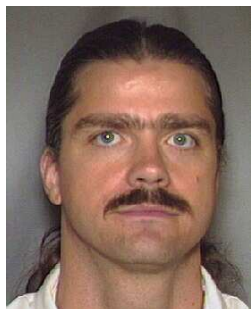




## CURRICULUM VITAE

March, 2008



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### EDUCATION

Ph.D., Information Technology (Computational Statistics), George Mason University, May 1993  
M.S., Computer Science, San Diego State University, May 1988  
B.S., Mathematics, Purdue University, December 1984

### PROFESSIONAL EXPERIENCE

2001 – Present Professor, Department of Applied Mathematics & Statistics, Johns Hopkins University  
1999 – 2001 Associate Professor, Department of Mathematical Sciences, Johns Hopkins University  
1994 – 1999 Assistant Professor, Department of Mathematical Sciences, Johns Hopkins University  
1991 – 1994 Mathematician, Naval Surface Warfare Center, Dahlgren, VA  
1985 – 1991 Scientist, Naval Ocean Systems Center, San Diego, CA

Carey E. Priebe received the BS degree in mathematics from Purdue University in 1984, the MS degree in computer science from San Diego State University in 1988, and the PhD degree in information technology (computational statistics) from George Mason University in 1993. From 1985 to 1994 he worked as a mathematician and scientist in the US Navy research and development laboratory system. Since 1994 he has been a professor in the Department of Applied Mathematics and Statistics, Whiting School of Engineering, Johns Hopkins University, Baltimore, Maryland. At Johns Hopkins, he holds joint appointments in the Department of Computer Science, the Center for Imaging Science, and the Whitaker Biomedical Engineering Institute. He is a past President of the Interface Foundation of North America - Computing Science & Statistics, a past Chair of the American Statistical Association Section on Statistical Computing, current Vice President of the International Association for Statistical Computing, and on the editorial boards of *Journal of Computational and Graphical Statistics*, *Computational Statistics and Data Analysis*, and *Computational Statistics*. His research interests include computational statistics, kernel and mixture estimates, statistical pattern recognition, statistical image analysis, and statistical inference for high-dimensional and graph data. He is an Elected Member of the International Statistical Institute and a Fellow of the American Statistical Association.

## REFEREED JOURNAL PUBLICATIONS

- M.W. Trosset and C.E. Priebe, “The Out-of-Sample Problem for Classical Multidimensional Scaling,” *Computational Statistics and Data Analysis*, accepted for publication, February, 2008.
- M.W. Trosset, C.E. Priebe, Y. Park, and M.I. Miller, “Semisupervised Learning from Dissimilarity Data,” *Computational Statistics and Data Analysis*, accepted for publication, February, 2008.
- C.E. Priebe and W.D. Wallis, “On the Anomalous Behaviour of a Class of Locality Statistics,” *Discrete Mathematics*, accepted for publication, April, 2007.
- D. Karakos, S. Khudanpur, D.J. Marchette, A. Papamarcou, and C.E. Priebe, “On the Minimization of Concave Information Functionals for Unsupervised Classification via Decision Trees,” *Statistics & Probability Letters*, accepted for publication, September, 2007.
- K.E. Giles, M.W. Trosset, D.J. Marchette, and C.E. Priebe, “Iterative Denoising,” *Computational Statistics*, accepted for publication, July, 2007.
- Y. Park, C.E. Priebe, M.I. Miller, N. Ram Mohan and K.N. Botteron, “Statistical Analysis of Twin Populations using Dissimilarity Measurements in Hippocampus Shape Space,” *Journal of Biomedicine and Biotechnology*, Vol. 2008, Article ID 694297, 5 pages, 2008.
- D.J. Marchette and C.E. Priebe, “Predicting Unobserved Links in Incompletely Observed Networks,” *Computational Statistics and Data Analysis*, Vol. 52, pp. 1373–1386, 2008.
- D.E. Fishkind, C.E. Priebe, K. Giles, L.N. Smith, and A. Aksakalli, “Disambiguation Protocols Based on Risk Simulation,” *IEEE Transactions on System, Man and Cybernetics, Part A*, Vol. 37, No. 5, pp. 814–823, 2007.
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- M. John and C.E. Priebe, “A data-adaptive methodology for finding an optimal weighted generalized Mann-Whitney-Wilcoxon statistic,” *Computational Statistics and Data Analysis*, Vol. 51, No. 9, pp. 4337–4353, 2007.
- J.G. DeVinney and C.E. Priebe, “A new family of proximity graphs: class cover catch digraphs,” *Discrete Applied Mathematics*, Vol. 154, No. 14, pp. 1975–1982, 2006.
- E. Ceyhan and C.E. Priebe, “On the Distribution of the Domination Number of a New Family of Parametrized Random Digraphs,” *Model Assisted Statistics and Applications*, Vol. 1, No. 4, pp. 231–255, 2006.
- C.E. Priebe, D.J. Marchette, Y. Park, and R.R. Muise, “An Application of Integrated Sensing and Processing Decision Trees for Target Detection and Localization on Digital Mirror Array Imagery,” *Applied Optics*, Vol. 45, No. 13, pp. 3022–3030, 2006.
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- C.E. Priebe, D.E. Fishkind, L.A. Abrams, and C.D. Piatko, “Random Disambiguation Paths for Traversing a Mapped Hazard Field,” *Naval Research Logistics*, Vol. 52, No. 3, pp. 285–292, 2005.
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- E. Ceyhan and C.E. Priebe, “The use of domination number of a random proximity catch digraph for testing segregation/association,” *Statistics and Probability Letters*, Vol. 73, No. 1, pp. 37–50, 2005.
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- H.S. Friedman and C.E. Priebe, "Smoothing Bandwidth Selection for Response Latency Estimation," *Journal of Neuroscience Methods*, Vol. 87, pp. 13–16, 1999.
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(An expanded version of this work is available as Technical Report No. 547, Department of Mathematical Sciences, Johns Hopkins University, Baltimore, MD 21218-2682.)
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C.E. Priebe, "Adaptive Mixtures," *Journal of the American Statistical Association*, Vol. 89, No. 427, pp. 796–806, 1994.

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G.W. Rogers, J.L. Solka, D.S. Malyevac, and C.E. Priebe, "A Self Organizing Network for Computing A Posteriori Conditional Class Probability," *IEEE Transactions on Systems, Man, and Cybernetics*, Vol. 23, No. 6, pp. 1672–1682, 1993.

J.L. Solka, C.E. Priebe, and G.W. Rogers, "An Initial Assessment of Discriminant Surface Complexity for Power Law Features," *Simulation*, Vol. 58, pp. 311–318, 1992.

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D.J. Marchette and C.E. Priebe, "Adaptive Kernel Neural Network," *Mathematical and Computer Modelling*, Vol. 14, pp. 328–333, 1990.

## SUBMITTED FOR PUBLICATION IN REFEREED JOURNALS

A. Aksakalli, D.E. Fishkind, C.E. Priebe and X. Ye, “The CR Disambiguation Protocol,” submitted for publication, August, 2007.

A. Rukhin, C.E. Priebe and D.M. Healy, “On the Monotone Likelihood Ratio Property for the Convolution of Independent Binomial Random Variables,” submitted for publication, October, 2007.

M.I. Miller, C.E. Priebe, et al., “Collaborative Computational Anatomy,” submitted for publication, September, 2006.

D.J. Marchette and C.E. Priebe, “Scan Statistics for Interstate Alliance Graphs,” submitted for publication, July, 2006.

D.J. Marchette and C.E. Priebe, “Modeling Interstate Alliances with Constrained Random Dot Product Graphs,” submitted for publication, January, 2007.

C.C. Overall, J.L. Solka, C.E. Priebe, and J.W. Weller, “Using Scan Statistics for Anomaly Detection in Genetic Regulatory Networks,” submitted for publication, February, 2007.

D. Karakos, S. Khudanpur, J. Eisner, and C.E. Priebe, “Information-Theoretic Aspects of Iterative Denoising,” submitted for publication, February, 2007.

## PATENTS

Invention Disclosure: University of Florida Invention Disclosure UF#10098, April 6, 1999, "Optimized Classification System and Method."

Patent Pending: Provisional Patent Application 07662/013001 C-1351 filed September 26, 1997, "ADC Clustering System and Method."

US Patent No. 5,671,294, Issued 23 SEP 1997, "A System and Method for Incorporating Segmentation Boundaries into the Calculation of Fractal Dimension Features for Texture Discrimination."

US Patent No. 5,517,531, Issued 14 MAY 1996, "Kernel Adaptive Interference Suppression System."

US Patent No. 5,499,399, Issued 12 MAR 1996, "Two-Dimensional Kernel Adaptive Interference Suppression System."

US Patent No. 5,384,895, Issued 24 JAN 1995, "Self Organizing Neural Network for Classifying Pattern Signatures Using A Posterior Conditional Class Probability."

US Patent No. 5,365,472, Issued 15 NOV 1994, "Non-Linear Resistive Grid Kernel Estimator Useful in Single Feature, Two-Class Pattern Classification."

US Patent No. 5,351,311, Issued 27 SEP 1994, "Neural Network for Detection and Correction of Local Boundary Misalignments Between Images."

## GRANTS AND CONTRACTS

National Science Foundation, “Novel Approaches to Unsupervised Classification,” (Damianos Karakos, PI) 09/01/07–08/31/10 (\$299,996).

Principal Investigator, DARPA MTO, “A Compressed Sensing Approach to SIGINT Processing,” N66001-06-1-2009, 02/02/06–12/31/08 (\$415,928).

Principal Investigator, Office of Naval Research, “Random Disambiguation Paths for Adaptive Navigation through Mine and Obstacle Fields: Basic Research,” N00014-06-1-0013 10/1/05–9/30/08 (\$300,001).

Principal Investigator, Office of Naval Research, “Disparate Information Fusion: Embedding & Exploitation of Disparate Measurements,” N00014-07-1-0328, 11/29/06–12/31/09 (\$239,999).

Co-Principal Investigator (with Michael I. Miller), NIH, “Conte Center,” P20-MH071616 E31-2044, project ends 08/31/09.

Co-Principal Investigator (with Tilak Ratnanather), NIH, “Temporal Gyrus,” R01-MH064838 E31-2038, project ends 12/31/07.

Principal Investigator, DARPA/AlgoTek, “Visual Brain,” 06/29/05–06/28/06 (\$27,000).

Principal Investigator, DARPA/AlgoTek, “BICA,” 04/10/06-1/30/07 (\$30,559).

DSTO, “Analysis Of Time Series Of Graphs,” –6/30/07 (\$50,000).

ORMS, “Analysis Of Time Series Of Graphs,” –9/22/05

Principal Investigator, DARPA Applied and Computational Mathematics Program, “The Adaptive Data Cube for Integrated Sensing and Processing,” DOD F49620-01-1-0395, 07/01/2001–06/30/2005 (\$1,365,210)

Principal Investigator, Office of Naval Research, “Random Disambiguation for Adaptive Mine Countermeasures Path Planning,” N00014-04-1-0483, 04/19/2004–07/31/2005 (\$100,000)

DARPA Applied and Computational Mathematics Program, (subcontract from Lockheed Martin) “ISP Phase II,” 09/01/2004–09/30/2006 (\$150,030).

Raytheon, “Transitioning Automatic Target Recognition/Classification Algorithms to Signals and Image Domains,” 8/15/2005–12/31/2005 (\$33240).

DARPA, (subcontract from AlgoTek’s Contract MDA972-03-C0014) “Novel Mathematical and Computational Approaches to Exploitation of Massive, Non-physical Data,” 06/01/03–09/30/04 (\$192,090)

Principal Investigator, Office of Naval Research, “Methodological Research in Statistical Pattern Recognition,” N00014-01-1-0011, 10/01/00–12/31/03 (\$346,524)

ASEE/ONR Sabbatical Leave Fellow 2000–2001, N00014-97-C-0171 and N00014-97-1-1055, 09/01/00–05/31/01 (\$43,352)

Office of Naval Research (subcontract from Johns Hopkins University Applied Physics Laboratory) “Probabilistic Classification and Planning for Mine Countermeasures Command and Control,” N00024-98-D-8124, 05/01/00–09/30/02 (\$79,901)

Principal Investigator, Air Force Office of Scientific Research / DARPA Applied and Computational Mathematics Program, “Advanced Data Analysis Methods for Analyte Recognition from Optical Sensor Arrays,” DOD F49620-99-1-0213, 04/01/99–03/31/01 (\$398,965)

Principal Investigator, Office of Naval Research, “Semiparametric Nonhomogeneity Analysis (renewal),” N00014-95-1-0777, 11/16/97–11/15/00 (\$264,686)

Principal Investigator, Office of Naval Research Young Investigator Program Award, “Semiparametric Non-homogeneity Analysis,” N00014-95-1-0777, 05/95–04/98 (\$225,000)

Principal Investigator, National Science Foundation, “Detection of Land Mines via Spatial Statistics and Robust Detection,” 07/97–06/99 (\$71,000)

Principal Investigator, Power Spectra, “Detection of Land Mines via Spatial Statistics and Robust Detection,” 07/97–06/99 (\$40,000)

Office of Naval Research (subcontract from Dartmouth College), “Real Time Statistical Retargeting,” 12/95–11/97 (\$165,000)

Naval Surface Warfare Center, “IPA Agreement,” 10/94–09/96 (\$16,604)

1999 New Researchers Conference:

- National Science Foundation (\$12000)
- National Security Agency: (\$10000)
- Office of Naval Research (\$6300)
- Acheson J. Duncan Fund for the Advancement of Research in Statistics (\$9000)

Consultant: AlgoTek, Inc.

Consultant: Animetrics, Inc.

Consultant: Centice Corp.

Consultant: Cephos Corp.

Consultant: Advanced Computation Technology Division, NSWC

Consultant: Center for Computing Sciences

Consultant: National Security Agency

## COURSES TAUGHT

@ Johns Hopkins University:

Statistical Theory II	550.631, Spring 2008	(8)
Topics in Statistics: Pattern Recognition	550.735, Spring 2008	(12)
Dissertation Research	550.800, Spring 2008	(4)
Statistical Theory I	550.630, Fall 2007	(21)
Dissertation Research	550.800, Fall 2007	(3)
Undergraduate Research	550.500, Fall 2007	(1)
Undergraduate Research	550.597, Summer 2007	(1)
Statistical Theory II	550.631, Spring 2007	(7)
Topics in Statistics: Pattern Recognition	550.735, Spring 2007	(12)
Dissertation Research	550.800, Spring 2007	(4)
Statistical Theory I	550.630, Fall 2006	(17)
Dissertation Research	550.800, Fall 2006	(4)
Undergraduate Research	550.500, Fall 2006	(1)
Undergraduate Research	550.597, Summer 2006	(2)
Statistical Theory II	550.631, Spring 2006	(4)
Dissertation Research	550.800, Spring 2006	(3)
Statistical Theory I	550.630, Fall 2005	(6)
Dissertation Research	550.800, Fall 2005	(2)
Dissertation Research	550.800, Spring 2005	(3)
Statistical Theory I	550.630, Fall 2004	(3)
Dissertation Research	550.800, Fall 2004	(3)
Statistical Theory II	550.631, Spring 2004	(6)
Dissertation Research	550.800, Spring 2004	(2)
Topics in Statistics: Pattern Recognition	550.730, Fall 2003	(9)
Statistical Theory I	550.630, Fall 2003	(10)
Dissertation Research	550.800, Fall 2003	(2)
Independent Research	990.892, Summer 2003	(1)
Stochastic Processes	550.426, Spring 2003	(19)
Statistical Theory II	550.631, Spring 2003	(6)
Dissertation Research	550.800, Spring 2003	(2)
Undergraduate Research	550.500, Spring 2003	(1)
Statistical Theory	550.630, Fall 2002	(7)
Dissertation Research	550.800, Fall 2002	(2)
Undergraduate Research	550.500, Fall 2002	(1)
Topics in Statistics: Random Graphs	550.730, Spring 2002	(5)
Statistical Theory II	550.631, Spring 2002	(4)
Dissertation Research	550.800, Spring 2002	(2)
Undergraduate Research	550.500, Spring 2002	(1)
Statistical Theory	550.630, Fall 2001	(6)
Dissertation Research	550.800, Fall 2001	(1)
Undergraduate Research	550.500, Fall 2001	(1)
Topics in Statistics: Pattern Recognition	550.732, Spring 2000	(16)
Mathematical Modelling and Consulting	550.401, Spring 2000	(5)
Dissertation Research	550.800, Spring 2000	(1)
Probability and Statistics	550.310, Fall 1999	(60)
Mathematical Modelling and Consulting	550.400, Fall 1999	(8)
Dissertation Research	550.800, Fall 1999	(2)
Undergraduate Research	550.500, Fall 1999	(1)
Statistical Theory	550.630, Spring 1999	(10)
Dissertation Research	550.800, Spring 1999	(3)
Undergraduate Research	550.500, Spring 1999	(1)

Introduction to Probability	550.420, Fall 1998	(50)
Topics in Statistics: Pattern Recognition	550.730, Fall 1998	(13)
Dissertation Research	550.800, Fall 1998	(3)
Undergraduate Research	550.500, Fall 1998	(1)
Introduction to Statistics II	550.112, Spring 1998	(100)
Applied Functional Analysis Seminar	550.895, Spring 1998	(4)
Dissertation Research	550.800, Spring 1998	(3)
Undergraduate Research	550.500, Spring 1998	(1)
Introduction to Statistics I	550.111, Fall 1997	(279)
Applied Functional Analysis Seminar	550.895, Fall 1997	(5)
Dissertation Research	550.800, Fall 1997	(3)
Topics in Statistics: Spatial Scan Statistics	550.730, Spring 1997	(8)
Undergraduate Research	550.500, Spring 1997	(1)
Probability and Statistics	550.310, Fall 1996	(58)
Statistical Data Analysis	550.413, Fall 1996	(14)
Statistics	550.430, Spring 1996	(22)
Mathematical Modelling	550.400, Spring 1996	(10)
Probability and Statistics	550.310, Fall 1995	(55)
Topics in Statistics: Kernel & Mixture Estimates	550.727, Spring 1995	(9)
Nonparametric and Robust Methods	550.424, Fall 1994	(6)

@ George Mason University:

Kernel & Mixture Estimates	CSI 790, Summer 1994	(5)
Exploratory Data Analysis	CSI 773, Spring 1994	(20)
Statistical Pattern Recognition	CSI 790, Summer 1993	(15)

## STUDENTS SUPERVISED

Al Aksakalli, Ph.D. (2007)

Dissertation Title: Protocols for Stochastic Shortest Path Problems with Dynamic Learning

Defended: March 2007

Al is now Senior Consultant for Lityx: ala@jhu.edu

(Co-advisor with Donniell Fishkind)

Kendall Giles, Ph.D. (2007)

Dissertation Title: Knowledge Discovery in Computer Network Data: A Security Perspective

Defended: October 2006

Kendall Giles is now Assistant Professor at Virginia Commonwealth University: kgiles@acm.org

Majnu John, Ph.D. (2005)

Dissertation Title: A data-adaptive methodology for finding an optimal weighted generalized MWW statistic

Defended: January 2005

Majnu John holds the position of Research Biostatistician position at Children's Hospital of Philadelphia.

johnm@email.chop.edu

Elvan Ceyhan, Ph.D. (2005)

Dissertation Title: An Investigation of Proximity Catch Digraphs in Delaunay Tessellations

Defended: October 2004

Elvan Ceyhan is now Assistant Professor, Department of Mathematics, Koc University, Istanbul: elceyhan@ku.edu.tr

Jason DeVinney, Ph.D. (2003)

Dissertation Title: The Class Cover Problem and its Applications in Pattern Recognition

Defended: November 2002

Jason DeVinney is now at Center for Computing Sciences: jgdevin@super.org

Adam Cannon, Ph.D. (2001)

Dissertation Title: Approximate Distance Methods in Classification

Defended: May 2000

Adam Cannon is now at Columbia University: cannon@cs.columbia.edu

(Co-advisor with Lenore Cowen)

Peng Tao, Ph.D. (2000)

Dissertation Title: The Generalized Borrowed Strength Method and the Application to Image Recognition

Defended: March 2000

Peng Tao is now at AccuImage: peng\_tao2000@yahoo.com

Dalei Chen, Ph.D. (2000)

Dissertation Title: Borrowed Strength Density Estimation and Applications

Defended: November 1999

Dalei Chen is now at Bristol-Myers Squibb: dalei.chen@bms.com

Jingdong Xie, Ph.D. (1999)

Dissertation Title: Generalizing the Mann-Whitney-Wilcoxon Statistic

Defended: April 1999

Jingdong Xie is now at Forest Research Institute: jingdong.xie@frx.com

Thesis Committee (2nd Reader) for Dominic Lee, Ph.D. (1996)

Dominic Lee is now at University of Canterbury, Christchurch, New Zealand: D.Lee@math.canterbury.ac.nz

Allison Barker, M.S. (2003)

Thesis Title: Statistical Testing on Labelled Cortical Distance Maps to Identify Dementia Progression

Karen Shahar, M.S. (2000)

Thesis Title: Quantitative Differentiation of Breast Lesions Based on 3-D Morphology from MR Imaging

(Co-advisor with Cheng Cheng)

**Current Research Advisees:**

- Xugang Ye (ABD), working in the area of random disambiguation paths & mark information monotonicity (jointly supervised with Shih-Ping Han)
- Libby Beer (ABD), working in the area of statistical inference for random graphs (jointly supervised with Ed Scheinerman)
- Zhiliang Ma (ABD), working in the area of statistical pattern recognition
- Adam Cardinal-Stakenas (doctoral student), working in the area of statistical pattern recognition
- Andrey Rukhin (doctoral student), working in the area of statistical inference for random graphs
- Nikhil Ram Mohan (BS/MS student), working in the area of statistical inference for brain shape analysis
- Henry Pao (BS/MS student), working in the area of statistical inference for random graphs

Graduate Research Assistant Advisor: Dalei Chen, Jingdong Xie, Peng Tao, Adam Cannon, Colin Wynne, Clyde Schoolfield, Leslie Cope, Chris Wagner, Nevin Kapur, Jiang Hu, Heng Zhang, Jason DeVinney, Elvan Ceyhan, Xiaoling Wu, Allison Barker, Kendall Giles, Majnu John

Undergraduate Research Assistant Advisor: Puneet Chopra, Alex Riemer, Marc Silhavy, Karen Shahar, Allison Barker, Dan Ransenberger, Ahad Khan, Julie Flannery

**PostDocs Supervised**

Bennett Landman (AY 2008–); Nam Lee (AY 2008–); Damianos Karakos (AY 2003–2005); Youngser Park (AY 2003–2004); Diego Socolinsky (AY 2000–2004); Rida Mustafa (AY 2001–2002); Sung Ahn (AY 1998–1999); Tim Olson (AY 1997–1998)

## HONORS

Elected Member of the International Statistical Institute (Elected 2007)

Fellow of the American Statistical Association (Elected 2002)

ASEE Sabbatical Leave Fellow, 2000–2001

Office of Naval Research Young Investigator Award, 1995–1998

Oraculum Award for Excellence in Teaching, Johns Hopkins University, 1994

Outstanding Ph.D. Dissertation in Statistical Sciences Award, George Mason University, 1993

## EDITORIAL POSITIONS

Associate Editor, *Computational Statistics and Data Analysis*, 1999–

Associate Editor, *Journal of Computational and Graphical Statistics*, 2000–

Associate Editor, *Computational Statistics*, 2004–

## COMMITTEE & PANEL MEMBERSHIP

Board of Directors, Computing Science and Statistics: Interface Foundation of North America (IFNA) (1997–2003); President, 2001–2004

Chair, American Statistical Association (ASA) Section on Statistical Computing (Elected 2002)

Vice President International Association for Statistical Computing (IASC) a Section of the International Statistical Institute (ISI) (Elected 2007–2009)

Chair, Institute of Mathematical Statistics (IMS) New Researchers Committee (1998–2000)

Office of Naval Research (ONR) / American Society for Engineering Education (ASEE) Research Evaluation Committee (1998–)

IMS representative to CBMS (Conference Board of the Mathematical Sciences) (2000–2003)

National Science Foundation Statistics & Probability Screening Panel (FY05)

National Representative and Chapter Secretary for the Maryland Chapter of the American Statistical Association (1995–1999)

NSWCDD (Naval Surface Warfare Center Dahlgren Division) FY00 ILIR (Internal Laboratory Independent Research) Program Review Committee (2000)

Conflict of Interest Committee, Johns Hopkins University, Whiting School of Engineering (2002–)

Library Advisory Committee, Johns Hopkins University, Whiting School of Engineering (2002–)

Applied and Computational Mathematics Program Committee, Johns Hopkins University, Whiting School of Engineering, Part-Time Programs in Engineering and Applied Science (1997–2003)

Joint Appointment, Johns Hopkins University Department of Biomedical Engineering

Johns Hopkins University Biomedical Engineering Institute Imaging Group Planning Committee (1999)

Academic Affairs Committee, Department of Mathematical Sciences, Johns Hopkins University (AY 94–95 – 99–00 & 01–; Chair AY 99–00 & 01–)

JHU Secondary BME Faculty

## Program Committees:

The International Statistical Institute's 57th Biennial Session, Durban, South Africa, August 2009  
Scientific Committee for the SAMSI program on National Defense and Homeland Security for 2005-06.  
Organizing Committee for IPAM Graduate Summer School: Intelligent Extraction of Information, July 2005.  
34th Symposium on the Interface: Computing Science and Statistics, Montreal, Canada, April 2002.  
The International Statistical Institute's 53rd Biennial Session, Seoul, South Korea, August 2001  
(IASC Program Chair).  
1999 Joint Statistical Meetings, Baltimore, MD, August 1999.  
1999 IMS New Researchers' Conference, Baltimore, MD, August 1999  
(Program Chair).  
30th Symposium on the Interface: Computing Science and Statistics, Minneapolis, MN, May 1998.  
XIII COMPSTAT Conference of the IASC, Bristol, England, August 1998.

## OTHER PROFESSIONAL ACTIVITIES

### Invited Session Organizer:

17th COMPSTAT Symposium of the IASC, Rome, August 2006  
"Modeling and Statistical Inference for Time Series of Graphs"  
The International Statistical Institute's 55th Biennial Session, Sydney, Australia, April 2005  
"Pattern Recognition in High Dimensions"  
34th Symposium on the Interface: Computing Science and Statistics, Montreal, Canada, April 2002.  
"Random Graphs for Statistical Pattern Recognition"  
2000 Joint Statistical Meetings:  
"Consistent Estimation of Mixture Complexity"  
1999 Joint Statistical Meetings:  
"Statistical Education at the Interface: Distance Learning/Computers in the Classroom"  
30th Symposium on the Interface: Computing Science and Statistics: Interface '98:  
"Nonparametric Density Estimation"

Referee: Journal of the American Statistical Association, Journal of Statistical Planning and Inference, Journal of Nonparametric Statistics, Journal of Computational and Graphical Statistics, Computational Statistics and Data Analysis, Canadian Journal of Statistics, Statistics and Probability Letters, Communications in Statistics, IEEE Transactions on Information Theory, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Systems, Man, and Cybernetics, Pattern Recognition Letters, Image and Vision Computing, Computerized Medical Imaging and Graphics, Naval Research Logistics, American Mathematical Monthly, Journal of Mathematical Sociology, Chemical Reviews

Proposal Reviewer: National Science Foundation, Department of the Navy, Department of the Army, Department of Energy, Department of State

Member: American Statistical Association (ASA), Institute of Mathematical Statistics (IMS), Interface Foundation of North America (IFNA), International Association for Statistical Computing (IASC), IEEE, Sigma Xi – The Scientific Research Society

### Affiliated Faculty:

Johns Hopkins University Center for Imaging Science (CIS)  
Johns Hopkins University Center for Language and Speech Processing (CLSP)  
George Mason University Center for Computational Statistics  
NSWCDD B10: The Advanced Computation Technology Group

## INVITED PRESENTATIONS

Invited to present “On the role of the conditionality principle in dimensionality reduction” at Multiscale Geometry and Analysis in High Dimensions, October 25-29, 2004, IPAM, UCLA.

Invited to present “Iterative denoising for cross-corpus discovery” at the Army Conference on Applied Statistics, October 19-22, 2004, Atlanta.

Invited to present “Statistical Pattern Recognition in High Dimensions” at COMPSTAT 2004: the 16th Symposium of IASC, August 23-27, 2004, Prague, Czech Republic.

Invited to present plenary talk “Classification Using Class Cover Catch Digraphs” at IFCS 2004: The 2004 Meeting of the International Federation of Classification Societies, July 15-18, 2004, Chicago

Invited to present plenary talk “Perspectives on Mathematical Image Analysis” at Mathematical Imaging and Image Analysis, January 24-27, 2004, Gainesville, Florida.

Invited to present “Statistical Pattern Recognition in High Dimensions” at Operations Research-Statistics Workshop, January 11-13, 2004, Sante Fe.

Invited to present “Segmenting Magnetic Resonance Images via Hierarchical Mixture Modelling” at the Department of Statistics Seminar, October 24, 2003, University of Michigan, Ann Arbor.

Invited to present “Statistical Pattern Recognition in High Dimensions” at the DARPA DSO Tech meeting, July 18-20, 2003, San Diego, California.

Invited to present “Segmenting Magnetic Resonance Images via Hierarchical Mixture Modelling” at the Eastern North American Region (ENAR) of the International Biometric Society annual meeting, March 30-April 2, 2003, Tampa, Florida.

Invited to present “Random Disambiguation Paths” at the Army Conference on Applied Statistics, October 30 - November 1, 2002, North Carolina State University.

Invited to present “Integrated Sensing and Processing for Statistical Pattern Recognition” at the DARPA DSO ACMP ISP Kickoff meeting, September 18-19, 2002, Annapolis, Maryland.

Invited to present “Assessing the Significance of Excursion Regions in Brain Imagery via Importance Sampling” at the Summer Workshop in fMRI Informatics, July 8-10, 2002, Dartmouth College.

Invited to present “Consistent Estimation of Mixture Complexity” at the Workshop on Developments and Challenges in Mixture Models, June 2-4, 2002, Cleveland, Ohio.

Invited to present “Class Cover Catch Digraphs for Gene Expression Analysis” at the Eastern North American Region (ENAR) of the International Biometric Society annual meeting, Washington, DC, March 2002.

Invited to present “Class Cover Catch Digraphs for Gene Expression Analysis” Seminar, Department of Mathematics, University of Maryland: March 14, 2002.

“Investigating the structure of high dimensional pattern recognition problems” Johns Hopkins University Whiting School of Engineering Inaugural Professorial Lecture, November 29, 2001.

Invited to present “Assessing the Significance of Excursion Regions in Brain Imagery via Importance Sampling” at The International Statistical Institute’s 53rd Biennial Session, Seoul, South Korea, August 2001.

Invited to present “Integrated Sensing and Processing” at MSRI Modern Signal Processing, Berkeley, CA, June 2001.

Invited to present “The Adaptive Data Cube: An Experiment in Hyperspectral Pattern Recognition” at the 33rd Symposium on the Interface: Computing Science and Statistics, Orange County, CA, June 2001.

Invited to present “Unmanned Aerial Vehicle-Based Remote Sensing for Detecting Minefields” at the Eastern

North American Region (ENAR) of the International Biometric Society annual meeting, Charlotte, NC, March 2001.

Invited to present “The Adaptive Data Cube” at the Integrated Sensing and Processing Workshop, Boulder, CO, August 2000.

Invited to present “Investigating an Artificial Nose” at Maryland Chapter of the American Statistical Association Annual Banquet, Columbia, MD, June 2000.

Invited to present “Statistical Pattern Recognition for an Artificial Nose” at the 1999 WSE Anniversary Symposium, Baltimore, MD, November 1999.

Invited to present “Optimizing Classification Performance” at the 1999 Joint Statistical Meetings, Baltimore, MD, August 1999.

Invited to present “Advanced Data Analysis Methods for Analyte Recognition from Optical Sensor Arrays” at the 1999 DARPA Applied and Computational Mathematics Program Conference, San Francisco, CA, July 1999.

Invited to present “Optimizing Sensor Fusion” at the 1999 International Conference on Imaging Science, Las Vegas, NV, June 1999.

Invited to present “Image Analysis via Spatial Scan Density Estimates” for the Iowa State University Department of Statistics Lecture Series, Ames, IA, June 1998.

Invited to present “Spatial Scan Density Estimates” at the 1998 SPIE International AeroSense Symposium, Orlando, FL, April 1998.

Invited to present “Introduction to Mathematical Imaging and Image Processing” at The Mathematical Association of America Meeting, Baltimore, MD, January 1998.

Invited to present “Applications of Change Point Analysis” at the NCI Lung Imaging Workshop, Bethesda, MD, January 1998.

Invited to present “Nonparametric Discriminant Analysis in High Dimensions via Generalized Interpoint Distances” at the Army Conference on Applied Statistics, Fairfax, VA, October 1997.

Invited to present “Borrowing Strength for Nonhomogeneity Detection in Digital Mammography” in a session titled “Image Analysis, Including Applications to Biomedicine” at The International Statistical Institute’s 51st Biennial Session, Istanbul, Turkey, August 1997.

Invited to present “Nonparametric Discriminant Analysis in High Dimensions via Generalized Interpoint Distances” in a session titled “Current Issues with High-Dimensional Data” at The 60th IMS Annual Meeting, Park City, UT, July 1997.

Invited to present “Approximate Distance Clustering” in a session titled “Dimension Reduction and Projection Pursuit” at The 29th Interface of Computer Science and Statistics, Houston, TX, May 1997.

Invited to present “Spatial Scan Statistics and the Detection of Clustered Microcalcifications in Digital Mammography” as a Colloquium to the Division of Cancer Prevention and Control, National Cancer Institute, National Institutes of Health, Rockville, MD, April 1997.

Invited to present “Approximate Distance Clustering” for the George Mason University Center for Computational Statistics Lecture Series, Fairfax, VA, October 1996.

Invited to present “A Spatial Scan Statistic for Stochastic Scan Partitions” Workshop on Spatial Point Processes, Dahlgren, VA, May, 1996.

Invited to present “Segmentation of Random Fields via Borrowed Strength Density Estimation,” the Whiting School of Engineering Junior Faculty Lecture, Baltimore, MD, May 1996.

Invited to present “Semiparametric Nonhomogeneity Analysis,” Johns Hopkins University Department of Biostatistics Seminar, Baltimore, MD, December 1994.

Invited to present “Image Analysis Using Fractal Features,” National Cancer Institute, National Institutes of Health, Bethesda, MD, February 1993.

## SELECTED NON-REFEREED TECHNICAL PUBLICATIONS

### Book Chapters

C.E. Priebe, D.J. Marchette, and D.M. Healy, "Integrated Sensing and Processing for Statistical Pattern Recognition," in *Modern Signal Processing*, edited by Rockmore, D. and Healy, D.M., Jr., Cambridge University Press, 2004.

G.W. Rogers, C.E. Priebe, and J.L. Solka, "Fractals for Pattern Recognition," in *The Industrial Electronics Handbook*, edited by Irwin, J.D., CRC Press, 1997.

W.L. Poston, C.E. Priebe, and O.T. Holland, "Maximizing the Fisher Information in Discrete-Time Systems," in *Digital Design and Control Systems (Techniques and Their Applications)*, edited by Leondes, C., New York: Academic Press, 1995.

### Anthologies

C.E. Priebe, J.L. Solka, R.A. Lorey, G.W. Rogers, W.L. Poston, M. Kallergi, W. Qian, L.P. Clarke, and R.A. Clark, "The Application of Fractal Analysis to Mammographic Tissue Classification," in *Chaos in Medicine: Source Readings*, edited by Sataloff, R.T., and Hawkshaw, M.J., San Diego: Delmar Publishers, 2001.

C.E. Priebe and D. Chen, "Spatial Scan Density Estimates," in *Selected SPIE Papers on CD-ROM, Vol 6: Automatic Target Recognition*, edited by Sadjadi, F., SPIE, 1999.

### International Workshop on Digital Mammography

C.E. Priebe, D.Q. Naiman, and L. Cope, "Assessing Cluster Significance," in *Digital Mammography 2000: Proceedings of the 5th International Workshop on Digital Mammography, Toronto, Canada, June 2000*, edited by Yaffe, M.J., Madison, WI: Medical Physics Publishing, 2001.

C.E. Priebe, "The Application of Stochastic Scan Analysis to the Detection of Microcalcifications in Digital Mammography," in *Digital Mammography '98: Proceedings of the 4th International Workshop on Digital Mammography, Nijmegen, The Netherlands, June 1998*, edited by Karssemeijer, N., Thijssen, M., Hendriks, J., and van Erning, L., Dordrecht: Kluwer, 1998.

C.E. Priebe and D.J. Marchette, "Characterizing Mammographic Tissue via Borrowed Strength Density Estimation," in *Digital Mammography '96: Proceedings of the 3rd International Workshop on Digital Mammography, Chicago, U.S.A., June 1996*, edited by Doi, K., Giger, M.L., Nishikawa, R.M., and Schmidt, R.A., Amsterdam: Elsevier, 1996.

C.E. Priebe, R.A. Lorey, D.J. Marchette, J.L. Solka, and G.W. Rogers, "Nonparametric Spatio-Temporal Change Point Analysis for Early Detection in Mammography," in *Digital Mammography: Proceedings of the 2nd International Workshop on Digital Mammography, York, England, July 1994*, edited by Gail, A.G., Astley, S.M., Dance, A.R. and Cairns, A.Y., Amsterdam: Elsevier, 1994.

K.S. Woods, J.L. Solka, C.E. Priebe, W.P. Kegelmeyer, C.C. Doss, and K.W. Bowyer, "Comparative Evaluation of Pattern Recognition Techniques for Detection of Microcalcifications in Mammography," in *State of the Art in Digital Mammography Image Analysis: Proceedings of the 1st International Workshop on Digital Mammography, San Jose, U.S.A., February, 1993*, edited by Bowyer, K.W. and Astley, S., Singapore: World Scientific, 1994.

## Proceedings of the Statistical Computing Section, American Statistical Association

K.E. Giles, D.J. Marchette, C.E. Priebe, "A Model of Backscatter as Escher Tessellations," *Proceedings of the Statistical Graphics Section and Section on Statistics in Defense and National Security, American Statistical Association*, 2005.

K.E. Giles, D.J. Marchette, C.E. Priebe, "The Development and Exploration of Online Classifiers for Backscatter from Denial of Service Attacks," *Proceedings of the Statistical Computing Section, American Statistical Association*, 2004.

J.G. DeVinney, Priebe, Marchette, Socolinsky, "Classification Using the Random Walk Class Cover," *Proceedings of the Statistical Computing Section, American Statistical Association*, 2003.

Barker, Priebe, et al., "Statistical Testing on Labelled Cortical Distance Maps to Identify Dementia Progression," *Proceedings of the Statistical Computing Section, American Statistical Association*, 2003.

K.E. Giles, D.J. Marchette, C.E. Priebe, "A Backscatter Characterization of Denial of Service Attacks," *Proceedings of the Statistical Computing Section, American Statistical Association*, 2003.

E. Ceyhan and C.E. Priebe, "Central Similarity Proximity Maps in Delaunay Tessellations," *Proceedings of the Statistical Computing Section, American Statistical Association*, 2003.

C.E. Priebe, D.J. Marchette and J.L. Solka, "On the Selection of Distance for a High-Dimensional Classification Problem," *Proceedings of the Statistical Computing Section, American Statistical Association*, pp. 58-63, 2000.

C.E. Priebe, J.L. Solka, and P. Tao, "Spatial Scan Analysis of Unmanned Aerial Vehicle Imagery," *Proceedings of the Statistical Computing Section, American Statistical Association*, pp. 92-97, 1997.

C.E. Priebe, D.J. Marchette, and H.H. Holcomb, "Contextual Investigation of Ketamine Effects in PET Scan Brain Imaging," *Proceedings of the Statistical Computing Section, American Statistical Association*, pp. 245-249, 1996.

## Computing Science and Statistics

D.A. Socolinsky, J.D. Neuheisel, C.E. Priebe, D. Marchette and J.G. DeVinney, "A Boosted CCCD Classifier for Fast Face Detection," *Computing Science and Statistics*, Vol. 35, 2003.

J.G. DeVinney, C.E. Priebe, D.J. Marchette, and D. Socolinsky, "Random Walks and Catch Digraphs in Classification," *Computing Science and Statistics*, Vol. 34, 2002.

J. L. Solka, C. E. Priebe, and D. J. Marchette, "Graph Theoretic Latent Class Discovery and Its Robustness to Minimal Dominating Set Choice," Vol. 34, 2002.

C.E. Priebe and D.J. Marchette, "Characterizing the Complexity of a High-Dimensional Classification Problem," *Computing Science and Statistics*, Vol. 32, pp. 48-62, 2000.

C.E. Priebe, D.Q. Naiman and L. Cope, "Importance Sampling for Spatial Scan Analysis: Computing Scan Statistic p-Values for Marked Point Processes," *Computing Science and Statistics*, Vol. 31, pp. 213-217, 1999.

A.H. Cannon, L.J. Cowen, and C.E. Priebe, "Approximate Distance Classification," *Computing Science and Statistics*, Vol. 30, pp. 544-549, 1998.

C.E. Priebe and L.J. Cowen, "Approximate Distance Clustering," *Computing Science and Statistics*, Vol. 29, pp. 337-346, 1997.

C.E. Priebe, E.G. Julin, G.W. Rogers, J.L., D.M. Healy, J. Lu, Solka, and D.J. Marchette, "Incorporating Segmentation Boundaries into the Calculation of Fractal Dimension Features," *Computing Science and*

*Statistics*, Vol. 26, pp. 52-56, 1994.

W.L. Poston and C.E. Priebe, "Finding the Minimum Volume Ellipsoid," *Computing Science and Statistics*, Vol. 26, pp. 351-355, 1994.

J.L. Solka, C.E. Priebe, G.W. Rogers, W.L. Poston, and R.A. Lorey, "Maximum Likelihood Density Estimation with Term Creation and Annihilation," *Computing Science and Statistics*, Vol. 26, pp. 222-225, 1994.

### **Proceedings of the SPIE**

J.T. Ratnanather, C.E. Priebe, and M.I. Miller, "Semi-Automated Segmentation of Cortical Subvolumes via Hierarchical Mixture Modelling," *Proceedings of the SPIE Medical Imaging*, 2003.

C.D. Piatko, C.E. Priebe, L.J. Cowen, I.-J. Wang, and P. McNamee, "Path Planning for Mine Countermeasures Command and Control," *Proceedings of the SPIE*, Vol. 4394, pp. 836-843, 2001.

D.J. Marchette and C.E. Priebe, "Adaptive Nonlinear Dimensionality Reduction," *Proceedings of the SPIE*, Vol. 4055, pp. 140-146, 2000.

C.E. Priebe and D. Chen, "Spatial Scan Density Estimates," *Proceedings of the SPIE*, Vol. 3371, pp. 295-305, 1998.

C.E. Priebe and L.J. Cowen, "Mine Detection Via Generalized Wilcoxon-Mann-Whitney Classification," *Proceedings of the SPIE*, Vol. 3392, pp. 906-917, 1998.

C.E. Priebe, T.E. Olson, and D.M. Healy, "Exploiting Stochastic Partitions for Minefield Detection," *Proceedings of the SPIE*, Vol. 3079, pp. 508-518, 1997.

T.E. Olson, C.E. Priebe, and T.L. Olson, "Detection and Classification of Mines via Borrowed Strength," *Proceedings of the SPIE*, Vol. 3079, pp. 345-352, 1997.

G.W. Rogers, T.E. Olson, C.E. Priebe, and D.J. Marchette, "Imposed Measure Approach to Stochastic Clutter Characterization," *Proceedings of the SPIE*, Vol. 2823, pp. 13-19, 1996.

H.I. Hayes and C.E. Priebe, "Improved Texture Classification and Image Segmentation with Boundary Incorporation," *Proceedings of the SPIE*, Vol. 2485, pp. 260-267, 1995.

C.E. Priebe, J.L. Solka, and G.W. Rogers, "Discriminant Analysis in Aerial Images Using Fractal-Based Features," *Proceedings of the SPIE*, Vol. 1962, pp. 196-208, 1993.

G.W. Rogers, C.E. Priebe, and J.L. Solka, "A Filtered Kernel Probabilistic Neural Network," *Proceedings of the SPIE*, Vol. 1962, pp. 242-252, 1993.

G.W. Rogers, C.E. Priebe, and J.L. Solka, "A Probabilistic Neural Network with Reflected Kernels," *Proceedings of the SPIE*, Vol. 1962, pp. 231-241, 1993.

H.I. Hayes, J.L. Solka, and C.E. Priebe, "Parallel Computation of Fractal Dimension," *Proceedings of the SPIE*, Vol. 1962, pp. 219-230, 1993.

J.L. Solka, C.E. Priebe, and G.W. Rogers, "A Probabilistic Approach to Fractal Based Texture Discrimination," *Proceedings of the SPIE*, Vol. 1962, pp. 209-218, 1993.

K.S. Woods, J.L. Solka, C.E. Priebe, C.C. Doss, K.W. Bowyer, and L.P. Clarke, "Comparative Evaluation of Pattern Recognition Techniques for Detection of Microcalcifications," *Proceedings of the SPIE*, Vol. 1905, pp. 841-852, 1993.

P.A. Shoemaker, M.J. Carlin, R.L. Shimabukuru, and C.E. Priebe, "Least-Squares Learning and Approximation of Posterior Probabilities," *Proceedings of the SPIE*, Vol. 1515, pp. 187-196, 1991.

## Other

- D.J. Marchette, C.E. Priebe, Y. Park, D. Karakos, "Iterative Denoising for Adaptive Sensors," *Hawaii International Conference on Statistics and Related Fields*, 2006.
- D. Karakos, S. Khudanpur, J. Eisner, C.E. Priebe, "Unsupervised Classification via Decision Trees: An Information-Theoretic Perspective," *ICASSP: IEEE International Conference on Acoustics, Speech, and Signal Processing* 2005.
- J. Jovicich, M.F. Beg, S. Pieper, C.E. Priebe, M.I. Miller, R. Buckner, B. Rosen, "Biomedical Informatics Research Network: integrating multi-site neuroimaging data acquisition, data sharing and brain morphometric processing," *Proceedings of the 18th IEEE Symposium on Computer-Based Medical Systems (CBMS'05)*, Dublin, Ireland, June 23-24, 2005, pp. 288-293.
- C.E. Priebe, D. J. Marchette, Y. Park, E. Wegman, J. Solka, D. Socolinsky, D. Karakos, K. Church, R. Guglielmi, R. Coifman, D. Lin, D. Healy, M. Jacobs, A. Tsao, "Iterative Denoising for Cross-Corpus Discovery," *Proceedings of the 2004 Symposium on Computational Statistics*, Prague, August 23-27, 2004.
- K.E. Giles, D.J. Marchette, C.E. Priebe, "On the Spectral Analysis of Backscatter Data," *Hawaii International Conference on Statistics and Related Fields*, 2004.
- D.J. Marchette, C.E. Priebe, Y. Park, "Comparing Apples & Oranges: Methods for Comparing the Incomparable," *Hawaii International Conference on Statistics and Related Fields*, 2004.
- M.F. Beg, et al., "Biomedical Informatics Research Network: Multi-Site Processing Pipeline for Shape Analysis of Brain Structures," *Human Brain Mapping*, 2004.
- R. Coifman, J.G. DeVinney, D. Healy, S. Jones, D. Marchette, C.E. Priebe, J. Solka, A. Tsao, and E.J. Wegman, "Mathematical Challenges in Novel Types of Data Mining and Perceptual Support," *Virtual Worlds and Simulation Conference*, 2003.
- D.J. Marchette and C.E. Priebe, "Integrated Sensing and Processing Decision Trees," *Hawaii International Conference on Statistics and Related Fields*, 2003.
- C.E. Priebe, D.Q. Naiman, and J. Hu, "Assessing the Significance of Excursion Regions in Functional Brain Imagery via Spatial Scan Analysis and Importance Sampling," *Bulletin of the International Statistical Institute, Proceedings of the 53rd Session*, Serial No. 24, Topic No. 51, 2001.
- C.E. Priebe, J.-S. Pang and T. Olson, "Optimizing Sensor Fusion for Classification Performance," *Proceedings of the International Conference on Imaging Science, Systems, and Technology: CISST '99*, pp. 397-403, 1999.
- C.E. Priebe, "Borrowing Strength for Nonhomogeneity Detection in Digital Mammography," *Bulletin of the International Statistical Institute, Proceedings of the 51st Session, Book 2*, pp. 151-154, 1997.
- R.A. Lorey, J.L. Solka, G.W. Rogers, D.J. Marchette, and C.E. Priebe, "Promising Gains Made in Mammography Thanks to Dual-Use of Military Technology in Statistical Analysis and Image Processing," *Naval Surface Warfare Center Dahlgren Division Technical Digest*, pp. 152-165, 1996.
- C.E. Priebe, G.W. Rogers, D.J. Marchette, and J.L. Solka, "Change Point Analysis with Adaptive Mixtures," *Proceedings of the International Geoscience and Remote Sensing Symposium: IGARSS '94*, pp. 1795-1798, 1994.
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