
Ciamac C. Moallemi

Graduate School of Business
Columbia University
3022 Broadway, Uris 416
New York, NY 10027
USA

T +1.212.960.8470
E ciamac@gsb.columbia.edu
W <http://moallemi.gsb.columbia.edu>

Research Interests

Market operations and business analytics.

Academic Appointments

Columbia University, Graduate School of Business New York, NY
Decision, Risk, & Operations Division.
2013–2015 *Associate Professor (with tenure).*
2013–2015 *Barbara and Meyer Feldberg Associate Professor of Business.*
2011–2012 *Associate Professor.*
2008–2011 *Assistant Professor.*
2007 *Instructor.*

Academic Degrees

2003–2007 **Stanford University** Stanford, CA
Ph.D., Electrical Engineering, 2007
Advisor: Benjamin Van Roy
Dissertation Title: *A Message-Passing Paradigm for Optimization*

1996–1997 **University of Cambridge (King's College)** Cambridge, UK
Certificate of Advanced Study in Mathematics, With Distinction, 1997
(Part III of the Mathematical Tripos)

1991–1996 **Massachusetts Institute of Technology** Cambridge, MA
S.B., Mathematics, 1996
S.B., Electrical Engineering & Computer Science, 1996

Professional Experience

1999–2003 **NeoGenesis Pharmaceuticals, Inc.** Cambridge, MA
Director, Scientific Computing. Founded the informatics group at NeoGenesis, a technology start-up in the area of small molecule drug discovery. Co-designed and developed the NeoGenesis Quantized Surface Complementarity Diversity (QSCD) model, a computational framework for post-genomic drug discovery. Managed a group of developers and scientists responsible for development and implementation of mathematical algorithms for chemical library design, experimental data analysis, and bioinformatics. Engineered a computational cluster consisting of 100+ nodes and associated infrastructure. Acquired by Schering-Plough Corp.

1993–1999 **Delta Global Trading, L.P.** Boston, MA
Partner. Managed a fixed-income relative value hedge fund with US\$200 million in assets under management. Developed mathematical and computational models for identifying and exploiting economic mispricings in sovereign debt markets. Used stochastic models to trade a relative value arbitrage portfolio consisting of fixed income securities and associated derivatives in G10 and emerging markets. Series 3 licensed. Responsible for all software development efforts. Supervised a group of 13 including quantitative traders, software developers, and support staff.

Journal Papers ¹

- [1] M. Broadie, Y. Du, and C. C. Moallemi. Risk estimation via regression. *Operations Research*, forthcoming, May 2014.
- [2] P. Glasserman, C. C. Moallemi, and K. Yuan. Hidden illiquidity with multiple central counterparties. *Operations Research*, forthcoming, October 2014.
- [3] K. Iyer, R. Johari, and C. C. Moallemi. Information aggregation and allocative efficiency in smooth markets. *Management Science*, 60(10):2509–2524, July 2014.
- [4] C. Chen, G. Iyengar, and C. C. Moallemi. An axiomatic approach to systemic risk. *Management Science*, 56(6):1373–1388, June 2013.
Honorable Mention, INFORMS George Nicholson Student Paper Competition, 2011
- [5] C. C. Moallemi and M. Sağlam. The cost of latency in high-frequency trading. *Operations Research*, 61(5):1070–1086, September–October, 2013.
1st Place, INFORMS Financial Services Section Student Research Paper Competition, 2011
Selected for publication in the *Operations Research* Forum
- [6] V. V. Desai, V. F. Farias, and C. C. Moallemi. Approximate dynamic programming via a smoothed linear program. *Operations Research*, 60(3):655–674, May–June, 2012.
1st Place, INFORMS Junior Faculty Paper Competition, 2011
- [7] V. V. Desai, V. F. Farias, and C. C. Moallemi. Pathwise optimization for optimal stopping problems. *Management Science*, 58(12):2292–2308, December 2012.
Best Simulation Publication Award, INFORMS Simulation Society, 2014
- [8] C. C. Moallemi, B. Park, and B. Van Roy. Strategic execution in the presence of an uninformed arbitrageur. *Journal of Financial Markets*, 15(4):361–391, January 2012.
- [9] M. Broadie, Y. Du, and C. C. Moallemi. Efficient risk estimation via nested sequential simulation. *Management Science*, 57(6):1172–1194, June 2011.
- [10] C. C. Moallemi and B. Van Roy. Resource allocation via message passing. *INFORMS Journal of Computing*, 23(2):205–219, Spring, 2011.
- [11] V. F. Farias, C. C. Moallemi, B. Van Roy, and T. Weissman. Universal reinforcement learning. *IEEE Transactions on Information Theory*, 56(5):2441–2454, May 2010.
- [12] C. C. Moallemi and B. Van Roy. Convergence of min-sum message passing for convex optimization. *IEEE Transactions on Information Theory*, 56(4):2041–2050, April 2010.
- [13] C. C. Moallemi and B. Van Roy. Convergence of min-sum message passing for quadratic optimization. *IEEE Transactions on Information Theory*, 55(5):2413–2423, May 2009.
- [14] C. C. Moallemi and B. Van Roy. Consensus propagation. *IEEE Transactions on Information Theory*, 52(11):4753–4766, November 2006.
- [15] K. Mason, N. M. Patel, A. Ledell, C. C. Moallemi, and E. A. Wintner. Mapping protein pockets through their potential small-molecule binding volumes: QSCD applied to biological protein structures. *Journal of Computer-Aided Molecular Design*, 18(1):55–70, 2004.
- [16] J. M. Johnson, K. Mason, C. C. Moallemi, H. Xi, S. Somaroo, and E. Huang. Protein family annotation in a multiple alignment viewer. *Bioinformatics*, 19(4):544–545, 2003.
- [17] E. A. Wintner and C. C. Moallemi. Quantized Surface Complementarity Diversity (QSCD): a model based on small molecule-target complementarity. *Journal of Medicinal Chemistry*, 43(10):1993–2006, 2000.
- [18] C. C. Moallemi. Neural networks in the computer analysis of voided urine cells for bladder cancer. *IEEE Expert*, 6(6):8–12, December 1991.

Working Papers

- [1] C. Maglaras, C. C. Moallemi, and H. Zheng. Optimal execution in a limit order book and an associated microstructure market impact model. Working paper. Initial version: May 2015.
- [2] O. Besbes, J. M. Chaneon, and C. C. Moallemi. The exploration-exploitation tradeoff in the newsvendor problem. Working paper. Initial version: November 2014. Revised: June 2015.

¹The standard convention in my area is that authorship is in alphabetical order.

- [3] K. Iyer, R. Johari, and C. C. Moallemi. Welfare analysis of dark pools. Working paper. Initial version: October 2014.
- [4] C. Chen, G. Iyengar, and C. C. Moallemi. Asset price-based contagion models for systemic risk. Working paper. Initial version: October 2014.
- [5] C. C. Moallemi, M. Sağlam, and M. Sotiropoulos. Short-term predictability and price impact. Working paper. Initial version: June 2014. Revised: May 2015.
- [6] P. Collin-Dufresne, K. Daniel, C. C. Moallemi, and M. Sağlam. Strategic asset allocation with predictable returns and transaction costs. Working paper. Initial version: August 2013. Revised: June 2015.
- [7] N. Bhat, V. F. Farias, and C. C. Moallemi. Non-parametric approximate dynamic programming via the kernel method. Working paper. Initial version: October 2012.
- [8] C. Maglaras, C. C. Moallemi, and H. Zheng. Queueing dynamics and state space collapse in fragmented limit order book markets. Working paper. Initial version: May 2012. Revised: February 2014.
Honorable Mention, INFORMS Financial Services Section Student Research Paper Competition, 2012
- [9] C. C. Moallemi and M. Sağlam. Dynamic portfolio choice with linear rebalancing rules. Working paper. Initial version: January 2012. Revised: March 2015.
- [10] C. C. Moallemi and D. Shah. On the flow-level dynamics of a packet-switched network. Working paper. Initial version: November 2009. Revised: October 2012.
- [11] C. C. Moallemi, S. Kumar, and B. Van Roy. Approximate and data-driven dynamic programming for queueing networks. Working paper. Initial version: December 2006. Revised: January 2013.

Publications in Preparation

- [1] N. Bhat, V. F. Farias, and C. C. Moallemi. Optimal A-B testing. Working paper. Initial version: June 2015.
- [2] C. C. Moallemi and K. Yuan. The value of queue position in an electronic limit order book. Working paper. Initial version: June 2015.

Conference Papers

- [1] N. Bhat, V. F. Farias, and C. C. Moallemi. Non-parametric approximate dynamic programming via the kernel method. In *Advances in Neural Information Processing Systems 22*, 2012, pages 395–403.
- [2] M. Broadie, Y. Du, and C. C. Moallemi. Risk estimation via weighted regression. In *Proceedings of the 2011 Winter Simulation Conference*, December 2011, pages 3854–3865.
- [3] K. Iyer, R. Johari, and C. C. Moallemi. Information aggregation in smooth markets. In *EC '10: Proceedings of the 11th ACM Conference on Electronic Commerce*, June 2010, pages 199–206.
- [4] C. C. Moallemi and D. Shah. On the flow-level dynamics of a packet-switched network. In *SIGMETRICS '10: Proceedings of the ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems*, June 2010, pages 83–94.
- [5] V. V. Desai, V. F. Farias, and C. C. Moallemi. A smoothed approximate linear program. In *Advances in Neural Information Processing Systems 22*, 2009, pages 459–467.
- [6] C. C. Moallemi and B. Van Roy. Convergence of the min-sum algorithm for convex optimization. In *Proceedings of the 45th Allerton Conference on Communication, Control and Computing*. Monticello, IL, September 2007, pages 840–847.
- [7] C. C. Moallemi and B. Van Roy. Consensus propagation. In *Advances in Neural Information Processing Systems 18*. MIT Press, 2006, pages 899–906.
- [8] V. F. Farias, C. C. Moallemi, and B. Prabhakar. Load balancing with migration penalties. In *Proceedings of the IEEE International Symposium on Information Theory*. Adelaide, Australia, September 2005, pages 558–562.
- [9] V. F. Farias, C. C. Moallemi, B. Van Roy, and T. Weissman. A universal scheme for learning. In *Proceedings of the IEEE International Symposium on Information Theory*. Adelaide, Australia, September 2005, pages 1158–1162.
- [10] C. C. Moallemi and B. Van Roy. Distributed optimization in adaptive networks. In *Advances in Neural Information Processing Systems 16*. MIT Press, 2004, pages 887–894.

- [11] C. C. Moallemi and B. Van Roy. Decentralized protocols for optimization of sensor networks. In *Proceedings of the 42nd Allerton Conference on Communication, Control and Computing*. Monticello, IL, September 2003.

Book Chapters

- [1] V. V. Desai, V. F. Farias, and C. C. Moallemi. Bounds for Markov decision processes. In F. L. Lewis and D. Liu, editors, *Reinforcement Learning and Approximate Dynamic Programming for Feedback Control*, pages 452–473. IEEE Press, December 2012.

Other Publications

- [1] C. C. Moallemi. A Message-Passing Paradigm for Optimization. PhD thesis. Stanford University, September 2007.

Teaching Experience

	Columbia University, Graduate School of Business	New York, NY
2014 Fall	<i>Lecturer</i> , Business Analytics (B6101–001, MBA Core, Rating 4.6/5.0)	
2014 Fall	<i>Lecturer</i> , Business Analytics (B6101–002, MBA Core, Rating 4.7/5.0)	
2014 Fall	<i>Lecturer</i> , Business Analytics (B6101–005, MBA Core, Rating 3.7/5.0)	
2014 Fall	<i>Lecturer</i> , Business Analytics (B6101–007, MBA Core, Rating 4.4/5.0)	
2014 Spring	<i>Lecturer</i> , Business Analytics (B6101–001, MBA Core, Rating 4.7/5.0)	
2014 Spring	<i>Lecturer</i> , Business Analytics (B6101–002, MBA Core, Rating 4.9/5.0)	
2014 Spring	<i>Lecturer</i> , Business Analytics (B6101–003, MBA Core, Rating 4.6/5.0)	
2013 Fall	<i>Lecturer</i> , Foundations of Optimization (B9118–001, PhD Core, Rating 4.9/5.0)	
2012 Fall	<i>Lecturer</i> , Foundations of Optimization (B9824–001, PhD Core, Rating 4.9/5.0)	
2012 Spring	<i>Lecturer</i> , Quantitative Finance: Models & Computation (B8835–001, MBA Elective, Rating 4.9/5.0)	
2012 Spring	<i>Lecturer</i> , Quantitative Finance: Models & Computation (B8835–002, MBA Elective, Rating 4.7/5.0)	
2011 Fall	<i>Lecturer</i> , Foundations of Optimization (B9824–001, PhD Core, Rating 4.8/5.0)	
2011 Spring	<i>Lecturer</i> , Security Pricing: Models & Computation (B8835–001, MBA Elective, Rating 4.7/5.0)	
2011 Spring	<i>Lecturer</i> , Security Pricing: Models & Computation (B8835–002, MBA Elective, Rating 4.9/5.0)	
2010 Fall	<i>Lecturer</i> , Foundations of Optimization (B9824–001, PhD Core, Rating 4.8/5.0)	
2010 Spring	<i>Lecturer</i> , Security Pricing: Models & Computation (B8835–001, MBA Elective, Rating 5.0/5.0)	
2010 Spring	<i>Lecturer</i> , Security Pricing: Models & Computation (B8835–002, MBA Elective, Rating 4.8/5.0)	
2009 Fall	<i>Lecturer</i> , Foundations of Optimization (B9824–001, PhD Core, Rating 4.8/5.0)	
2009 Spring	<i>Lecturer</i> , Security Pricing: Models & Computation (B8835–001, MBA Elective, Rating 4.7/5.0)	
2009 Spring	<i>Lecturer</i> , Security Pricing: Models & Computation (B8835–002, MBA Elective, Rating 4.9/5.0)	
2008 Fall	<i>Lecturer</i> , Foundations of Optimization (B9824–001, PhD Core, Rating 4.7/5.0)	
2008 Summer	<i>Lecturer</i> , Decision Models (B6015–002, MBA Core, Rating 4.4/5.0)	
2008 Summer	<i>Lecturer</i> , Decision Models (B6015–003, MBA Core, Rating 4.5/5.0)	
2008 Spring	<i>Lecturer</i> , Security Pricing: Models & Computation (B8835–002, MBA Elective, Rating 4.7/5.0)	

Honors and Awards

- Columbia Business School Dean’s Award for Teaching Excellence in a Core Course, 2014
- Best Simulation Publication Award, INFORMS Simulation Society, 2014
- NSF Grant CMMI-1235023, 2012–2015 (\$229,782; co-PI: Garud Iyengar)
Title: *Optimization Based Methods for Systemic Risk Management*
- Meritorious Service Award, *Operations Research*, 2012
- Meritorious Service Award, *Operations Research*, 2011
- 1st Place, INFORMS Junior Faculty Paper Competition, 2011
- Benchmark Stanford Graduate Fellowship, 2003–2006
- Marshall Scholarship, 1996–1997
- 5th Place, Westinghouse (Intel) Science Talent Search, 1991

Professional Activities

- Member: INFORMS, IEEE, AFA

- Member, Columbia Business School Program for Financial Studies
- Member, Columbia University Center for Financial Engineering
- Member, Columbia University Center for Applied Probability
- Associate Editor, *Operations Research*, 2010–present
- Associate Editor, *Operations Research Letters*, 2014–present
- Guest Associate Editor, *Management Science*, 2012, 2015
- Council Member, INFORMS Applied Probability Society, 2011–2013
- Committee Member, INFORMS George Nicholson Student Paper Competition, 2013, 2014
- Technical Reviewer (Journals): *Management Science*, *Operations Research*, *Mathematics of Operations Research*, *Quantitative Finance*, *SIAM Journal on Financial Mathematics*, *Journal of Computational Finance*, *Journal of Financial Markets*, *Market Microstructure and Liquidity*, *Queueing Systems*, *European Journal of Operations Research*, *Computational Optimization and Applications*, *IIE Transactions*, *IEEE Trans. Information Theory*, *IEEE Trans. Signal Processing*, *IEEE Trans. Automatic Control*, *IEEE Trans. Wireless*, *Journal of Machine Learning Research*, *IEEE J. Selected Areas in Communications*, *Automatica*
- Technical Reviewer (Conferences): Winter Simulation Conference, IEEE ISIT, NIPS, IEEE Infocom, IEEE CDC, IJCAI, MSOM
- Technical Reviewer (Funding Agencies): National Science Foundation, Research Grants Council (Hong Kong)

Doctoral Students Supervised

- Vijay V. Desai (PhD 2011, Columbia IEOR)
Thesis title: *Approximate Dynamic Programming for Large Scale Systems*
First position: SAS Institute
- Yiping Du (PhD 2011, Columbia IEOR, co-supervisor: Mark Broadie)
Thesis title: *Efficient Methods for Estimating Risk Measures*
First position: Barclays Capital
- Mehmet Sağlam (PhD 2012, Columbia GSB)
Thesis title: *Dynamic Trading Strategies in the Presence of Market Frictions*
First position: Postdoctoral Associate, Bendheim Center for Finance, Princeton University
- Chen Chen (PhD 2014, Columbia IEOR, co-supervisor: Garud Iyengar)
Thesis title: *Theory of Systemic Risk*
First position: Assistant Professor, ShanghaiTech University
- Hua Zheng (PhD candidate, Columbia GSB, co-supervisor: Costis Maglaras)
- Nikhil Bhat (PhD candidate, Columbia GSB)
- Juan Chaneton (PhD candidate, Columbia GSB, co-supervisor: Omar Besbes)
- Kai Yuan (PhD candidate, Columbia GSB)

Invited Presentations

2015/06	Market Innovation Workshop, Columbia University Center for Pricing and Revenue Management
2015/05	Federal Reserve Bank of New York, Financial Institution Supervision Group
2015/05	Kepos Capital
2015/04	Cornell University, Financial Engineering in Manhattan
2015/03	USC Marshall School of Business
2015/03	IPAM Workshop on Systemic Risk and Financial Networks
2014/12	Institut Louis Bachelier Conference on Market Microstructure
2014/11	SIAM Conference on Financial Mathematics, Plenary Talk
2014/11	SIAM Conference on Financial Mathematics, Mini-symposium on Systemic Risk
2014/09	Newton Institute Workshop on Monitoring Systemic Risk
2014/07	Banff International Research Station, New Directions in Financial Mathematics Workshop
2014/06	London Business School
2014/06	University College London
2014/05	SIAM Conference on Optimization, Mini-symposium on Advances in Stochastic Dynamic Programming
2014/05	MIT, Operations Research Center
2014/03	International Association of Financial Engineers, Thalesians Seminar Series

2014/02 AQR Capital Management
 2013/10 Stevens Institute, Modeling High Frequency Data in Finance Conference
 2013/10 INFORMS Annual Conference, Tutorial Speaker
 2013/05 University of Chicago, High-Frequency Trading Conference
 2013/04 Syracuse University, Whitman School of Management, Finance Group
 2013/04 Cornell University, School of Operations Research & Information Engineering
 2013/02 Stanford University, Management Science & Engineering Dept
 2012/12 Barclays Capital, Portfolio and Risk Research Group
 2012/11 New York University, Stern School of Business, Operations Management Department
 2012/10 Stanford University, Management Science & Engineering Dept, New Directions Lecture Series
 2012/07 Stevens Institute, Modeling High Frequency Data in Finance Conference
 2012/07 SIAM Conference on Financial Mathematics, Mini-symposium on Limit Order Books
 2012/05 IMS Workshop on Probability and Statistics in Finance
 2012/05 Two Sigma Investments LLC
 2012/03 Goldman Sachs, Equity Strategy Group
 2012/02 Pragma Trading Quantference
 2011/12 University of Utah, Eccles School of Business, Finance Group
 2011/10 Columbia University, High Frequency Trading and Market Microstructure Conference
 2011/09 JP Morgan, Quantitative Research Group
 2011/07 Stevens Institute, Modeling High Frequency Data in Finance Conference
 2011/03 Duke University, Fuqua School of Business, Decision Sciences Group
 2011/02 Carnegie Mellon University, Tepper School of Business, Operations Management Group
 2011/01 Tata Institute for Fundamental Research
 2010/12 National Bureau of Economic Research, Market Microstructure Group (discussant)
 2010/11 Rutgers University, Mathematical Finance and Probability Seminar
 2010/11 Stanford University, 2nd Stanford Conference in Quantitative Finance
 2010/11 University of Texas Austin, McCombs School of Business, Texas Quantitative Finance Festival
 2010/10 New York University, Stern School of Business, Operations Management Department
 2010/05 Knight Capital Group
 2010/04 New York University, Courant Institute of Mathematical Sciences
 2010/04 Columbia University, Statistics Department
 2010/03 Fields Institute, Workshop on Computational Methods in Finance
 2010/02 Cornell University, Financial Engineering in Manhattan
 2009/11 Columbia University, Center for Financial Engineering
 2009/11 SAC Capital Advisors
 2009/10 Northwestern University, Industrial Engineering & Management Sciences Department
 2009/06 US Commodity Futures Trading Commission
 2009/05 MIT, Sloan School of Management, Operations Management Department
 2009/04 FDIC, Center for Financial Research
 2009/03 University of Pennsylvania, Electrical & Systems Engineering Department
 2008/06 Cornell University, School of Operations Research & Information Engineering
 2008/05 ETH Zürich, Department of Information Technical & Electrical Engineering
 2008/04 Columbia University, Graduate School of Business, Finance & Economics Division
 2008/02 Columbia University, Statistics Department
 2007/03 UC Berkeley, Department of Electrical Engineering & Computer Science
 2007/03 Stanford University, Information Systems Laboratory
 2007/02 Northwestern University, Kellogg School of Management, MEDS Department
 2007/02 New York University, Stern School of Business, IOMS Department
 2007/01 Columbia University, Graduate School of Business, Decision, Risk, & Operations Division

Outside Activities

Columbia Business School requires its faculty members to disclose any activities that might present a real or apparent conflict of interest.

2014–present	Bourbaki LLC <i>Managing Member.</i>	New York, NY
2012	Two Sigma Investments LLC <i>Invited Speaker.</i>	New York, NY
2009	MF Global <i>Consultant.</i>	New York, NY
2009	Kempler & Co. <i>Consultant.</i>	New York, NY

Personal

- Male; Citizenship: USA; Date of Birth: April 1975

Make an Appointment with Your Academic Advisor. Academic Advising Center (for Undecided and Return to the U students - not for specific major advising). Entering Students. Return to the U Students.