford Section of ASQ, Roanoke, VA, June 2002.
55. “Academic Life, Citation Counts, and Statistical Models”, 44<sup>th</sup> Annual Fall Technical Conference of ASA and ASQ, Valley Forge, PA, October 2002. (Invited)



56. Participant in the panel discussion “Journal Editor’s Views: Current Status and Future Trends in Quality, Statistics, and Reliability Research and Implementation”, INFORMS, San Jose, CA, November 2002.
57. “Using Control Charts to Monitor Process and Product Profiles”, Quality & Productivity Research Conference, White Plains, NY, May 2003.
58. “A General Approach to the Monitoring of Process and Product Profiles”, Second International Congress on Applied and Computational Mathematics (CIMAC II), Lima, Peru, August 2003.
59. “Using Control Charts to Monitor Process and Product Quality Profiles”, STAR Seminar Series (with support from the Dolibois Faculty Development Fund), Department of Decision Sciences and Management Information Systems, University of Miami – Ohio, March 2004; 8<sup>th</sup> International Workshop on Intelligent Statistical Quality Control, Warsaw, Poland, June 2004; Joint Statistical Meetings, Toronto, Canada, August 2004; *JQT* Session at the 2004 INFORMS Meeting in Denver, Colorado; Tianjin University – China, June 2011.
60. W. J. Youden Memorial Address, “The View from an Ivory Tower”, 48<sup>th</sup> Annual Technical Conference of ASA and ASQ, October 2005, Roanoke, VA.
61. “Use of Control Charts in Health Care Monitoring and Public Health Surveillance”, Invited presentation for Statistics Week, Arizona State University, March 2005; Quality & Productivity Research Conference, Minneapolis, MN, May 2005; Fifth International Symposium on Business and Industrial Statistics, Lima, Peru, January 2006; Georgia Tech School of Industrial and Systems Engineering, April 2006; 2006 Joint Statistical Meetings, Seattle, WA, August 2006; Meeting of the Royal Statistical Society, Belfast, Ireland, September 2006; Lynchburg Section of ASQ, March 2007; Tianjin University - China, June 2011.
62. “The Inertial Properties of Quality Control Charts”, Invited paper for the *Technometrics* Session of the 49<sup>th</sup> Annual Fall Technical Conference, St. Louis, MO, October 2005.
63. “Research Issues and Ideas on Health-Related Surveillance”, presented at the IX<sup>th</sup> International Workshop on Intelligent Statistical Quality Control, Beijing, China, September 2007, the Statistical Society of Canada Meeting in Ottawa, May 2008, IBM Thomas J. Watson Research Center, Yorktown Heights, June 2008.
64. “An Overview of Health-Related Monitoring”, Joint Statistical Meetings, Denver, CO, August 2008, 18<sup>th</sup> Simposio de Estadística, Cartagena, Colombia, August 2008.
65. “An Overview of Health-related Monitoring from an SPC Viewpoint”, Brigham Young University, March 2009.

66. “Statistical Process Control (SPC) Ideas in Spatiotemporal and Temporal Public Health Surveillance”, Twelfth Biennial CDC Symposium on Statistical Methods, Decatur GA, April 2009.
67. “The State of Statistical Process Control – An Update”, Isobel Loutit Invited Address, Statistical Society of Canada, and Quality and Productivity Research Conference in White Plains, NY, both June 2009.
68. “An Overview of Health-Related Surveillance”, International Symposium on Statistical Process Control”, Nantes France, July 2009.
69. “Adaptive Threshold Methods for Monitoring Rates and Counts in Public Health Surveillance”, Penn State Department of Statistics, October 2009; International Symposium on Business and Industrial Statistics, Portoroz, Slovenia, July 2010.
70. “Adaptive Threshold Methods for Monitoring Rates in Public Health Surveillance”, X<sup>th</sup> International Workshop on Intelligent Statistical Quality Control, Seattle, Washington, August 2010.
71. “A Brief History of Statistics and Quality”, Opening Plenary Session of the 54<sup>th</sup> Annual Fall Technical Conference of ASA and ASQ, Birmingham, Alabama, October, 2010; City University of Hong Kong, January 2014.
72. “The Use of Control Charts with Image Data”, Tianjin University – China and at Conference on “Applications of Statistical Methods in Modern Industry”, Chung-Ang University – Korea, June 2011.
73. “The Monitoring of Bernoulli Processes”, Tianjin University, Tsinghua University, and Nankai University – China, June 2011 and the 2<sup>nd</sup> International Symposium on Statistical Process Control, Rio de Janeiro, Brazil, July 2011.
74. “Research and Publication in Statistics”, Tianjin University and Tsinghua University – China, June 2011; Shanghai Jiao Tong University, June 2012; City University of Hong Kong, June 2012; Cairo University, March 2013; University of Piraeus, Greece, July 2013; National Chiao Tung University, Taiwan, January 2014.
75. Roundtable discussion at the Joint Statistical Meetings, “New Directions and Methods in Process Monitoring”, Miami, FL, August 2011.
76. “The Monitoring of Bernoulli Processes”, INFORMS Annual Meeting, Charlotte, NC, November 2011.
77. “Innovation: Ideas, Engineering, and Management”, Roanoke/Radford Section of ASQ, January 2012.

78. “Innovation, Quality Engineering, and Statistics”, Quality and Productivity Research Conference, June 2012; Spring Research Conference of IMS/ASA, Harvard University, June 2012; City University of Hong Kong, June 2012; Shanghai Jiao Tong University, June 2012; Nanjing University of Science and Technology, June 2012; ENBIS annual meeting, Ljubljana, Slovenia, September 2012; International Quality Engineering Conference, Tehran, Iran (given by video link), December 2012.
79. “Risk-Adjusted Comparisons and Monitoring in Healthcare”, 2nd International Conference on the Interface between Statistics and Engineering, Tainan, Taiwan, June 2012 and Virginia Tech INFORMS Section, September 2012.
80. “Monitoring and Improving Surgical Quality”, ASA/ASQ Fall Technical Conference, St. Louis, MO, October 2012; Cairo University, March 2013; Tulane University, February 2014; Radford University, April, 2014; W. L. Gore Lecture, University of Delaware, April 2014; MINITAB and Penn State, November 2014; University of Waterloo, May, 2015; Meeting of the German Statistical Society, Hamburg Germany, September 2015.
81. “Recent Results on the Monitoring of the Rate of a Rare Event”, Quality and Productivity Research Conference, GE Global Research, Niskayuna, NY, June 2013; XI<sup>th</sup> International Workshop on Intelligent Statistical Quality Control, Sydney, Australia, August 2013.
82. “An Overview of Phase I Analysis for Process Improvement and Monitoring”, 3<sup>rd</sup> International Symposium on Statistical Process Control, Piraeus, Greece, July 2013.
83. “Overview and Perspective on Profile Monitoring”, Joint Statistical Meetings, Montreal, Canada, August 2013; National Chiao Tung University, Taiwan, January 2014.
84. “The Surprising Difficulty in Designing and Comparing Control Charts”, City University of Hong Kong and National Chiao Tung University, Taiwan, January 2014; University of Liege, Belgium, May 2014; Spring Research Conference, Cincinnati, May, 2015.
85. “Dynamic Control Limits for the Risk-adjusted Bernoulli CUSUM Chart for Monitoring Surgical Outcome Quality”, The Third International Conference on the Interface between Statistics and Engineering 2014 (ICISE2014) December 2014, City University of Hong Kong; Quality and Productivity Research Conference, Raleigh, NC, June 2015.
86. “An Overview and Perspective on Social Network Monitoring”, International Symposium on Statistical Process Monitoring – 4, Padua Italy, July 2015; Virginia Tech INFORMS, March 2016; Eindhoven University of Technology, April 2016; First Sino-U.S. Research Conference on Quality, Analytics and Innovation, Shanghai, China, July 2016; XII<sup>th</sup> Workshop on Intelligent Statistical Quality Control, Hamburg, Germany, August 2016.
87. “Bridging the Gap Between Theory and Practice in Basic Statistical Process Monitoring”, 4<sup>th</sup> Stu Hunter Research Conference, Waterloo, Ontario, Canada, March 2016.

88. “Applications of the Conditional False Alarm Rate Metric in Process Monitoring”, 5<sup>th</sup> International Symposium on Statistical Process Monitoring, Seoul, South Korea, July 2017; 2<sup>nd</sup> International Conference on Reliability Systems Engineering, Beijing, China, July 2017.

**Last updated January 13, 2018**