

Curriculum Vitae

Brian S Caffo

Personal information

Department of Biostatistics
Johns Hopkins Bloomberg School of Public Health
615 North Wolfe Street, Baltimore, MD, 21205
Fax:(410) 955-0958
Email:bcaffo@jhsph.edu
Homepage:www.biostat.jhsph.edu/~bcaffo

Education and training

2006 NIH K25 training grant “A mentored training program in imaging science” emphasizing research and coursework in medical imaging

2001 PhD in statistics from the University of Florida Department of Statistics under Professor James Booth; thesis title “Candidate sampling schemes and some important applications”

1998 MS in statistics from the University of Florida Department of Statistics

1995 BS in mathematics and statistics from the University of Florida’s Departments of Mathematics and Statistics.

Professional experience

Official appointments

2007- Associate professor, Department of Biostatistics, Johns Hopkins University

2001-2007 Assistant professor, Department of Biostatistics, Johns Hopkins University

1996-1999 Research assistant for professor Alan Agresti, Department of Statistics, University of Florida

1996, 1999 Intern / database programmer, the Pediatric Oncology Group Statistical Office

Extended visits to other departments

May - August 2006 Department of Biostatistics, Emory University

December - May 2006 Center for Imaging Science, Johns Hopkins University

June 2004 Carnegie Mellon, Department of Statistics

Professional activities

Membership: ASA, ENAR, IMS, OHBM

Review of research proposals:

NIH/NCI 2008; ad hoc study section member for *Quick Trials on Imaging and Image-guided Intervention*

NIH/BMRD 2009; ad hoc study section member for *the Biostatistical Methods and Research Design Study Section*

NIH/NIMH 2010; ad hoc study section member for *Interventions Committee for Adult Disorders*

Leadership:

Publications Officer for the Biometrics Section of the American Statistical Association 2005, 2006

Human Brain Mapping 2009 abstract referee

Editorial activities

2006-2008 Associate editor Computational Statistics and Data Analysis

2008-2010 Associate editor for the Journal of the American Statistical Association

2009- Associate editor for the Journal of the Royal Statistical Society, Series B

2010- Associate editor for Biometrics

Referee for: Australian Journal of Statistics, Biometrical Journal, Biometrics, Biometrika, Biostatistics, Brain Imaging and Behavior, Canadian Journal of Statistics, Circulation, Clinical Trials, Computational Statistics, Computational Statistics and Data Analysis, Computer Methods and Programs in Biomedicine, Handbook of MCMC, IEEE Transactions on Medical Imaging, Information Sciences, International Journal of Biostatistics, Journal of Computational and Graphical Statistics, Journal of Neuroscience Methods, Journal of Statistical Planning and Inference, Journal of Statistical Software Development, Journal of the American Statistical Association, Journal of the Royal Statistical Society, Statistics and its Interface, Statistical Computing, Statistical Methods and Applications, Statistical Modeling, Statistics and Probability Letters, Statistics in Medicine

Book reviewer for: Springer-Verlag, Wiley

Honors and awards

1998 William S. Mendenhall Award

1999 Anderson Scholar/Faculty nominee for the University of Florida CLAS

2001 University of Florida CLAS Dissertation Fellowship

2001 University of Floridas Statistics Faculty Award

2002 Johns Hopkins Faculty Innovation Award

2006 Johns Hopkins Bloomberg School of Public Health AMTRA award

2008 Johns Hopkins Bloomberg School of Public Health Golden Apple teaching award

Bibliography

Articles

- [1] D Boatman, P Franaszczuk, A Korzeniewska, B Caffo, E Ritzl, S Colwell, and N Crone. Quantifying auditory event-related responses in multichannel human intracranial recordings. *Invited submission to Frontiers in Computational Neuroscience, appeared online with print version in press*, 2010.
- [2] B Caffo, C Crainiceanu, G Verduzco, S Mostofsky, S Spear-Bassett, and J Pekar. Two-stage decompositions for the analysis of functional connectivity for fMRI with application to Alzheimer's disease risk. *Neuroimage*, 51:1140–1149, 2010.
- [3] J Goldsmith, B Caffo, C Crainiceanu, D Reich, Y Du, and C Hendrix. Nonlinear tubefitting for the analysis of anatomical and functional structures. *Accepted in the Annals of Applied Statistics*, 2010.
- [4] H Hedlin, B Caffo, Z Mahfoud, and S Bassett. Covariate-adjusted nonparametric analysis of magnetic resonance images using Markov chain Monte Carlo. *Accepted in Statistics and its Interface*, 2010.
- [5] S Nazarian, D Bluemke, K Wagner, M Zviman, E Turkbey, B Caffo, M Shehata, D Edwards, B Butcher, H Calkins, R Berger, H Halperin, and G Tomaselli. QRS prolongation in myotonic muscular dystrophy and diffuse fibrosis on cardiac magnetic resonance. *Accepted in Magnetic Resonance in Medicine*, 2010.
- [6] A Ozturk, S Smith, E Gordon-Lipkin, D Harrison, N Shiee, D Pham, B Caffo, P Calabresi, and D Reich. MRI of the corpus callosum in multiple sclerosis: Association with disability. *Multiple Sclerosis*, 16(2):166–177, 2010.
- [7] B Schwartz, B Caffo, W Stewart, H Hedlin, S Chen, B James, D Yousem, and C Davatzikos. Evaluation of cumulative lead dose and longitudinal changes in structural MRI in former organolead workers. *Accepted in the Journal of Occupational and Environmental Medicine*, 2010.
- [8] D Segev, A Muzaale, B Caffo, S Mehta, A Singer, S Taranto, M McBride, and R Montgomery. Peri-operative mortality and long-term survival following live kidney donation. *Journal of the American Medical Association*, 303(10):959, 2010.
- [9] B. Swihart, B. Caffo, B. James, M. Strand, B. Schwartz, and N. Punjabi. Lasagna plots: A saucy alternative to spaghetti plots. *Accepted in Epidemiology*, 2010.
- [10] H Wu, B Caffo, H Jaffee, A Feinberg, and R Irizarry. Redefining CpG islands using a hidden Markov models. *Accepted in Biostatistics*, 2010.
- [11] B Caffo, B Swihart, C Crainiceanu, A Laffan, and N Punjabi. An overview of observational sleep research with application to sleep stage transitioning. *Chance*, 22(1):10–15, 2009.
- [12] S Chen, C Wang, L Eberly, B Caffo, and B Schwartz. Adaptive control of the false discovery rate in voxel-based morphometry. *Human Brain Mapping*, 30(7), 2009.
- [13] C Crainiceanu, B Caffo, C Di, and N Punjabi. Nonparametric signal extraction and measurement error in the analysis of electroencephalographic activity during sleep. *Journal of the American Statistical Association*, 104(486):541–555, 2009.

- [14] C Di, C Crainiceanu, B Caffo, and N Punjabi. Multilevel functional principal component analysis. *Annals of Applied Statistics*, 3(1):458–488, 2009.
- [15] C Lauzon and B Caffo. Easy multiplicity control in equivalence testing using two one-sided tests. *The American Statistician*, 63(2):147–154, 2009.
- [16] S Mostofsky, S Powell, D Simmonds, M Goldberg, B Caffo, and J Pekar. Decreased connectivity and cerebellar activity in autism during motor task performance. *Brain*, 132(9):2413, 2009.
- [17] G O’Connor, B Caffo, A Newman, S Quan, D Rapoport, S Redline, H Resnick, J Samet, and E Shahar. Prospective study of sleep-disordered breathing and hypertension: The Sleep Heart Health Study. *American Journal of Respiratory and Critical Care Medicine*, 179(12):1159, 2009.
- [18] N Punjabi, B Caffo, J Goodwin, D Gottfried, A Newman, G O’Connor, D Rapoport, S Redline, H Resnick, J Robbins, J Samet, E Shahar, and M Unruh. Sleep-disordered breathing and mortality: a prospective cohort study. *PLOS Medicine*, 6, 2009.
- [19] D Reich, S Smith, E Gordon-Lipkin, A Ozturk, B Caffo, L Balcer, and P Calabresi. Damage to the optic radiation in multiple sclerosis is associated with retinal injury and visual disability. *Archives of Neurology*, 66(8):998, 2009.
- [20] S Su, B Caffo, E Garrett-Mayer, and S Bassett. Modified test statistics by inter-voxel variance shrinkage with an application to fMRI. *Biostatistics*, 10(2):219, 2009.
- [21] D Yousem, M Yassa, C Cristinzio, I Kusevic, M Mohamed, B Caffo, and S Bassett. Intelligence and medial temporal lobe function in older adults: A functional mr imaging-based investigation. *American Journal of Neuroradiology*, 30(8):1477, 2009.
- [22] F Bowman, B Caffo, S Bassett, and C Kilts. A Bayesian hierarchical framework for spatial modeling of fMRI data. *NeuroImage*, 39(1):146–156, 2008.
- [23] B Caffo, C Crainiceanu, L Deng, and C Hendrix. A case study in pharmacologic colon imaging using principal curves in single-photon emission computed tomography. *Journal of the American Statistical Association*, 103(484):1470–1480, 2008.
- [24] B Caffo, L Dongmei, R Scharpf, and G Parmigiani. Likelihood estimation of conjugacy relationships in linear models with applications to high-throughput genomics. *International Journal of Biostatistics*, 5, 2008. Issue 18.
- [25] Y Cao, B Caffo, L Choi, C Radebaugh, E Fuchs, and C Hendrix. Noninvasive quantitation of drug concentration in prostate and seminal vesicles: Improvement and validation with desipramine and aspirin. *The Journal of Clinical Pharmacology*, 48(2):176, 2008.
- [26] L Choi, B Caffo, and C Rohde. A survey of the likelihood approach to bioequivalence trials. *Statistics in Medicine*, 27(24), 2008.
- [27] L Choi, B Caffo, C Rohde, T Ndovi, and C Hendrix. A mechanistic latent variable model for estimating drug concentrations in the male genital tract: A case study in drug kinetics. *Statistics in Medicine*, 27(14), 2008.
- [28] T Guilarte, D Hammoud, J McGlothlan, B Caffo, C Foss, A Kozikowski, and M Pomper. Dysregulation of glutamate carboxypeptidase II in psychiatric disease. *Schizophrenia research*, 99(1-3):324, 2008.

- [29] X He, B Caffo, and E Frey. Toward realistic and practical ideal observer (io) estimation for the optimization of medical imaging systems. *IEEE Transactions on Medical Imaging*, 27(10):1535–1543, 2008.
- [30] G Redgrave, A Bakker, N Bello, B Caffo, J Coughlin, A Guarda, J McEntee, J Pekar, S Reinblatt, G Verduzco, and T Moran. Differential brain activation in anorexia nervosa to fat and thin words during a Stroop task. *NeuroReport*, 19(12):1181, 2008.
- [31] D Scharfstein, J Ryea, and B Caffo. Accounting for within-patient correlation in assessing relative sensitivity of an adjunctive diagnostic test: Application to lung cancer. *Statistics in Medicine*, 27(12):2110–2126, 2008.
- [32] K Stamatakis, M Sanders, B Caffo, H Resnick, D Gottlieb, R Mehra, and N Punjabi. Fasting glycemia in sleep disordered breathing: Lowering the threshold on oxyhemoglobin desaturation. *Sleep*, 31(7):1018–1024, 2008.
- [33] S Suskauer, D Simmonds, B Caffo, M Denckla, J Pekar, and S Mostofsky. fMRI of intrasubject variability in adhd: Anomalous premotor activity with prefrontal compensation. *Journal of American Academy of Child & Adolescent Psychiatry*, 47(10):1141–1150, 2008.
- [34] B Swihart, B Caffo, K Bandeen-Roche, and N Punjabi. Characterizing sleep structure using the hypnogram. *Journal of Clinical Sleep Medicine*, 4(4):349–355, 2008.
- [35] L Zhang, J Samet, B Caffo, I Bankman, and N Punjabi. Power spectral analysis of EEG activity during sleep in cigarette smokers. *Chest*, 133(2):427–432, 2008.
- [36] B Caffo, M An, and C Rohde. Flexible random intercept models for binary outcomes using mixtures of normals. *Computational Statistics and Data Analysis*, 51(11):5220–5235, 2007.
- [37] B Caffo, S Chen, W Stewart, K Bolla, D Yousem, C Davatzikos, and B Schwartz. Are brain volumes based on magnetic resonance imaging mediators of the associations of cumulative lead dose with cognitive function? *American Journal of Epidemiology*, 167(4):429–437, 2007.
- [38] Y Cao, T Ndovi, T Parsons, A Guidos, B Caffo, and C Hendrix. Effect of semen sampling frequency on seminal antiretroviral drug concentration. *Clinical Pharmacology & Therapeutics*, 83(6):848–856, 2007.
- [39] L Choi, B Caffo, and C Rohde. Optimal sampling times in bioequivalence studies using a simulated annealing algorithm. *Statistics and Computing*, 17(4):337–347, 2007.
- [40] X Li, B Caffo, and D Scharfstein. On the potential for ill logic with logically defined outcomes. *Biostatistics*, 8(4):800, 2007.
- [41] T Ndovi, T Parsons, L Choi, B Caffo, C Rohde, and C Hendrix. A new method to estimate quantitatively seminal vesicle and prostate gland contributions to ejaculate. *British Journal of Clinical Pharmacology*, 63(4):404–420, 2007.
- [42] B Schwartz, S Chen, B Caffo, W Stewart, K Bolla, D Yousem, and C Davatzikos. Relations of brain volumes with cognitive function in males 45 years and older with past lead exposure. *Neuroimage*, 37(2):633–641, 2007.
- [43] S Bassett, D Yousem, C Cristinzio, I Kusevic, M Yassa, B Caffo, and S Zeger. Familial risk for Alzheimer’s disease alters fMRI activation patterns. *Brain*, 129(5):1229–1239, 2006.

- [44] B Caffo. Exact hypothesis tests for log-linear models with exactLoglinTest. *Journal of Statistical Software*, 17(7):1–17, 2006.
- [45] B Caffo and M Griswold. A user-friendly tutorial on link-probit-normal models. *The American Statistician*, 60:139–145, 2006.
- [46] G Jones, M Haran, B Caffo, and R Neath. Fixed-width output analysis for Markov chain Monte Carlo. *Journal of the American Statistical Association*, 101(476):1537–1547, 2006.
- [47] T Ndovi, L Choi, B Caffo, T Parsons, S Baker, M Zhao, C Rohde, and C Hendrix. Quantitative assessment of seminal vesicle and prostate drug concentrations by use of a noninvasive method. *Clinical Pharmacology & Therapeutics*, 80(2):146–158, 2006.
- [48] L Zhang, J Samet, B Caffo, and N Punjabi. Cigarette smoking and nocturnal sleep architecture. *American Journal of Epidemiology*, 164(6):529, 2006.
- [49] B Caffo, W Jank, and G Jones. Ascent-based Monte Carlo EM. *Journal of the Royal Statistical Society, Series B*, 67:235–252, 2005.
- [50] A Agresti, B Caffo, and P Ohman-Strickland. Examples in which misspecification of a random effects distribution reduces efficiency, and possible remedies. *Computational Statistics and Data Analysis*, 47(3):639–653, 2004.
- [51] B Caffo and J Booth. Monte Carlo conditional inference for log-linear and logistic models: a survey of current methodology. *Statistical Methods in Medical Research*, 12(2):109, 2003.
- [52] A Agresti and B Caffo. Measures of relative model fit. *Computational Statistics and Data Analysis*, 39(2):127–136, 2002.
- [53] J Booth and B Caffo. Unequal sampling for Monte Carlo EM algorithms. *Computational Statistics and Data Analysis*, 39(3):261–270, 2002.
- [54] B Caffo, J Booth, and A Davison. Empirical supremum rejection sampling. *Biometrika*, 89(4):745–754, 2002.
- [55] B Caffo and J Booth. A Markov chain Monte Carlo algorithm for approximating exact conditional probabilities. *Journal of Computational and Graphical Statistics*, 10(4):730–745, 2001.
- [56] J Hartzel, A Agresti, and B Caffo. Multinomial logit random effects models. *Statistical Modelling*, 1(2):81, 2001.
- [57] A Agresti, J Booth, J Hobert, and B Caffo. Random-effects modeling of categorical response data. *Sociological Methodology*, 30:27–80, 2000.
- [58] A Agresti and B Caffo. Simple and effective confidence intervals for proportions and differences of proportions result from adding two successes and two failures. *The American Statistician*, 54(4):280–288, 2000.

Book chapters

- [59] B Caffo, D Bowman, L Eberly, and S Bassett. A Markov chain Monte Carlo based analysis of a multilevel model for functional MRI data. *To Appear in The Handbook of Markov Chain Monte Carlo edited by Steve Brooks and Andrew Gelman and Galin Jones and Xiao-Li Meng*, 2010.

- [60] B Caffo, R Peng, F Dominici, T Louis, and S Zeger. Parallel MCMC for analyzing distributed lag models with systematic missing data for an application in environmental epidemiology. *To Appear in The Handbook of Markov Chain Monte Carlo edited by Steve Brooks and Andrew Gelman and Galin Jones and Xiao-Li Meng*, 2010.

Letters

- [61] K Broman and B Caffo. Simulation-based P values: Response to North et al. *The American Journal of Human Genetics*, 72(2):496–496, 2003.

Conference proceedings

- [62] V Zippunikov, B Caffo, C Crainiceanu, C Davatzikos, and B Schwartz. Functional principal components models for high dimensional brain volumetrics. *Proceedings of the International Workshop on Statistical Modeling*, 2010.
- [63] B Caffo, H Hedlin, S Joel, S Mostofsky, J Pekar, and S Spear-Bassett. A survey of statistical methods for non-invasive measurement of connectivity in the human brain. In *Proceedings for the International Workshop on Statistical Modeling*, pages 1–6, 2009.
- [64] H Hedlin, B Caffo, and S Bassett. Nonparametric analysis of MR images. *Neuroimage, Proceedings of the Human Brain Mapping Conference*, 47:80–80, 2009.
- [65] S Joel, B Caffo, P van Zijl, and J Pekar. A demonstration of inter-task differences in inter-network connectivity. *Neuroimage, Proceedings of the Human Brain Mapping Conference*, 47:101–101, 2009.
- [66] S Joel, S Rimrodt, A Venkatadri, B Caffo, L Cutting, and J Pekar. Altered connectivity between brain networks in reading disability. *Neuroimage, Proceedings of the Human Brain Mapping Conference*, 47:142–142, 2009.
- [67] G Redgrave, A. Bakker, NT Bello, B Caffo, J Coughlin, A Guarda, J McEntee, J Pekar, S Reading, S Reinblatt, G Verduzco, and T Moran. Imaging the Iowa gambling task in anorexia nervosa: Differential activation in patients and controls while making and anticipating results of high-versus low-risk decisions. *Neuroimage, Proceedings of the Human Brain Mapping Conference*, 47:138–138, 2009.
- [68] S Nazarian, D Bluemke, K Wagner, B Caffo, M Shehata, D Edwards, B Butcher, H Calkins, R Berger, H Halperin, and G Tomaselli. A novel measure of diffuse myocardial fibrosis by cardiac magnetic resonance. In *Circulation, Proceedings of the American Heart Association Meeting*, volume 118, page S692, 2008.
- [69] X He, B Caffo, and E Frey. Markov chain Monte Carlo (MCMC) based ideal observer estimation using a parameterized phantom and a pre-calculated dataset. In *Proceedings of SPIE*, volume 6515, page 651516, 2007.
- [70] C Cristinzio, M Yassa, I Kusevic, N Honeycutt, S Baird, B Caffo, D Yousem, and S Bassett. Limbic structural changes associated with increased neuroticism in an adult sample. In *Proceedings of the Society for Biological Psychiatry*, volume 55:8S, page 185, 2004.
- [71] J Schafer, S Mostofsky, M Kraut, A Boyce, B Caffo, A Flower, A Goldberg, K Radonovich, and J Pekar. How many subjects are enough: Subsampling and consensus in fMRI. In *Proceedings of the International Society for Magnetic Resonance in Imaging*, volume 11, page 383, 2003.

Other publications

- [72] B Caffo. A review of: A first course in Monte Carlo, by George Fishman. *Journal of the American Statistical Association*, 102(478):758–758, 2007.
- [73] B Caffo and G Jones. *Solutions Manual for Wackerly, Mendenhall and Scheaffers Mathematical Statistics with Applications*. Duxbury Press, 2001.

Manuscripts in preparation

- [74] B Caffo, M Diener-West, N Punjabi, and J Samet. A novel approach to prediction of mild sleep disorders in a population-based sample: the Sleep Heart Health Study. *Under revisions for Sleep*, 2010.
- [75] J Goldsmith, J Feder, C Crainiceanu, B Caffo, and D Reich. Penalized functional regression. *Under revisions for in Journal of Computational and Graphical Statistics*, 2010.
- [76] S Greven, C Crainiceanu, B Caffo, and D Reich. Longitudinal functional principal components analysis. 2010.
- [77] D Harrison, B Caffo, N Shiee, P Farrell, J Bazin, S Farrell, J Ratchford, P Calabresi, and D Reich. Longitudinal changes in diffusion-tensor-based quantitative mri in multiple sclerosis. *Under revisions for Neurology*, 2010.
- [78] S Joel, B Caffo, P Van Zijl, and J Pekar. On the relationship between seed-based and ica-based measures of functional connectivity. *Under revisions for Magnetic Resonance in Medicine*, 2010.
- [79] B Swihart, B Caffo, and C Crainiceanu. A unified approach to modeling multivariate binary data using copulas over partitions. 2010.
- [80] V Zipunnikov, B Caffo, D Crainiceanu, C Yousem, C Davatzikos, and B Schwartz. Multilevel functional principal component analysis for high-dimensional data. 2010.

Software

Software and subroutines relevant to my research can be downloaded at

<http://www.biostat.jhsph.edu/~bcaffo/downloads.html>

The software `exactLoglinTest` is listed at the Comprehensive R Archive Network.

Media coverage

The 2010 JAMA article was featured on Reuters, US News, Business Week and other media outlets.

Interviewed on the Dan Rodricks show (WYPR Baltimore) 1/25/2010

Featured in the December 2009 issue of the Johns Hopkins School of Public Health Magazine

The 2009 PLOS Medicine manuscript was covered by: the Baltimore Sun, CBS, AJC, US News and World Report, Bloomberg, Reuters and other media outlets

The 2008 Chest manuscript was covered by: the Washington Post, Boston Globe, 7 News NBC Boston, the Toronto Star and other media outlets

Curriculum Vitae

Brian S. Caffo

Part II

Teaching

Advisees

- 2005 PhD Leena Choi, Johns Hopkins Biostatistics, *Modelling biomedical data and the foundations of bioequivalence*
- 2006 ScM Lijuan Deng, Johns Hopkins Biostatistics, *Spline-based curve fitting with applications to kinetic imaging*
- 2006 MS Bruce Swihart, University of Colorado Biostatistics, *Quantitative characterization of sleep architecture using multi-state and log-linear models* (jointly advised with Naresh Punjabi and Gary Grunwald)
- 2007 MPH Jeong Yun, Johns Hopkins Bloomberg School of Public Health, *Incidence of hypertension in high risk groups of the Sleep Heart Health Study*
- 2008 PhD Xianbin Li, Johns Hopkins Biostatistics, *Modeling composite outcomes and their component parts*
- 2008 PhD Shu-Chih Su, Johns Hopkins Biostatistics, *Structure/function relationships in the analysis of anatomical and functional neuroimaging data*
- 2010 ScM John Muschelli, Johns Hopkins Biostatistics, *An iterative approach to hemodynamic response function temporal derivatives in statistical parametric mapping for functional neuroimaging*

Postdoctoral advisees

- 2010- Vadim Zipunnikov (co-advising with primary advisor Ciprian Crainiceanu)

Advisees in progress

- Haley Hedlin, doctoral candidate
- Bruce Swihart, doctoral candidate
- Jeff Goldsmith, doctoral candidate (co-advising with primary advisor Ciprian Crainiceanu)
- Shanshan Li, doctoral candidate (co-advising with Mei-Cheng Wang)

Interns

- 2010 Katie Phelan

K award mentees

- Ying Cao, Madhav Goyal, Daniel Harrison, Saman Nazarian, Sheryl Rimrodt, Adam Spira, Stacy Suskauer

Academic advisees

Doctoral students Xianbin Li, Yun Lu,

ScM students Lijuan Deng

MHS students Nan Guo, Juleen Lam, Fengmin Zhao, Jiemin Ma

MPH students Hana Lee, Andrew Marovino, Sri-sujanthy Rajaram, Jeong Yun

Master's thesis reader

2009 Catherine Thomas (Biostat), Ros Reside (Epi)

2006 Ricardo Carvalho (GTPCI), Bruce Swihart (UC Denver Biostatistics)

2005 Brendan Click (Biostat), Jennifer Ryea (Biostat)

2004 Meh Fen Yeh (Biostat)

Preliminary oral participation

2010 Jeff Goldsmith (Biostat), Yan Ning (Biostat)

2009 Vikram Aggarwal (BME)

2008 Soumyadipta Acharya (BME), Haley Hedlin (Biostat), Alan Huang (BME), Yang Hui (HPM), Jun Hua (EE), Zhiliang Ma (AMS), Gila Neta (Epi), Adam Stakenas (AMS), Bruce Swihart (Biostat), James Williams (MH),

2007 Gabriel Lai (Epi), Issel Lim (BME), Greta Mok (EHS), Erin Rand-Giovanetti (HPM), Hilary Schwandt (PFH), Kenneth Shermock (HPM), Stella Yi (Epi)

2006 Ying Cao (GTPCI), Yu-Jen Chen (Biostat), Alison Laffan (Epi), Taek Soo Lee (EHS), Xianbin Li (Biostat), Shu-Chih Su (Biostat)

2005 Leslie Cromwell (HPM), Bin He (EHS)

2004 Kenneth Brenneman (EHS), Elizabeth Johnson (Biostat), Rongheng Lin (Biostat)

2003 Yi Huang (Biostat), Lin Zhang (Epi)

2002 Dongmei Liu (Biostat), Samuel Mills (PFH),

Final oral participation

2009 Kenneth Brenneman (EHS), Greta Mok (EHS), Alison Mondul (Epi) James R Williams (MH)

2008 Ying Cao (GTPCI), Ingrid Frieberg (IH), Alison Laffan (Epi), Xianbin Li (Biostat), Chi Liu (EHS), Shu-Chih Su (Biostat)

2007 Leslie Conwell (HPM), Yue Yin (Biostat)

2006 Hongfei Guo (Biostat), Bin He (EHS), Bruce Swihart (UC Denver Masters thesis defense)

2005 Leena Choi (Biostat), Mike Griswold (Biostat), Dongmei Liu (Biostat), John Majnu (AMS), Susan Milner (2005)

2004 Samuel Mills (PFH), Judy Ng (HPM), Lin Zhang (Epi)

Classroom Instruction

Johns Hopkins

- 2001-2005 Advanced Statistical Computing Biostatistics PhD elective 10-20 students
- 2003-2004 Advanced Methods in Biostatistics IV Biostatistics PhD and ScM core requirement 10-20 students
- 2003-2004 Advanced Methods in Biostatistics II Guest lecturer Biostatistics PhD and ScM core requirement (Two weeks of lectures on linear mixed models) 10-20 students
- 2003-2008 Computing orientation and student computing club guest lecturer 20 students
- 2003-2004, 2008 Statistical Computing (jointly with other faculty) Biostatistics elective 20-30 students
- 2004-2005 Advanced Methods in Biostatistics III Biostatistics PhD and ScM core requirement 20 students
- 2005-2009 Methods in Biostatistics I Biostatistics PhD, ScM core requirement 60 students
- 2005-2009 Methods in Biostatistics II Biostatistics PhD, ScM core requirement 60 students
- 2008 Medical Imaging Statistics One quarter Biostatistics PhD and ScM elective lectures 10 students

Other

Course notes for Biostatistics 140.651-2 listed on the Johns Hopkins Open Courseware project

Experience tutoring and teaching students with mathematics learning disabilities

Primary instructor, TA, and tutor for introductory and intermediate statistics and remedial mathematics courses at the University of Florida; primary instructor course enrollments ranged from 20 to 400 students

Created a statistics course for the McNairs Scholar program, a minority recruitment and retention program at the University of Florida.

Research support

An asterisk after the date denotes those grants that I was involved in the submission

Principal investigator

TBD* NIH NIBIB R01 EB012547 *Statistical methods for hierarchical large n large p problems* Modern observational data is often longitudinal or multilevel functional biological signals. We propose a foundational approach for the analysis of such data, including scalable computing to next-generation data sets.

05/01/06-04/30/09* NIH NIBIB K25 EB003491 *A mentored training program in imaging science* PI Caffo, \$125,101 The aims of this proposal are to accelerate EM based iterative reconstruction algorithms and to theoretically and empirically investigate intra-iteration smoothing. All of the developed algorithms will be extensively tested using Monte Carlo and actual patient data.

Co-investigator or Co-PI**Ongoing**

- 09/23/09 NIAID/Magee Womens Res. Institute 9004047 *Combination HIV antiretroviral rectal microbicide* PI Hendrix
- 04/01/09 - 03/31/14* NIH K24 DC010028 *Variability in cortical auditory event-related responses* PI Boatman
- 04/01/09 - 03/31/14* NIH NIA R01AG016324 *Brain imaging and cognition in subjects at risk for Alzheimers disease* PI Bassett
- 01/01/09 12/31/13* NIH BMRD R01 NS060910 *Statistical methods for multilevel multivariate functional studies* PI Crainiceanu
- 07/01/08 06/30/13 KKI subaward *Mental retardation and developmental disabilities research centers* PI Denckla
- 07/01/08 - 06/30/12* NIH NHLBI R01 HL087918 *Time resolved cardiac computed tomography with patient dose reduction* PI Taguchi
- 09/30/07 - 09/29/12* NIH *Institutional Clinical and Translational Science Award* PI Ford
- 09/30/06 06/30/10 NIH NIA R01AG027481 *New methods to assess social, cognitive and physical function in older persons* PI Glass

Completed

- 12/01/07 - 11/30/12* NIH NIBIB R01 EB000168 *Corrective image reconstruction methods for ECT* PI Tsui
- 07/01/07 - 06/30/11* NIH R01 HL086862 *Longitudinal changes in sleep structure: implications for health outcomes* PI Punjabi
- 09/30/05 - 06/30/08* NIH RO1 AG10785 *Aging, lead exposure, and neurobehavioral decline* PI Schwartz
- 05/31/05 - 11/30/09 NIH NCI P01 CA77664 *High throughput genetic analysis of bladder cancer* PI Goodman
- 12/01/05-11/30/07* NIH NIMH R11 MH076591 *Imaging serotonergic transmission in HIV depression* PI Pomper
- 09/15/04 - 08/31/07 NIH R21 NS048593 *Center for Mind-Body Research* PI Haythornwaite
- 09/30/03 - 09/29/04 AHQR R03 HS013998 *Exploring experiences and evaluations of care among Medicaid, Schip and special needs children in Marylands Health Choice program* PI Milner
- 12/01/02 - 11/30/07 HEI R01 ES012054 *Statistical methods for environmental epidemiology* PI Dominici
- 12/01/02 - 11/30/03 NIH NCI P01 CA7766403 *High Throughput Genetic Analysis of Bladder Cancer* PI Sidransky
- 07/01/02 - 03/31/07 NIH R01 EB000168 *Corrective image reconstruction methods for ECT* PI Tsui
- 09/07/01 - 07/31/06 NIH NICHD R01 HD39822 *Disability in Parkinsons disease* PI Bassett
- 09/30/99 - 08/31/10 NIH NHLBI U01 HL064360 *Data coordinating center for Sleep Heart Health Study* PI Deiner-West / Samet
- 12/01/98 - 11/30/03 NIH NINDS P50 NS837704 *Parkinsons disease research center of excellence* PI Dawson
- 08/15/97 - 07/31/03 NIH NIMH MH56639 *Statistics for longitudinal studies of mental health services* PI Zeger
- 07/01/97 - 06/30/02 NIH NICHD P30 HD0626827 *Hopkins Population Center* PI Hill

Academic service

Standing committee involvement

Biostatistics admissions committee member 2002 - 2009, 2010

Biostatistics co-director of the graduate program 2010 -

Biostatistics information technology committee member 2001 - 2009

Biostatistics seminar coordinator 2001 - 2002

Co-director Biostatistics/Epidemiology MPH concentration 2008 - 2010

Co-organizer Junior Faculty Meetings 2003

Committee on Affirmative Action member 2007 - 2010

Faculty Senate representative 2002 - 2004

MPH Executive Board member 2009 -

Example other service work

Biostatistics ad hoc web site development committee 2002, 2006

Biostatistics ad hoc curriculum committee member 2002-2007

Biostatistics faculty representative to CEPH site visit 2006

Biostatistics planning committee for student recruitment visit 2005-

Biostatistics representative to the BSPH student open house 2006

Biostatistics second year examination committee 2003-2005

Biostatistics self study committee 2007

Cofounder and organizer of the Biosignals working group 2005-

Departmental representative for the Campaign for Sustainability 2007

Developmental Disabilities Task Force representative 2007-2009

Discussion leader, Junior Faculty Meetings 2008

Discussion leader, Biostatistics student career panel 2009

Interviewer for departmental administrator position 2006

Member of cancer/epi search committee 2008

Member of ad hoc committee to review faculty hiring for the Committee on Affirmative Action 2008

Johns Hopkins statistical consulting

Leader of the IDDRC biostatistics consulting core for Kennedy Krieger

Member of the CTSA biostatistics consulting core

Member of the DSMB for *Effect of n-CPAP Treatment on Glycemic Control in patients with Type 2 Diabetes Mellitus and Obstructive Sleep Apnea GLYCOSA*

Service to the discipline

Organizer Biometrics invited session: Statistical Methodology for the Analysis of Sleep Studies JSM 2007

Session chair JSM (2003, 2006, 2007), ENAR (2002, 2007 2 sessions)

External statistical consulting

Sapphire consulting, July 2008

Creative Business Strategies International, July 2008

Presentations

Invited seminars or seminars with peer reviewed applications

2001 *ESUP accept/reject sampling*, North Carolina State University Department of Statistics, Raleigh, North Carolina.

Monte Carlo exact conditional hypothesis tests for loglinear models, AT&T Labs, Florham Park, New Jersey.

Monte Carlo exact conditional hypothesis tests for loglinear models, Fifth Workshop on Groebner Bases and Statistics (GROSTAT V), Tulane University, New Orleans, Louisiana.

Monte Carlo exact conditional hypothesis tests for loglinear models, Johns Hopkins University Department of Biostatistics, Baltimore, Maryland.

Monte Carlo exact conditional hypothesis tests for loglinear models, University of Michigan Department of Statistics, Ann Arbor, Michigan.

Monte Carlo exact conditional hypothesis tests for loglinear models, Ohio State University Department of Statistics, Columbus, Ohio.

2002 *Model selection and fitting for empirical Bayes analysis of microarray data*, Joint Statistical Meetings New York, New York.

Ascent-based MCEM, Yale University Division of Biostatistics, New Haven, Connecticut.

ESUP accept/reject sampling, Johns Hopkins University Department of Biostatistics, Baltimore Maryland.

2003 *A tour of biostatistics*, Drexel University Department of Mathematics, Philadelphia, Pennsylvania.

ESUP accept/reject sampling, Duke University Institute of Statistics and Decision Sciences, Durham, North Carolina .

Missing data and air pollution, Drexel University Department of Mathematics, Philadelphia, Pennsylvania.

- Monte Carlo conditional analysis for loglinear and logistic models*, Joint Statistical Meetings, San Francisco, California.
- Monte Carlo conditional analysis for loglinear and logistic models*, Statistics and Applied Mathematical Sciences Institute, Workshop on Exact Categorical Methods, Research Triangle Park, North Carolina
- 2004 *Multilevel models with applications in genomics*, University of Minnesota Department of Statistics, Minneapolis, Minnesota.
- Ascent-based MCEM*, Cornell University Department of Statistics, Ithaca, New York.
- 2005 *Ascent-based MCEM*, Johns Hopkins University Department of Applied Math and Statistics, Baltimore, Maryland.
- ESUP accept/reject sampling*, Pennsylvania State Department of statistics, University, College Station, Pennsylvania.
- A tutorial on statistical power calculations*, Johns Hopkins University Center for Mind Bind Research, Baltimore, Maryland.
- Discussion of: characterizing experimentally induced neuronal processing by DuBois Bowman*, Department of Biostatistics Grand Rounds, Johns Hopkins University, Department of Biostatistics.
- Quantitative characterization of chloroquine and aspirin in the male genital tract*, with Craig Hendrix, Johns Hopkins Division of Clinical Pharmacology, Baltimore, Maryland.
- 2006 *Ascent-based MCEM*, Department of Statistics, Carnegie Mellon University, Pittsburgh, Pennsylvania.
- Is MRI based structure a mediator for leads effect on cognitive function*, MICE meeting, Welch Center for Prevention, Epidemiology and Clinical Research, Baltimore, Maryland.
- 2007 *A Bayesian hierarchical framework for spatial modeling of fMRI data*, Center for Statistics in the Social Sciences, University of Washington, Seattle, Washington.
- A case study in pharmacologic imaging using single photon emission computed tomography*, UMBC Prob/Stat Day, Baltimore, Maryland.
- Age, lead exposure and neuronal volume*, ENAR, Atlanta, Georgia.
- Generalized linear mixed model analysis of multistate sleep transition data: the Sleep Heart Health Study*, Joint Statistical Meetings, Salt Lake City, Utah.
- Statistical methods for indirect estimation of physiological parameters: case studies in viral kinetics*, Department of Statistics University of Minnesota, Minneapolis, Minnesota.
- Statistical methods in functional medical imaging*, Department of Biostatistics, University of Florida, Gainesville, Florida.
- 2008 *A Bayesian hierarchical framework for spatial modeling of fMRI*, Human Brain Mapping, Melbourne, Australia.
- Conditional and marginal models for binary outcomes*, Department of Statistics University of Minnesota, Minneapolis, Minnesota.
- Lead exposure, neuronal volume and cognitive function*, Department of Biostatistics University of Florida, Gainesville, Florida.
- Non-linear curve fitting in the analysis of medical imaging data*, Department of Biostatistics Grand Rounds, Johns Hopkins University, Baltimore, Maryland.

Pharmacologic imaging using principal curves in single photon emission computed tomography, ENAR, Arlington, Virginia.

Quantifying the hypnogram and sleep stage transitions: novel approaches and applications to sleep disorders, Annual Meeting of the Associated Professional Sleep Societies, Baltimore, Maryland.

Statistical methods for indirect estimation of physiological parameters: case studies in viral kinetics, Department of Biostatistics, Columbia University, New York, New York.

Statistical methods for indirect estimation of physiological parameters: case studies in viral kinetics, Department of Biostatistics, Emory University, Atlanta, Georgia.

Statistical methods for indirect estimation of physiological parameters: case studies in viral kinetics, Department of Biostatistics, Vanderbilt University, Nashville, Tennessee.

2009 *Non-linear curve fitting in the analysis of medical imaging data*, Center for Imaging Science, Department of Biomedical Engineering, Johns Hopkins University, Baltimore, Maryland.

Non-linear curve fitting in the analysis of medical imaging data, University of Pittsburgh, Department of Biostatistics, Pittsburgh, Pennsylvania.

Non-linear regression, an overview, Statistics Without the Agonizing Pain Series, Johns Hopkins University, Baltimore, Maryland.

On the analysis of multiple sleep hypnograms, International Statistical Institute, Durban, South Africa.

Statistical methods for studying connectivity in the human brain, International Workshop on Statistical Modeling, Ithaca, New York.

2010 *Functional principal components for high dimensional brain volumetrics*, International Workshop on Statistical Modeling, Glasgow, Scotland.

Statistical methods for evaluating connectivity in the human brain, ENAR, New Orleans, Louisiana.

Statistical methods for high dimensional imaging studies of populations, Department of Psychiatry and Behavioral Science, Johns Hopkins Bayview Medical Center, Baltimore, Maryland.

keywords

Medical imaging, MRI, DTI, PET, SPECT, expectation maximization, generalized linear mixed models, log-linear models, magnetic resonance imaging, mixed models, multi-level models