

Education

Harvard University

- PhD in Statistics (in progress)
 - September 2009 – present
- AM in Statistics – May 2011
- 4.00 Cumulative GPA

Boston University

- MA in Economics
 - September 2006 – May 2008
 - BA in Mathematics & Economics, Summa Cum Laude
 - September 2004 – May 2008
 - 3.97 Cumulative GPA with 138 credits completed (combined for dual-degree program)
 - 4.00 GPA in mathematics & statistics coursework
 - Top marks in PhD statistics & econometrics, Masters-level stochastic processes, and Masters-level real analysis sequence
-

Publications

- Blocker, A.W., & Airoidi, E.A. (2011). Deconvolution of mixing time series on a graph. To appear in *Proceedings of the 27th Conference on Uncertainty in Artificial Intelligence (UAI 2011)*. arXiv:1105.2526 [stat.ME]
 - Blocker, A.W., Protopapas, P., & Alcock, C.R. (2009). A Bayesian Approach to the Analysis of Time Symmetry in Light Curves: Reconsidering Scorpius X-1 Occultations. *The Astrophysical Journal*, 701, 1742-1752.
 - Blocker, A.W., Kotlikoff, L.J., & Ross, S.A. (2008). The True Cost of Social Security. *NBER Working Paper 14427*.
-

Invited Talks

- “Deconvolution of Mixing Time Series on a Graph.” Presented April 16 2011 at NESS 2011, University of Connecticut, Storrs, CT.
 - “Semi-parametric Robust Event Detection for Massive Time-Series Datasets.” Presented August 25, 2010 at the Workshop on Computational Astrostatistics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA (<http://hea-www.harvard.edu/AstroStat/CAS2010/>). Slides available on website.
 - “Discussion: The Promise & Peril of Synthetic & Integrated Data.” Presented June 21, 2010 at ISCA Applied Statistics Symposium, Indianapolis, IN. Slides available on website.
 - “Doing Right By Massive Data: Using Probability Modeling To Advance The Analysis Of Huge Astronomical Datasets.” Presented April 17, 2010 at NESS 2010, Harvard University, Cambridge, MA. Slides available on website.
-

Awards & Achievements

Paper Awards

- IBM Thomas J. Watson Research Center Student Research Award for “Deconvolution of mixing time series on a graph” with Edo Airoidi; awarded at NESS 2011 in April 2011
- NESS Student Paper Award (Sponsored by Microsoft and Google) for “A Bayesian Approach to the Analysis of Time Symmetry in Light Curves: Reconsidering Scorpius X-1 Occultations” with Pavlos Protopapas; awarded April 2010

Teaching Awards

- Harvard University Certificate of Distinction in Teaching for Statistics 221, Fall 2010; awarded April 2011

Academic Honors

- Phi Beta Kappa Initiate, May 2008
- Boston University College Prize for Excellence in Economics, May 2008
- Phi Beta Kappa Award recipient, December 2006
- BU Distinguished Sophomore in College of Arts & Sciences

Fellowships

- Pierce Fellowship Recipient, Harvard University Graduate School of Arts & Sciences, September 2009
 - BU University Scholarship recipient (merit-based)
-

Research Experience

May 2008 – Present **Harvard University Statistics Department** **Cambridge, MA**

Research Assistant

- Creating massively parallel, MPI-based deconvolution algorithms for genome-wide analysis of chromatin structure based on high-throughput sequencing data with Harvard FAS Systems Biology (O’Shea Lab) & Edo Airoldi
- Collaborating with astrophysicists from Harvard-Smithsonian Center for Astrophysics to build Bayesian methods for the analysis of low-count x-ray data
- Working with Harvard Time Series Center to develop new methods for anomaly detection & analysis in time series
- Developing Bayesian approaches to network tomography with Edo Airoldi

May 2010 – Present **United States Census Bureau** **Washington, DC**

STEP Intern, LEHD Program, Center for Economic Studies (GS 11, Step 1)

- Developing methods for the evaluation of uncertainty in complex synthetic data with disclosure protection
- Building design and modeling approaches for stochastic computer experiments with applications to variability analysis for OnTheMap data
- Evaluating imputation designs and data quality for administrative records-based datasets

Sept. 2007 – June 2009 **Boston University Economics Department** **Boston, MA**

Research Assistant

- Responsible for statistical aspects of research on Social Security valuation with Laurence Kotlikoff and Stephen Ross, including time series modeling, hierarchical modeling, and advanced simulation methods
- Assisted in development of valuation methods for Social Security liabilities

July – September 2006 **Boston University School of Management** **Boston, MA**

Research Assistant

- Built dataset on scientific publications for research on stem cell policy
- Located and parsed historical data on private companies for study of venture capital overinvestment

Teaching Experience

Sept. 2008 – Present **Harvard University Statistics Department** **Cambridge, MA**

Teaching Fellow for Statistics 111 (Spring 2011)

- Taught 2 sections for “Introduction to Theoretical Statistics”
- Wrote all problem sets and lead exam writing

Teaching Fellow for Statistics 221 (Fall 2010)

- Taught 2 sections for “Statistical Computing & Learning”
- Covered details of implementing high-dimensional numerical optimization, MCMC, EM, and LDA
- Advised students on replicating computation from one JASA/JMLR paper per biweekly problem set

Head Teaching Fellow for Statistics 104 (Spring 2009)

- Responsible for sectioning and other administrative matters for class of 167 students with a team of 8 teaching fellows
- Developed section notes for other teaching assistants to guide weekly sections
- Taught discussion section (17 students total) to reinforce lecture material

Teaching Assistant for Statistics 104 (Fall 2008)

- Taught 2 discussion sections (34 students total) per week to reinforce lecture material
- Held office hours to address individual questions and concerns
- Responsible for grading of homeworks and exams from assigned students

Nov. 2007 – December 2009 **Self-Employed** **Boston, MA**

Tutor

- Tutored individual students and groups in Masters and PhD-level statistics and econometrics
- Assisted students in preparing for comprehensive exams for Masters degree in economics

Professional Experience

June 2008 – June 2009 **Weiss Asset Management** **Boston, MA**

Intern

- Developed and implemented complex statistical analyses to further fund objectives
- Built complex datasets using a range of data management tools

June 2007 – Jan. 2008

UBS Investment Bank

Stamford, CT

Consultant (January 2008)

- Developed & revised complex statistical models to improve forecasts and gain insight into the underlying phenomena
- Trained quantitative strategists on use of R for validation & updating of statistical models, including collaborative procedure development

Summer Analyst, Fixed Income Research (June – August 2007)

- Conducted sophisticated statistical analyses for US Rates & Government Bonds research desk, including VAR & VECM-based modeling, high-frequency time-series analysis, regime-switching methods, and Kalman filtering
- Gained experience performing quantitative analysis in a high-pressure environment
- Presented methodology & results to upper management

May 2004 – March 2007

Matté & Company Management Consulting

Greenwich, CT

Senior Research & IT Advisor (formerly Senior Research & IT Coordinator)

- Sole author and researcher on statistical studies for Fortune 500 scale corporations
- Conducted advanced quantitative analysis & modeling for multi-million dollar compensation packages
- Performed, supervised, and presented quantitative and qualitative research on multinational corporations' performance, operational structures, strategies, and industry trends
- Deployed and administrated full Microsoft Small Business Server 2003 system, improving collaboration, communication, and data security
- Trained interns in research methods

Technical Skills

- Advanced proficiency in C/C++, BLAS/LAPACK, MPI, Python, R, Matlab, Mathematica, Stata, & L^AT_EX
- Experience developing scientific applications in C/C++, Matlab, Python, & R with MPI including:
 - Parallel deconvolution algorithms for the analysis of high-throughput genetic sequence data in chromatin structure research
 - Bayesian simulation algorithms for astrophysical data in R & Python (e.g. bayesstack, linked on website)
 - Event detection algorithms for massive time-series datasets in C with BLAS/LAPACK with application to astronomical surveys
 - Sophisticated particle filtering / MCMC methods for network tomography in R & C, including methods for efficient simulation from distributions on convex polytopes
 - EM algorithms for estimation of linear dynamical systems with covariates in Matlab (available on website)
- Diverse, deep experience with estimation, hierarchical modeling, simulation, optimization, and high-performance (including parallel) computing in R, C/C++, and Python
- Thorough knowledge of and expertise in Linux; Windows (desktop and server); OpenOffice; Microsoft Word, Excel, PowerPoint, & Access; Adobe Acrobat; & Mac OS X
- Experience with database design & use with SQL
- Proficiency with Java fundamentals

Organizations

- Phi Beta Kappa
- American Statistical Association
- Institute for Mathematical Statistics
- IEEE

Background

- US Citizen (natural born)

References available upon request