
Ciamac C. Moallemi

Graduate School of Business
Columbia University
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Research Interests

Analysis, optimization, and control of stochastic systems; applications in financial engineering, market microstructure, quantitative and algorithmic trading, and blockchain technology.

Academic Appointments

2007–present **Columbia University, Graduate School of Business** New York, NY
Decision, Risk, & Operations Division.

2022–present *Director, Briger Family Digital Finance Lab.*

2020–present *William von Mueffling Professor of Business.*

2015–2020 *Associate Professor of Business (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
Master 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 (Course 18 General), 1996
S.B., Electrical Engineering & Computer Science (Course 6-2), 1996

Professional Experience

2024–present **Paradigm** San Francisco, CA
Research Advisor. Research in blockchain technology and decentralized finance.

2021–present **Compass Lexecon Inc** Chicago, IL
Senior Consultant. Economic consulting.

2014–2022 **Bourbaki LLC** New York, NY
Managing Member. Developed high Sharpe short term systematic trading strategies.

1999–2003 **NeoGenesis Pharmaceuticals, Inc** Cambridge, MA
Director, Scientific Computing. Managed a group of developers and scientists responsible for development and implementation of mathematical algorithms for chemical library design, experimental data analysis, and bioinformatics. Acquired by Schering-Plough Corp.

1993–1999 **Delta Global Trading, LP** 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.

Journal Papers ¹

- [1] N. Bhat, V. F. Farias, C. C. Moallemi, and Andy T. Zheng. Non-parametric approximate dynamic programming via the kernel method. *Stochastic Systems*, 13(3):321–397, September 2023.
- [2] O. Besbes, J. M. Chaneon, and C. C. Moallemi. The exploration-exploitation tradeoff in the newsvendor problem. *Stochastic Systems*, 12(4):319–339, December 2022.
- [3] C. Maglaras, C. C. Moallemi, and M. Wang. A deep learning approach to estimating fill probabilities in a limit order book. *Quantitative Finance*, 22(11):1989–2003, October 2022.
- [4] S. Min, C. Maglaras, and C. C. Moallemi. Cross-sectional variation of intraday liquidity, cross-impact, and their effect on portfolio execution. *Operations Research*, 70(2):830–846, March 2022.
- [5] S. Min, C. Maglaras, and C. C. Moallemi. Thompson sampling with information relaxation penalties. *Management Science*, forthcoming, February 2022.
- [6] C. C. Moallemi and U. Patange. hybrid scheduling with mixed-integer programming at Columbia Business School. *INFORMS Journal on Applied Analytics*, forthcoming, August 2022.
- [7] C. C. Moallemi and M. Wang. A reinforcement learning approach to optimal execution. *Quantitative Finance*, 22(6):1051–1069, March 2022.
- [8] G. Huberman, J. Leshno, and C. C. Moallemi. Monopoly without a monopolist: An economic analysis of the Bitcoin payment system. *The Review of Economic Studies*, 88(6):3011–3040, November 2021.
- [9] C. Maglaras, C. C. Moallemi, and H. Zheng. Queueing dynamics and state space collapse in fragmented limit order book markets. *Operations Research*, 69(4):1324–1348, June 2021.
Honorable Mention, INFORMS Financial Services Section Student Research Paper Competition, 2012
- [10] N. Bhat, V. F. Farias, C. C. Moallemi, and D. Sinha. Near optimal A-B testing. *Management Science*, 66(10):4477–4495, October 2020.
- [11] C. C. Moallemi, M. Sağlam, and M. Sotiropoulos. Short-term trading skill: An analysis of investor heterogeneity and execution quality. *Journal of Financial Markets*, 42:1–28, January 2019.
- [12] C. C. Moallemi and M. Sağlam. Dynamic portfolio choice with linear rebalancing rules. *Journal of Financial and Quantitative Analysis*, 52(3):1247–1278, June 2017.
- [13] P. Glasserman, C. C. Moallemi, and K. Yuan. Hidden illiquidity with multiple central counterparties. *Operations Research*, 64(5):1143–1158, September–October, 2016.
- [14] M. Broadie, Y. Du, and C. C. Moallemi. Risk estimation via regression. *Operations Research*, 63(5):1077–1097, September–October, 2015.
- [15] K. Iyer, R. Johari, and C. C. Moallemi. Information aggregation and allocative efficiency in smooth markets. *Management Science*, 60(10):2509–2524, July 2014.
- [16] 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
- [17] 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
- [18] 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
- [19] 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

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

- [20] 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.
- [21] M. Broadie, Y. Du, and C. C. Moallemi. Efficient risk estimation via nested sequential simulation. *Management Science*, 57(6):1172–1194, June 2011.
- [22] C. C. Moallemi and B. Van Roy. Resource allocation via message passing. *INFORMS Journal of Computing*, 23(2):205–219, Spring, 2011.
- [23] 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.
- [24] 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.
- [25] 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.
- [26] C. C. Moallemi and B. Van Roy. Consensus propagation. *IEEE Transactions on Information Theory*, 52(11):4753–4766, November 2006.
- [27] 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.
- [28] 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.
- [29] 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.
- [30] 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] G. Angeris, T. Diamandis, and C. C. Moallemi. Multidimensional blockchain fees are (essentially) optimal. Working paper. Initial version: February 2024.
- [2] A. Adams, C. C. Moallemi, S. Reynolds, and D. Robinson. am-AMM: An Auction-Managed Automated Market Maker. Working paper. Initial version: February 2024.
- [3] J. Milionis, C. C. Moallemi, and T. Roughgarden. Automated market making and arbitrage profits in the presence of fees. Working paper. Initial version: February 2023. Revised: May 2023.
- [4] J. Milionis, C. C. Moallemi, T. Roughgarden, and A. L. Zhang. Automated market making and loss-versus-rebalancing. Working paper. Initial version: August 2022. Revised: November 2023.
- [5] V. F. Farias, C. C. Moallemi, T. Peng, and A. T. Zheng. Synthetically controlled bandits. Working paper. Initial version: February 2022. Revised: December 2022.
- [6] S. Min, C. C. Moallemi, and C. Maglaras. Risk-sensitive optimal execution via a conditional value-at-risk objective. Working paper. Initial version: January 2022.
- [7] S. Min, C. C. Moallemi, and D. J. Russo. Policy gradient optimization of Thompson sampling policies. Working paper. Initial version: June 2020. Revised: August 2022.
- [8] C. C. Moallemi and K. Yuan. A model for queue position valuation in a limit order book. Working paper. Initial version: December 2016. Revised: June 2017.
- [9] C. C. Moallemi and K. Yuan. Portfolio liquidity estimation and optimal execution. Working paper. Initial version: December 2016. Revised: August 2019.
- [10] 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.
- [11] K. Iyer, R. Johari, and C. C. Moallemi. Welfare analysis of dark pools. Working paper. Initial version: October 2014. Revised: June 2018.
- [12] C. Chen, G. Iyengar, and C. C. Moallemi. Asset price-based contagion models for systemic risk. Working paper. Initial version: October 2014.

- [13] 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.
- [14] 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.
- [15] 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.

Conference Papers

- [1] J. Milionis, C. C. Moallemi, and T. Roughgarden. A Myersonian framework for optimal liquidity provision in automated market makers. In *15th Innovations in Theoretical Computer Science Conference (ITCS 2024)*, 2024.
- [2] D. Crapis, C. C. Moallemi, and S. Wang. Optimal dynamic fees for blockchain resources. In *ACM FC 2024: Proceedings of the International Conference on Financial Cryptography and Data Security*, volume forthcoming, May 2023.
- [3] J. Milionis, C. C. Moallemi, and T. Roughgarden. Complexity-approximation trade-offs in exchange mechanisms: AMMs vs. LOBs. In *ACM FC 2023: Proceedings of the International Conference on Financial Cryptography and Data Security*, pages 326–343, 2023.
- [4] J. Milionis, C. C. Moallemi, T. Roughgarden, and A. L. Zhang. Quantifying loss in automated market making. In *DeFi'22: Proceedings of the 2022 ACM CCS Workshop on Decentralized Finance and Security*, pages 71–74, November 2022.
- [5] G. Huberman, J. Leshno, and C. C. Moallemi. An economist's perspective on the Bitcoin payment system. In *American Economic Association Papers and Proceedings*, volume 109, pages 93–96, May 2019.
- [6] S. Min, C. Maglaras, and C. C. Moallemi. Thompson sampling with information relaxation penalties. In *Advances in Neural Information Processing Systems 32*, pages 3549–3558, 2019.
- [7] 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*, pages 395–403, 2012.
- [8] M. Broadie, Y. Du, and C. C. Moallemi. Risk estimation via weighted regression. In *Proceedings of the 2011 Winter Simulation Conference*, pages 3854–3865, December 2011.
- [9] 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*, pages 199–206, June 2010.
- [10] 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*, pages 83–94, June 2010.
- [11] V. V. Desai, V. F. Farias, and C. C. Moallemi. A smoothed approximate linear program. In *Advances in Neural Information Processing Systems 22*, pages 459–467, 2009.
- [12] 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*, pages 840–847, Monticello, IL, September 2007.
- [13] C. C. Moallemi and B. Van Roy. Consensus propagation. In *Advances in Neural Information Processing Systems 18*, pages 899–906. MIT Press, 2006.
- [14] V. F. Farias, C. C. Moallemi, and B. Prabhakar. Load balancing with migration penalties. In *Proceedings of the IEEE International Symposium on Information Theory*, pages 558–562, Adelaide, Australia, September 2005.
- [15] 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*, pages 1158–1162, Adelaide, Australia, September 2005.
- [16] C. C. Moallemi and B. Van Roy. Distributed optimization in adaptive networks. In *Advances in Neural Information Processing Systems 16*, pages 887–894. MIT Press, 2004.
- [17] 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] R. Dewey, C. C. Moallemi, and A. Brown. Free exchange is not free. *Wilmott Magazine*, 2023(127), September 2023.
- [2] R. Dewey and C. C. Moallemi. The unsolved mystery of the Medallion Fund's success. *Bloomberg Businessweek*, November 2019.
- [3] G. Huberman, J. Leshno, and C. C. Moallemi. The economics of the Bitcoin payment system. *Vox EU*, December 2017.
- [4] C. C. Moallemi. *A Message-Passing Paradigm for Optimization*. PhD thesis, Stanford University, September 2007.

Honors and Awards

- Sponsored Research Gift, J.P. Morgan, 2019 (\$150,000)
- Dean's Award for Teaching Excellence in a Core Course, Columbia Business School, 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*, 2011, 2012
- 1st Place, INFORMS Junior Faculty Paper Competition, 2011
- Benchmark Stanford Graduate Fellowship, 2003–2006
- Marshall Scholarship, 1996–1997
- 5th Place, Westinghouse Science Talent Search, 1991

Professional Activities

- Member, INFORMS
- Member, Columbia Business School Program for Financial Studies
- Member, Columbia University Center for Financial Engineering
- Member, Columbia University Data Science Institute
- Member, Columbia University Center for Applied Probability
- Associate Editor, *Operations Research*, 2010–present
- Associate Editor, *Management Science*, 2012, 2015–present
- Guest Editor, Special Issue on FinTech, *Information Systems Research*, 2017–2018
- Associate Editor, *Operations Research Letters*, 2014–2015
- Council Member, INFORMS Applied Probability Society, 2011–2013
- Committee Member, INFORMS George Nicholson Student Paper Competition, 2013, 2014
- Committee Member, INFORMS JFIG Junior Faculty Forum Paper Competition, 2023
- Technical Reviewer (Journals): *Management Science*, *Operations Research*, *Mathematics of Operations Research*, *Stochastic Systems*, *Quantitative Finance*, *SIAM Journal on Financial Mathematics*, *Mathematical Finance*, *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

- [1] Vijay V. Desai (Ph.D. 2011, Columbia IEOR)
Thesis title: *Approximate Dynamic Programming for Large Scale Systems*
First position: SAS Institute
- [2] Yiping Du (Ph.D. 2011, Columbia IEOR, co-advisor: Mark Broadie)
Thesis title: *Efficient Methods for Estimating Risk Measures*
First position: Barclays Capital
- [3] Mehmet Sağlam (Ph.D. 2012, Columbia GSB)
Thesis title: *Dynamic Trading Strategies in the Presence of Market Frictions*
First position: Postdoctoral Associate, Bendheim Center for Finance, Princeton University
- [4] Chen Chen (Ph.D. 2014, Columbia IEOR, co-advisor: Garud Iyengar)
Thesis title: *Theory of Systemic Risk*
First position: Assistant Professor, ShanghaiTech University
- [5] Juan Chaneton (Ph.D. 2015, Columbia GSB, co-advisors: Omar Besbes & Garrett van Ryzin)
Thesis Title: *Decision Making with Coupled Learning: Applications in Inventory Management and Auctions*
First Position: Celect (acquired by Nike)
- [6] Hua Zheng (Ph.D. 2015, Columbia GSB, co-advisor: Costis Maglaras)
Thesis Title: *Microstructure Analysis of Dynamic Markets: Limit Order Books and Dynamic Matching Markets*
First Position: J.P. Morgan
- [7] Nikhil Bhat (Ph.D. 2015, Columbia GSB)
Thesis Title: *Tractable Algorithms for Sequential Decision Making Problems*
First Position: Airbnb
- [8] Kai Yuan (Ph.D. 2017, Columbia GSB)
Thesis Title: *Essays on Liquidity Risk and Modern Market Microstructure*
First Position: Two Sigma Investments
- [9] Seungki Min (Ph.D. 2021, Columbia GSB, co-advisor: Costis Maglaras)
Thesis Title: *Modern Dynamic Programming Approaches to Sequential Decision Making*
First Position: Assistant Professor, KAIST (Korea Advanced Institute of Science and Technology)
- [10] Muye Wang (Ph.D. 2021, Columbia GSB, co-advisor: Costis Maglaras)
Thesis Title: *Essays on the Applications of Machine Learning in Financial Markets*
First Position: Two Sigma Securities

Invited Presentations

2024/02	Capital Fund Management
2023/12	CFM-Imperial Market Microstructure Conference
2023/11	Stanford University, Information Systems Laboratory Colloquium
2023/11	International Association of Financial Engineers, Thalesians Seminar Series
2023/11	CUHK Distinguished Lectures in Quantitative Finance
2023/10	Quantitative Brokers, Quantbrains Seminar Series
2023/10	Peking University HSBC Business School, Finance Seminar
2023/09	University of Paris, Financial Modeling Seminar
2023/07	Quest Partners
2023/07	a16z Crypto Research
2023/06	Quantitative Brokers
2023/06	SIAM Conference on Financial Mathematics & Engineering
2023/03	Midwest Finance Association Annual Meeting
2023/03	UNC Decentralized Finance Conference
2023/01	American Finance Association Annual Meeting (discussant)
2022/10	Raposa Research
2022/09	Cornell Tech, Financial Data Science Seminar
2022/09	HAP Capital
2022/07	a16z Crypto Research
2022/03	Ai4 Finance Conference

2021/09 Columbia University, Dept of Statistics, Mathematical Finance Seminar
 2021/06 SIAM Conference on Financial Mathematics & Engineering
 2021/03 Lyft, Rideshare Labs
 2020/05 TGS Management Company
 2020/02 CFM-Imperial College Quantitative Finance Seminar
 2019/10 Dartmouth Tuck School of Business
 2019/09 SAMSI Blockchain Workshop
 2019/08 UBS/Santa Fe Institute Machine Learning, Complexity, and Market Behavior Symposium
 2019/06 SIAM Conference on Financial Mathematics & Engineering
 2019/04 Engineers Gate LP
 2019/01 Utah Winter Operations Management Conference
 2018/11 Moody's, Innovation Speaker's Series
 2018/08 Goldman Sachs, Equities Execution
 2018/07 SIAM Annual Meeting, Mini-symposium on Financial Technology
 2018/04 Simons Institute, Foundations of Data Science Workshop
 2018/03 Columbia University, Program for Financial Studies
 2018/02 Cornell Tech, Financial Engineering in Manhattan
 2017/12 University of Cincinnati Lindner College of Business
 2017/11 Columbia University, Applied Mathematics Department
 2017/11 Columbia University, Graduate School of Business, Finance & Economics Division
 2017/06 Clinton Group
 2017/03 Symposium on High Frequency Trading, Carnegie Mellon University and University of Pittsburgh, Keynote Talk

 2016/11 Stevens Institute, High Frequency Finance and Data Analytics Conference
 2016/04 Columbia University, Graduate School of Business, Decision, Risk, & Operations Division
 2016/01 Citadel LLC
 2015/10 Deutsche Bank Annual Quantitative Strategy Conference
 2015/10 Columbia-JAFEE Conference on Financial Mathematics and Statistics
 2015/09 Manhattan College School of Business
 2015/06 IMS-FIPS Workshop on on Probability and Statistics in Finance
 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 / Global Association of Risk Professionals
 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

Teaching Experience

New York, NY

Columbia University, Graduate School of Business

2023 Spring *Lecturer*, The Analytics Advantage (B8148-001, MBA Elective)
2023 Spring *Lecturer*, The Analytics Advantage (B8148-002, MBA Elective)
2023 Spring *Lecturer*, DRO Topics Seminars (B9137-001, PhD Elective)
2022 Fall *Lecturer*, Business Analytics (B6101-004, MBA Core)
2022 Fall *Lecturer*, Business Analytics (B6101-005, MBA Core)
2022 Fall *Lecturer*, Business Analytics (B6101-006, MBA Core)
2022 Fall *Lecturer*, Business Analytics (B6101-008, MBA Core)
2022 Fall *Lecturer*, Business Analytics (B6101-009, MBA Core)
2022 Spring *Lecturer*, The Analytics Advantage (B8148-001, MBA Elective)
2022 Spring *Lecturer*, The Analytics Advantage (B8148-002, MBA Elective)
2021 Fall *Lecturer*, Business Analytics (B6101-002, MBA Core)
2021 Fall *Lecturer*, Business Analytics (B6101-006, MBA Core)
2021 Fall *Lecturer*, Business Analytics (B6101-007, MBA Core)
2021 Fall *Lecturer*, Business Analytics (B6101-008, MBA Core)
2021 Spring *Lecturer*, The Analytics Advantage (B8148-001, MBA Elective)
2021 Spring *Lecturer*, The Analytics Advantage (B8148-002, MBA Elective)
2021 Spring *Lecturer*, DRO Topics Seminars (B9137-001, PhD Elective)
2020 Fall *Lecturer*, Business Analytics (B6101-005, MBA Core)
2020 Fall *Lecturer*, Business Analytics (B6101-006, MBA Core)
2020 Fall *Lecturer*, Business Analytics (B6101-007, MBA Core)
2020 Fall *Lecturer*, Business Analytics (B6101-008, MBA Core)
2020 Spring *Lecturer*, The Analytics Advantage (B8148-001, MBA Elective)
2020 Spring *Lecturer*, The Analytics Advantage (B8148-002, MBA Elective)
2019 Fall *Lecturer*, Business Analytics (B6101-005, MBA Core)
2019 Fall *Lecturer*, Business Analytics (B6101-006, MBA Core)
2019 Fall *Lecturer*, Business Analytics (B6101-007, MBA Core)
2019 Fall *Lecturer*, Business Analytics (B6101-008, MBA Core)
2018 Fall *Lecturer*, Business Analytics (B6101-005, MBA Core)
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2015 Fall *Lecturer*, Business Analytics (B6101-005, MBA Core)
2015 Fall *Lecturer*, Business Analytics (B6101-006, MBA Core)
2015 Fall *Lecturer*, Business Analytics (B6101-007, MBA Core)
2015 Fall *Lecturer*, Business Analytics (B6101-008, MBA Core)
2014 Fall *Lecturer*, Business Analytics (B6101-001, MBA Core)
2014 Fall *Lecturer*, Business Analytics (B6101-002, MBA Core)
2014 Fall *Lecturer*, Business Analytics (B6101-005, MBA Core)
2014 Fall *Lecturer*, Business Analytics (B6101-007, MBA Core)
2014 Spring *Lecturer*, Business Analytics (B6101-001, MBA Core)
2014 Spring *Lecturer*, Business Analytics (B6101-002, MBA Core)
2014 Spring *Lecturer*, Business Analytics (B6101-003, MBA Core)
2013 Fall *Lecturer*, Foundations of Optimization (B9118-001, PhD Core)
2012 Fall *Lecturer*, Foundations of Optimization (B9824-001, PhD Core)

2012 Spring *Lecturer*, Quantitative Finance: Models & Computation (B8835–001, MBA Elective)
 2012 Spring *Lecturer*, Quantitative Finance: Models & Computation (B8835–002, MBA Elective)
 2011 Fall *Lecturer*, Foundations of Optimization (B9824–001, PhD Core)
 2011 Spring *Lecturer*, Security Pricing: Models & Computation (B8835–001, MBA Elective)
 2011 Spring *Lecturer*, Security Pricing: Models & Computation (B8835–002, MBA Elective)
 2010 Fall *Lecturer*, Foundations of Optimization (B9824–001, PhD Core)
 2010 Spring *Lecturer*, Security Pricing: Models & Computation (B8835–001, MBA Elective)
 2010 Spring *Lecturer*, Security Pricing: Models & Computation (B8835–002, MBA Elective)
 2009 Fall *Lecturer*, Foundations of Optimization (B9824–001, PhD Core)
 2009 Spring *Lecturer*, Security Pricing: Models & Computation (B8835–001, MBA Elective)
 2009 Spring *Lecturer*, Security Pricing: Models & Computation (B8835–002, MBA Elective)
 2008 Fall *Lecturer*, Foundations of Optimization (B9824–001, PhD Core)
 2008 Summer *Lecturer*, Decision Models (B6015–002, MBA Core)
 2008 Summer *Lecturer*, Decision Models (B6015–003, MBA Core)
 2008 Spring *Lecturer*, Security Pricing: Models & Computation (B8835–002, MBA Elective)

Outside Activities (2015–present)

Columbia Business School requires its faculty members to disclose any activities that might present a real or apparent conflict of interest. The list below complies with this requirement.

2024–present	Paradigm <i>Research Advisor.</i>	San Francisco, CA
2023	Quantitative Brokers LLC <i>Invited Speaker.</i>	New York, NY
2023	Anja Labs <i>Consultant.</i>	New York, NY
2022–present	Raposa Research Inc (Proven) <i>Advisor.</i>	New York, NY
2022, 2023	a16z Crypto <i>Research Visitor.</i>	New York, NY
2021–present	Compass Lexecon Inc <i>Senior Consultant.</i>	Chicago, IL
2020–2021	EverQuote Inc <i>Member, Advisory Board.</i>	Cambridge, MA
2020	TGS Management Company <i>Invited Speaker.</i>	Irvine, CA
2019	UBS Investment Bank <i>Invited Speaker.</i>	New York, NY
2019	Engineers Gate LP <i>Invited Speaker.</i>	New York, NY
2014–2022	Bourbaki LLC <i>Managing Member.</i>	New York, NY

Personal

- Male; Citizenship: USA; Year of Birth: 1975