Henry Lam

CONTACT INFORMATION	Department of Mathematics and Statistics Boston University 111 Cummington Street Boston, MA 02215	*Phone:* +1-617-358-2394 *E-mail:* khlam@bu.edu

RESEARCH INTEREST

Analysis and Monte Carlo methods for large-scale stochastic systems, model uncertainty and simulation output analysis, stochastic optimization

EMPLOYMENT

Boston University, Boston, Massachusetts
Department of Mathematics and Statistics
Assistant Professor   September 2010–Present
(On leave Fall 2010, visiting Columbia University, New York)

EDUCATION

Harvard University, Cambridge, Massachusetts
Ph.D. Statistics   January 2011
A.M. Statistics   June 2006
Overall GPA: 4.0/4.0

The University of Hong Kong, Hong Kong
B.S. Actuarial Science (First Class Honors)   June 2005
Overall GPA: 3.9/4.0

AWARDS

NSA Young Investigators Grant Award, 2013

INFORMS Junior Faculty Interest Group (JFIG) Best Paper Award, Finalist, 2012

INFORMS Nicholson Best Student Paper Honorable Mention Prize, 2010

Harvard Statistics Department Post-Qualifying Talk Award, 2008

Croucher Foundation Scholarship, 2008 – 2009 (full tuition and stipend support for the best Ph.D. students in scientific discipline in Hong Kong)

Harvard GSAS Fellowship, 2005 – 2007, 2009 – 2010

Hong Kong Chiu Chow Chamber of Commerce Scholarship, 2004, 2005

HKU Worldwide Student Exchange Scholarship, 2004

Provost Honors, 2004

Dean's Honors, 2002, 2003, 2005

Travel Grants: SAMSI Workshop on Uncertainty Quantification NSF Travel Award 2012, Applied Probability Society Meeting NSF Travel Award 2011, Simulation of Stochastic Network Conference, Isaac Newton Institute for Mathematical Sciences, NSF Travel Award 2010

REFEREED JOURNAL PUBLICATIONS

Rare-event simulation for a slotted time $M/G/s$ model, with J. Blanchet and P. Glynn, *Queueing Systems: Theory and Applications, **63**, 33-57, 2009.*

Corrections to the Central Limit Theorem for heavy-tailed probability densities, with J. Blanchet, M. Z. Bazant and D. Burch, *Journal of Theoretical Probability, **24**(4), 895-927, 2011.*

Efficient rare-event simulation for perpetuities, with J. Blanchet and B. Zwart, *Stochastic Processes and Their Applications, **122**(10), 3361–3392, 2012.*

Statistical platform to discern spatial and temporal coordination of endothelial sprouting, with W. Yuen, N. Du, D. Shvartsman, P. Arany, and D. Mooney, *Integrated Biology **4**(3), 292-300. 2012.*

A heavy traffic approach to modeling large life insurance portfolio, with J. Blanchet, *to appear in Insurance Mathematics and Economics, 2013.*

Rare-event simulation for many-server queues, with J. Blanchet, *accepted up to minor revision in Mathematics of Operations Research, 2013.* INFORMS Nicholson Best Student Paper Honorable Mention Prize, 2010.

Two-parameter sample path large deviations for infinite server queues, with J. Blanchet and X. Chen, *accepted up to minor revision in Stochastic Systems, 2013.*

CONFERENCE PUBLICATIONS

Importance sampling for actuarial cost analysis under a heavy traffic model, with J. Blanchet, *Proceedings of the Winter Simulation Conference (WSC) 2011.*

Exact asymptotics for infinite-server queues, *Proceedings of the 6th International Conference on Queueing Theory and Network Applications 2011.*

Information dissemination via random walks in d-dimensional space, with Z. Liu, M. Mitzenmacher, X. Sun and Y. Wang, *Proceedings of the ACM-SIAM Symposium on Discrete Algorithms (SODA) 2012.*

Chernoff-Hoeffding bounds for finite Markov chains: generalized and simplified, with K. M. Chung, Z. Liu and M. Mitzenmacher, *Proceedings of the Symposium on Theoretical Aspects of Computer Science (STACS) 2012.*

Efficient importance sampling under partial information, *Proceedings of the Winter Simulation Conference (WSC) 2012.*

Why Steiner-tree type algorithms work for community detection, with M. Chiang, Z. Liu and V. Poor, *Proceedings of the Conference on Artificial Intelligence and Statistics (AISTATS) 2013.*

Iterative method for robust estimation under bivariate uncertainty, with S. Ghosh, *to appear in Proceedings of the Winter Simulation Conference (WSC) 2013.*

BOOK CHAPTERS AND SURVEY PAPERS

Rare-event simulation techniques, with J. Blanchet, *Proceedings of the Winter Simulation Conference (WSC), Tutorial Paper, 2011.*

State-dependent importance sampling for rare-event simulation: recent advances, with J. Blanchet, *Surveys in Operations Research and Management Science, **17**(1), 38-59, 2012.*

SUBMITTED PAPERS

Robust sensitivity analysis for stochastic systems, *under review.* INFORMS JFIG Best Paper Award Finalist, 2012.

Sensitivity to serial dependency in input processes: a robust approach, *under review.*

Influence function: a model-free sensitivity estimator, *under review.*

Uniform heavy-tailed asymptotics for a queue in heavy traffic, with J. Blanchet, *under review.*

Learning about social learning in MOOCS: from statistical analysis to generative model, with C. Brinton, M. Chiang, S. Jain, Z. Liu and F. Wong, *under review.*

PAPERS IN
PREPARATION

Adaptive variance reduction algorithms for bid optimization, with G. Zervas, *preprint.*

Optimality of pricing schemes for access service under market segmentation, with G. Gallego, *preprint.*

Exact asymptotics for infinite-server queues, *preprint.* Preliminary version appeared in *Proceedings of the 6th International Conference on Queueing Theory and Network Applications 2011.*

Efficient rare-event simulation for Markov-modulated random walks, with J. Blanchet, *working paper.*

Asymptotic model errors in steady-state estimation, with X. Chen, *working paper.*

Computing maximum model error via iterative importance sampling, with S. Ghosh, *working paper.* Preliminary version to appear in *Proceedings of the Winter Simulation Conference 2013.*

Robust dynamic hedging, with Z. Liu, *working paper.*

Dynamic prediction with adaptive regularization, with Q. Bai and S. Sclaroff, *working paper.*

PRESENTATIONS

"Beyond Edgeworth Expansion for Regularly Varying Random Walk", INFORMS Annual Meeting, Washington D.C., 2008.

"Heavy Traffic Approach to Insurance Portfolio Modeling", DRO Student Seminar, Columbia Business School, New York, NY, 2008.

"Corrections to the Central Limit Theorem for Heavy-Tailed Probability Densities", Department of Mathematics, University of Wisconsin at Madison, WI, 2009.

"Uniform Large Deviations for Single-Server Queues", Applied Probability Society Conference, Ithaca, NY, 2009.

"Corrected Diffusion Approximation for the Cumulants of $GI/G/1$ Queue under Heavy Traffic", Applied Probability Society Conference, Ithaca, NY, 2009.

"Sharp Asymptotics for Heavy-Tailed Single-Server Queues under Heavy Traffic", INFORMS Annual Meeting, San Diego, CA, 2009.

"Heavy Traffic Approach to Insurance Portfolio Modeling", INFORMS Annual Meeting (contributed session), San Diego, CA, 2009.

"Corrections to the Central Limit Theorem for Heavy-Tailed Probability Densities", Northeast Probability Seminar, New York, NY, 2009.

"Rare-Event Simulation for Many-Server Loss Systems", Winter Simulation Conference, Austin, TX, 2009.

"Efficient Rare-Event Simulation for Markov-Modulated Perpetuities", Simulation of Networks Conference, Issac Newton Institute, University of Cambridge, U.K., 2010.

"Rare-Event Simulation for Many-Server Queues", INFORMS Annual Meeting, Austin, TX, 2010.

"A Heavy Traffic Approach to Emerging Cost Analysis in Insurance Risk Management", INFORMS Annual Meeting, Austin, TX, 2010.

"Large Deviations Computations for Large Loss Systems: A Point Process Approach", INFORMS Annual Meeting, Austin, TX, 2010.

"Rare-Event Simulation for Many-Server Queues", Department of Statistics, The Chinese University of Hong Kong, Hong Kong, 2011.

"Modeling and Simulation for Actuarial Risk with Infinite-Server Queues", INFORMS Annual Meeting, Charlotte, NC, 2011.

"Importance Sampling for Actuarial Cost Analysis under a Heavy Traffic Model", Winter Simulation Conference, Phoenix, AZ, 2011.

"Rare-Event Simulation for Measure-Valued Processes", SAMSI Rare-Event Simulation Workshop, Research Triangle Park, NC, 2012.

"Robust Sensitivity Analysis for Stochastic Systems", Business Analytics and Mathematical Sciences Group, IBM Research, Yorktown Heights, NY, 2012.

"Robust Sensitivity Analysis for Stochastic Systems", INFORMS Annual Meeting, Phoenix, AZ, 2012.

"Robust Sensitivity Analysis for Stochastic Systems", Department of Mathematics, Penn State University, PA, 2012.

"Robust Sensitivity Analysis for Stochastic Systems", Workshop on Computational Methods in Applied Sciences, Department of Statistics, Columbia University, NY, 2012.

"Importance Sampling under Partial Information", Winter Simulation Conference, Berlin, Germany, 2012.

"A Heavy Traffic Approach to Modeling Large Life Insurance Portfolios", Department of Statistics and Actuarial Science, The University of Hong Kong, Hong Kong, 2012.

"Robust Sensitivity Analysis for Stochastic Systems", New England Statistics Symposium, University of Connecticut, CT, 2013.

"Robust Dynamic Hedging", Second Cambridge Area Economics and Computation Day (short talk), MIT, Cambridge, MA, 2013.

"Iterative Method for Robust Estimation under Bivariate Uncertainty", Applied Probability Society Conference, San Jose, Costa Rica, 2013.

"A Robust Approach to Assessing Model Uncertainty", BU/Keio Workshop on Probability and Statistics, 2013.

"Sensitivity to Serial Dependency of Input Processes: A Robust Approach", INFORMS Annual Meeting 2013 (upcoming).

"A Robust Approach to Assessing Model Uncertainty", Ph.D. Seminar, Department of Statistics, Columbia University (upcoming).

"Iterative Method for Robust Estimation under Bivariate Uncertainty", Winter Simulation Conference (upcoming).

"A Heavy Traffic Approach to Insurance Modeling", Department of Risk Management and Insurance, Georgia State University (upcoming).

"Sensitivity to Serial Dependency of Input Processes: A Robust Approach", Mini-Symposium on "High-Dimensional Discontinuity/Edge Detection and Rare Events", SIAM Conference on Uncertainty Quantification (upcoming).

TEACHING EXPERIENCE	**Harvard University**, Cambridge, Massachusetts	
	Teaching fellow, STAT 104: Introduction to Quantitative Methods	Fall 2006
	Teaching fellow, STAT 171: Stochastic Processes	Spring 2007
	Teaching fellow, STAT 139/239: Linear Models	Fall 2007
	Boston University, Boston, Massachusetts	
	Instructor, MATH 569: Optimization Methods in Operations Research	Fall 2011, 2012
	Instructor, MATH 881: Graduate Seminar in Applied Probability	Fall 2011
	Instructor, MATH 116: Statistical Methods II	Spring 2012, 2013
INDUSTRY EXPERIENCE	Citigroup Global Markets and Banking, Hong Kong Summer Quantitative Analyst, Equity Derivatives Trading	July – August 2009
	Lehman Brothers, Hong Kong Summer Senior Associate, Investment-Linked Insurance Structuring	June – August 2008
	Hewitt Associate LLC, Hong Kong Summer Consultant	June – July 2005
	Standard Chartered Bank, Hong Kong Quantitative Analyst	Summer 2001 – 2003

SERVICES

Reviewer for Annals of Applied Probability, Operations Research, Stochastic Processes and Their Applications, Stochastic Systems, Bernoulli Journal, Journal of Applied Probability, Journal of Theoretical Probability, ACM Transactions on Modeling and Computer Simulation, Performance Evaluation, Winter Simulation Conference, Applied Mathematics Letters, Applied Stochastic Models in Business and Industry, Journal of Applied Statistics, Communications in Mathematical Sciences.

Affiliate faculty member, Center for Information and Systems Engineering, Boston University, 2012–Present.

Affiliate faculty member, Hariri Institute for Computing and Computational Science & Engineering, Boston University, 2011-Present.

Student organizer for Harvard Statistics Department Quantitative Finance Workshop 2007.

Student organizer for Harvard Statistics Department Monte Carlo Workshop 2007.

Organizer for Boston University Statistics and Probability Seminar Series 2011–2012, 2012–2013, 2013-2014.

Organizing committee, New England Statistics Symposium 2012.

Session Chair, Applied Probability Society Conference 2013.

Session Co-Chair, INFORMS Annual Meeting 2013.

Students Ph.D. Students: Alexandrina Goeva (Current), Dan Ren (Defense Committee, BU), Wes Viles (Defense Committee, BU), Yixi Shi (Thesis Committee, Columbia), John Zhang (Thesis Committee, Columbia).

Undergraduate Students: Nicolas Kim (Honors Thesis Adviser), Guy Aridor (UROP, Joint with Rafik B. Hariri Institute for Computing and Computational Science & Engineering Summer Research Award).

Professional Qualifications Passed Society of Actuaries Exam P, FM, MFE, MLC and C.