Hamed Amini

Contact Information

Department of Industrial and Systems Engineering
University of Florida
Gainesville, FL 32611-6595

Phone: (352) 3921 464
E-mail: aminil@ufl.edu
WWW: https://aminiha.github.io

Academic Appointments

University of Florida, Gainesville, FL — 2022 –
Associate Professor at the Department of Industrial and Systems Engineering

Georgia State University, Atlanta, GA — 2018 -2022
Associate Professor at the Department of Risk Management and Insurance

University of Miami, Coral Gables, FL — 2015 - 2018
Assistant Professor at the Mathematics Department

Swiss Finance Institute - EPFL, Lausanne, Switzerland — 2011 - 2015
Postdoc at the Swissquote Chair in Quantitative Finance

Education

Ph.D. in Applied Mathematics, École Normale Supérieure - INRIA, Paris — 2007 - 2011
Dissertation Title: "Epidemics and Percolation in Random Networks"

M.S. in Probability and Finance, Paris VI University — 2006 - 2007
(joint École Polytechnique, École Normale Supérieure, ENSAE)

École Polytechnique, Palaiseau, France — 2003 - 2006
B.S. (Diplôme d'Ingénieur) in Applied Mathematics and Computer Science

Visiting Appointments

IPAM, UCLA, California, USA *(Invited member)* — March-April 2015
`Semester on "Broad Perspectives and New Directions in Financial Mathematics"`

Isaac Newton Institute, Cambridge, UK *(Invited member)* — August-December 2014
`Semester on "Systemic Risk: Mathematical Modeling and Interdisciplinary Approaches"`

MSRI, Berkeley, California, USA *(Research member)* — January-May 2012
`Semester on "Random Spatial Processes"`

Cornell University, Ithaca, NY *(Visiting scholar)* — December 2011, 2013

Microsoft Research, Redmond, WA, USA *(Visiting scholar)* — April-May 2011

Max-Planck Institut, Saarbrücken, Germany *(Visiting scholar)* — January-March 2011

Imperial College, London, UK *(Visiting scholar)* — April-July 2008

Finance Concepts, Paris, France *(Consulting)* — October 2007-March 2008

HSBC, Paris, France *(Quant)* — April-September 2007

Research Interests

Quantitative risk management, systemic risk, financial regulation, complex networks, random structures, economics of networks, game theory, financial technology and machine learning.

Teaching

Engineering Economy, UF	Fall 2022
Risk Assessment Methods, GSU	Spring 2021-2022
Machine Learning in Actuarial Science and Risk Management, GSU	Fall 2020-2022
Financial Engineering, GSU	Spring 2019–2022
Financial Risk and Regulation, GSU	Spring 2019-2020
Risk Modeling, GSU	Fall 2019
Advanced Financial Risk Management, GSU	Fall 2018
Machine Learning in Quantitative Finance, UM	Spring 2018
Stochastic Calculus with Application to Finance, UM	Spring 2018
Introduction to Mathematical Finance, UM	Fall 2017
Quantitative Risk Management, UM	Fall 2017
Introduction to Probability and Statistics, UM	Summer A 2017
Discrete Mathematics, UM	Spring 2017
Introduction to Mathematical Statistics, UM	Spring 2016, 2017
Introduction to Probability Theory, UM	Fall 2015, 2016
Epidemic Modeling & Complex Networks, École Polytechnique	Spring 2013
Exercises in Probability & Statistics and Risk Management, EPFL	2012 - 2014

Publications

Working papers

1. Graphon Mean-Field Backward Stochastic Differential Equations with Jumps and Associated Dynamic Risk Measures (with Zhongyuan Cao and Agnès Sulem).
2. The Default Cascade Process in Stochastic Financial Networks
   (with Zhongyuan Cao and Agnès Sulem)
3. Decentralized Payment Clearing using Blockchain and Optimal Bidding
   (with Maxim Bichuch and Zachary Feinstein)
4. Fire Sales, Default Cascades and Complex Financial Networks
   (with Zhongyuan Cao and Agnès Sulem)
5. Blockchain Adoption and Optimal Reinsurance Design
   (with Romain Deguest, Engin Iyidogan and Andreea Minca)
6. Limit Theorems for Default Contagion and Systemic Risk
   (with Zhongyuan Cao and Agnès Sulem)
7. A Central Limit Theorem for Diffusion in Sparse Random Graphs
   (with Erhan Bayraktar and Suman Chakraborty)
8. Contagion Risks and Security Investment in Complex Networks
9. Social Distancing Game and Insurance Investment in a Pandemic
   (with Andreea Minca)

Refereed journal papers

10. Bootstrap Percolation in Inhomogeneous Random Graphs (with Nikolaos Fountoulakis and Konstantinos Panagiotou): Advances in Applied Probability, minor revision.
11. Optimal Network Compression (with Zachary Feinstein): European Journal of Operations Research, forthcoming.
12. A Dynamic Contagion Risk Model with Recovery Features (with Andreea Minca and Agnès Sulem): Mathematics of Operations Research, forthcoming.
13. Epidemic Spreading and Equilibrium Social Distancing in Heterogeneous Networks (with Andreea Minca): Dynamic Games and Applications, forthcoming.
14. Systemic Risk in Networks with a Central Node (with Damir Filipović and Andreea Minca): SIAM Journal on Financial Mathematics, 11(1): 60–98, 2020.
15. Optimal Equity Infusions in Financial Networks (with Andreea Minca and Agnès Sulem): Journal of Financial Stability, 31: 1–17, 2017.
16. Inhomogeneous Financial Networks and Contagious Links (with Andreea Minca). Operations Research, 64(5): 1109–1120, 2016.
17. To Fully Net or Not to Net: Adverse Effects of Partial Multilateral Netting (with Damir Filipović and Andreea Minca): Operations Research, 64(5): 1135–1142, 2016.
18. Uniqueness of Equilibrium in a Payment System with Liquidation Costs (with Damir Filipović and Andreea Minca): Operations Research Letters, 44(1):1–5, 2016.
19. Resilience to Contagion in Financial Networks (with Rama Cont and Andreea Minca): Mathematical Finance, 26 (2): 329–365, 2016.
20. Control of Interbank Contagion under Partial Information (with Andreea Minca and Agnès Sulem): SIAM Journal on Financial Mathematics, 6(1): 1195–1219, 2015.
21. The Diameter of Weighted Random Graphs (with Marc Lelarge): Annals of Applied Probability, 25(3): 1686–1727, 2015.
22. Shortest-Weight Paths in Random Regular Graphs (with Yuval Peres): SIAM Journal on Discrete Mathematics, 28 (2): 656–672, 2014.
23. Bootstrap Percolation in Power-Law Random Graphs that (with Nikolaos Fountoulakis): Journal of Statistical Physics, 155 (1): 72–92, 2014.
24. Flooding in Weighted Sparse Random Graphs (with Moez Draief and Marc Lelarge): SIAM Journal on Discrete Mathematics, 27(1): 1–26, 2013.
25. Upper Deviations for Split Times of Branching Processes (with Marc Lelarge): Journal of Applied Probability, 49(4): 1134–1143, 2012.
26. Stress Testing the Resilience of Financial Networks (with Rama Cont and Andreea Minca): International Journal of Theoretical and Applied Finance, 15 (1), 2012.
27. Bootstrap Percolation in Living Neural Networks: Journal of Statistical Physics, 141: 459–475, 2010.
28. Bootstrap Percolation and Diffusion in Random Graphs with Given Vertex Degrees: Electronic Journal of Combinatorics, 17: #R25, 2010.

Book chapters

29. Clearing Financial Networks: Impact on Equilibrium Asset Prices and Seniority of Claims (with Andreea Minca), *INFORMS TutORials in Operations Research*, Pushing the Boundaries: Frontiers in Impactful OR/OM Research, 154-175, 2020.
30. Mathematical Modeling of Systemic Risk (with Andreea Minca): *Advances in Network Analysis and its Applications*, Springer Mathematics in Industry, Vol. 18, 3–26, 2013.

Conference proceedings

C1. H. Amini, N. Fountoulakis, K. Panagiotou (2013). Discontinuous Bootstrap Percolation in Power-Law Random Graphs. *Proc. European Conference on Combinatorics, Graph Theory and Applications (EuroComb'13)*, CRM Series 16, 431–436.

C2. H. Amini, Y. Peres (2013). Shortest-weight Paths in Random Graphs. Proc. 29th European Meeting of Statisticians.

C3. H. Amini, N. Fountoulakis (2012). What I tell you three times is true: Bootstrap Percolation in Small Worlds. *Proc. Workshop on Internet and Network Economics (WINE'12)*, LNCS 7695, 463–475.

C4. H. Amini, M. Draief, M. Lelarge (2011). Flooding in Weighted Random Graphs. *Proc. SIAM Workshop on Analytic Algorithmics and Combinatorics (ANALCO'11)*, 1–15.

C5. H. Amini, M. Draief, M. Lelarge (2009). Marketing in a Random Network. *Proc. Workshop on Network Control and Optimization (NET-COOP'08)*, LNCS 5425, 17–25.

Conferences & Invited Talks

- Mathematics Colloquium, Florida State University, October 2022
- Workshop on Systemic Risk and Stress Testing, IMSI Chicago, April 2022
- Department of Industrial and Systems Engineering, University of Florida, February 2022
- INFORMS Annual Meeting, Anaheim, October 2021
- SIAM Conference on Financial Mathematics and Engineering, June 2021
- 8th International Conference on Complex Networks and Applications, Lisbon, December 2019
- INFORMS Annual Meeting, Seattle, October 2019
- Conference on Advanced Mathematical Methods in Finance, Paris, June 2019
- SIAM Conference on Financial Mathematics and Engineering, Toronto, June 2019
- Financial/Actuarial Mathematics Seminar, University of Michigan, Ann Arbor, March 2019
- Combinatorics Seminar, Georgia Tech, Atlanta, February 2019
- Discrete Math Seminar, Georgia State University, Atlanta, October 2018
- AMS Spring Southeastern Sectional Meeting, Nashville, April 2018
- Department of Risk Management & Insurance, Georgia State University, February 2018
- Department of Decision Sciences, HEC Montréal, December 2017
- Workshop on Measurement and Control of Systemic Risk, CRM, Montréal, September 2017
- Stochastic Analysis and Stochastic Finance Seminar, TU Berlin, Germany, July 2017
- SIAM Southeastern Atlantic Section Conference, Florida State University, March 2017
- Winter School on Systemic Risk, Lausanne, January 2017
- Reunion Conference for IPAM's Financial Mathematics, Lake Arrowhead, December 2016
- SIAM Conference on Financial Mathematics and Engineering, Austin, November 2016
- International Conference on Monte Carlo Techniques, Paris, July 2016
- 1st Eastern Conference on Mathematical Finance, WPI, Worcester, March 2016
- XII Simposio de Probabilidad y Procesos Estocásticos, Mérida, November 2015
- Workshop on Random Walks on Random Graphs and Applications, Eindhoven, April 2015
- Workshop on Systemic Risk and Financial Networks, IPAM, UCLA, March 2015
- ORIE Colloquium at Cornell University, March 2015
- Mathematics Colloquia at University of Miami, February 2015

- ORFE Colloquia at Princeton University, February 2015
- Institute for Statistics and Mathematics at WU Vienna, January 2015
- SIAM Conference on Financial Mathematics and Engineering, Chicago, November 2014
- INFORMS Annual Meeting, San Francisco, November 2014
- Workshop on Systemic Risk: Models and Mechanisms, Cambridge, UK, August 2014
- Workshop on Random Graphs, Nice, France, May 2014
- Bachelier Colloquium on Mathematical Finance, Métabief, France, January 2014
- Applied Mathematics Seminar, Cornell University, Ithaca, December 2013
- 29th European Meeting of Statisticians, Budapest, July 2013
- 17th INFORMS Applied Probability Conference, Costa Rica, July 2013
- Conference on Indices of Riskiness and Risk Measures, Zurich, March 2013
- Mathematical Finance Seminar, Université Paris 6, February 2013
- Probability Seminar, École Normale Supérieure de Lyon, January 2013
- Research in Options, Buzios, Rio de Janeiro, December 2012
- Probability Seminar, EPFL, Lausanne, October 2012
- Latsis Symposium on Economics on the Move, ETH Zurich, September 2012
- SIAM Conference on Financial Mathematics and Engineering, Minneapolis, July 2012
- Mathematical Finance Seminar, École Polytechnique, February 2012
- Probability Seminar, Cornell University, Ithaca, December 2011
- Workshop on Econophysics of Systemic Risks and Network Dynamics, Kolkata, October 2011
- 16th INFORMS Applied Probability Conference, Stockholm, Sweden, July 2011
- 7th International Congress on Industrial and Applied Mathematics, Vancouver, July 2011
- Probability Seminar, University of Washington, Seattle, May 2011
- Probability Seminar, Stanford University, May 2011
- SIAM Workshop on Analytic Algorithmics and Combinatorics, San Francisco, January 2011
- Max-Planck-Institut für Informatik, Saarbrücken, Germany, September 2010
- Bachelier Finance Society 6th World Congress, Toronto, June 2010

Professional Service

Editorials Boards

- Associate Editor, **Mathematical Finance**, 2020 –

Refereeing

- Mathematical Finance; Finance and Stochastics; Annals of Applied Probability; Management Science; Operations Research; Journal of Financial Stability; Journal of Statistical Physics; Mathematics of Operations Research; Journal of Applied Probability; Quantitative Finance; Statistics and Risk Modeling; SIAM Journal on Discrete Mathematics; Electronic Journal of Combinatorics; Combinatorics, Probability and Computing; Random Structures and Algorithms; IEEE Transactions on Network Science; Annals of Operations Research; SIAM Journal on Control and Optimization; Risks; Bernoulli; The Geneva Risk and Insurance Review.

(Co-) Organizer

- Session on "Blockchain in Finance and Insurance", INFORMS Annual Meeting 2022

- Session on "Systemic Risk and Network Models in Finance", INFORMS Annual Meeting 2021
- Session on "Stochastic Modeling and Financial Impacts of the Coronavirus Pandemic", SIAM Conference on Financial Mathematics and Engineering 2021
- Session on "Risk Management in Blockchain Systems", SIAM Conference on Financial Mathematics and Engineering 2021
- RMI Weekly Research Seminar Series, 2019-2021
- RMI Faculty Research Workshop 2019-2020
- Session on "Financial Risk and Regulation", INFORMS Annual Meeting 2019
- Mini-symposium on "Network Models for Systemic Risk", SIAM Conference on Financial Mathematics and Engineering 2016
- Mini-symposium on "Funding and Market Liquidity in Financial Systems", SIAM Conference on Financial Mathematics and Engineering 2016

Committee Member

- Faculty Affairs Committee for Robinson College of Business, 2019 -2021
- Search Committee for Bank of America Chair position in Finance and Risk Management, 2020
- Faculty Recruiting Committee for positions in Actuarial Science and Risk Management, 2018
- M.S. Mathematical Finance Admissions Committee, University of Miami, 2015 - 2018

Supervision of PhD Students

- Zhongyan Cao (joint supervision with Agnès Sulem at INRIA Paris) 2020–
- Carlos Alejandro Nunez (joint supervision with Ajay Subramanian) 2020–
- Prerna Mishra (joint supervision with Alireza Aghasi) 2020–