RAISSA M. D'SOUZA

University of California
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Professor
Computer Science
Mechanical and Aerospace Engineering
Applied Math Graduate Group
http://mae.engr.ucdavis.edu/dsouza
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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA.
Ph.D. in Statistical Physics — October 1999
Co-advisors: Prof. Mehran Kardar, Dr. Norm Margolus
Thesis: *Macroscopic order from reversible and stochastic lattice growth models*

University of Illinois, Champaign-Urbana, IL.
B.S. in Physics with Distinction — May 1991

PROFESSIONAL AFFILIATIONS

Professor, **University of California, Davis**, CA.

President, **The Network Science Society**, June 2015-June 2018.

External Professor, **Santa Fe Institute**, 2007-present.

Science Steering Committee, **Santa Fe Institute**, 2009-2015.

Editorial Board, ***Scientific Reports***, Nature Publishing Group, 2013-2015.

Associate Editor, ***Journal of Complex Networks***, Oxford University Press.

Editorial Board, ***IEEE Transactions on Network Science and Engineering***.

Managing Editor, ***Internet Mathematics***.

Member, **World Economic Forum**, Global Agenda Council on Complex Systems, 2013-2014.

Scientific Advisory Board, Future Resilient Systems, **National Univ. Singapore-ETH Zurich**, 2015-2018.

RECENT ACADEMIC HONORS

- Elected **Fellow of the American Physical Society**, Class of 2016.
- Winner, ACM SIGSOFT Distinguished Paper Award, *ICSE 2013*.
- Inaugural Member, **Global Young Academy**, InterAcademy Panel, 2010-2014.
- **National Academy of Sciences of U.S.A.**, Kavli Fellow, 2006, 2007, 2008, 2011.
- **National Academy of Sciences of U.S.A.** "Young scientist" representative to the World Economic Forum, Dalian, China, Sep. 2009.

EMPLOYMENT HISTORY

- Professor, **University of California, Davis**, CA. — July 2014 - present
  Department of Computer Science, Department of Mechanical and Aerospace Engineering, Applied Math Graduate Group, Complexity Sciences Center.
- Associate Professor, **University of California, Davis**, CA. — July 2008 - June 2014
- Assistant Professor, **University of California, Davis**, CA. — Sept. 2005 - June 2008
- **Microsoft Research**, Redmond, WA. — 2002 - 2004
  Postdoctoral member of the Theory Group.

- **Bell Laboratories**, Murray Hill, NJ 2000 - 2002
  Postdoctoral member of the technical staff: Theoretical Physics Department and the Fundamental Mathematics Department.
- **MIT** Department of Physics, and Lab for Computer Science, 1993 - 1999
  Researcher in the Condensed Matter Theory and in the Information Mechanics Groups.
- **MIT** Department of Physics Graduate Fellowship 1991 - 1993
- Visiting Scientist
  - **Mathematical Sciences Research Institute**, Berkeley, CA, Spring 2005.
    "Probability, Algorithms and Statistical Physics" Program.
  - **California Inst of Technology**, June 2004 and April 2003.
  - **École Normale Supérior**, Lyon, France, July 2003.
  - **Institute for Pure and Applied Mathematics**, UCLA, Spring 2002.
    "Large Scale Communication Networks" Program.
  - **University of California, Berkeley**, Dept of Statistics, June 2002.

PATENTS GRANTED

1. **R. M. D'Souza**, S. Ramanathan, and D. Temple Lang, "Adaptive power level setting in an ad-hoc wireless network". US Patent, 6,970,714. Granted Nov. 2005.

JOURNAL PUBLICATIONS

1. M. Pósfai^{+}, J. Gao, S. P. Cornelius, A.-L. Barabási, **R. M. D'Souza**, "Controllability of multiplex, multi-timescale networks", *Physical Review E*, 94 (3), 032316 2016.
2. J. Emenheiser*, A. Chapman, M. Pósfai^{+}, J. P. Crutchfield, M. Mesbahi, **R. M. D'Souza**, "Patterns of patterns of synchronization: Noise induced attractor switching in rings of coupled nonlinear oscillators", *Chaos* 26 (9), 094816, 2016.
3. C. D. Brummitt*, George Barnett, and **R. M. D'Souza**, "Coupled catastrophes: sudden shifts cascade and hop among interdependent systems", *Journal of the Royal Society Interface*, **12**: 20150712, 2015.
4. **R. M. D'Souza** and Jan Nagler, "Anomalous critical and supercritical phenomena in explosive percolation", *Nature Physics*, **11**(7), 531, 2015. (Cover article.)
5. A. Waagen*, G. Verma, K. Chan, A. Swami, **R. M. D'Souza**, "Effect of zealotry in high-dimensional opinion dynamics models", *Physical Review E*, **91**, 022811, 2015.
6. S. Johnson* and **R. M. D'Souza**, "Inequality and Network Formation Games", *Internet Mathematics*, **11**(3), 253-276, 2015.
7. Wei Chen, Zhiming Zheng, Xin Jiang and **R. M. D'Souza**, "Multiple discontinuous percolation transitions on scale-free networks", *Journal of Statistical Mechanics*, P04011, 2015.
8. J. Gao, Y.-Y. Liu, **R. M. D'Souza**, and A.-L. Barabási, "Target control of complex networks", *Nature Communications*, **5**, 5415, 2014.
9. J. C. Flack and **R. M. D'Souza**, "The Digital Age and the Future of Social Network Science and Engineering", *Proceedings of the IEEE*, **102** (12), 2014.
10. A. Waagen* and **R. M. D'Souza**, "Given enough choice, simple local rules percolate discontinuously", *Eur. Phys. J. B*, **87**: 304, 2014.
11. W. Chen, M. Schröder, **R. M. D'Souza**, D. Sornette, and J. Nagler, "Microtransition cascades to percolation", *Physical Review Letters*, **112**, 155701, 2014.

*Student or $^{+}$Postdoctoral Scholar directly supervised by D'Souza.

12. P.-A. Noël^{+}, C. D. Brummitt*, **R. M. D'Souza**, "Bottom-up model of self-organized criticality on networks", *Physical Review E*, **89**, 012807, 2014.
13. V. S. Vijayaraghavan*, P.-A. Noël^{+}, A. Waagen*, and **R. M. D'Souza**, "Growth dominates choice in network percolation", *Physical Review E*, **88**, 032141, 2013.
14. W. Chen*, X. Cheng, Z. Zheng, N.N. Chung, **R. M. D'Souza**, J. Nagler, "Unstable supercritical discontinuous percolation transitions", *Physical Review E*, **88**, 042152, 2013.
15. P.-A. Noël^{+}, C. D. Brummitt*, and **R. M. D'Souza**, "Controlling self-organizing dynamics on networks using models that self-organize", *Physical Review Letters*, **111**, 078701, 2013. **Selected as "Editor's Suggestion" for that issue**.
16. C. D. Brummitt*, P. D. H. Hines, I. Dobson, C. Moore, **R. M. D'Souza**, "Transdisciplinary electric power grid science", *Proc. Natl. Acad. of Sci. USA*, **110** (3), 12159, 2013.
17. W. Chen*, J. Nagler, X. Cheng, X. Jin, H. Shen, Z. Zheng, and **R. M. D'Souza**, "Phase transitions in supercritical explosive percolation", *Physical Review E* **87**, 052130, 2013.
18. **R. M. D'Souza**, "Complex networks: A winning strategy", (News and Views) *Nature Physics* **9**, 212–213, 2013.
19. Wei Chen*, Z. Zheng, and **R. M. D'Souza**, "Deriving an underlying mechanism for explosive percolation", *Europhysics Letters*, **100** (6), 66006, 2012.
20. C. D. Brummitt*, **R. M. D'Souza** and E. A. Leicht^{+}, "Suppressing cascades of load in interdependent networks" *Proc. Natl. Acad. of Sci. USA*, **109** (12) E680-E689, 2012.
21. K. J. Schrenk, A. Felder, S. Deflorin, N. A. M. Araujo, **R. M. D'Souza**, H. J. Herrmann, "BFW model on the lattice, yielding a discontinuous percolation transition", *Physical Review E* **85**, 031103 2012.
22. Martinelli F, Uratsu S, Albrecht U, Reagan RL, Phu ML, Britton M, Buffalo V, Fass J, Leicht E^{+}, Zhao W, Lin D, **D'Souza R. M.**, Davis CE, Bowman KD, Dandekar AM. "Transcriptome Profiling of Citrus Fruit in Response to Huanglongbing Disease", *PLOS ONE*, **7**(5): e38039, 2012.
23. Wei Chen* and **R. M. D'Souza**, "Explosive percolation with multiple giant components" *Physical Review Letters*, **106**, 115701, 2011.
24. Haoran Wen*, E. A. Leicht^{+}, and **R. M. D'Souza**, "Improving community detection in networks by targeted node removal" *Physical Review E*, **83**, 016114, 2011.
25. D. R. Wuellner*, S. Roy^{+}, **R. M. D'Souza**, "Resilience and rewiring of the passenger airline networks in the United States" *Physical Review E* **82**, 056101, 2010.
26. **R. M. D'Souza** and M. Mitzenmacher, "Local cluster aggregation models of explosive percolation", *Physical Review Letters*, **104**, 195702, 2010.
27. Dandekar, A.M., Martinelli, F., Zhao, W., Bhushan, A., Davis, C.E., Skogerson, K., Fiehn, O., Leicht, E.$^{+}$, **D'Souza, R. M.** "Non-destructive disease detection in citrus through the analysis of induced volatile organic compounds", *Citrograph*, **1**(5): 17-20, 2010.
28. A. M. Dandekar, Martinelli F, Davis CE, Bhushan A, Zhao W, Fiehn O, Skogerson K, Wohlgemuth G, **D'Souza R M**, Roy S, Reagan R, Lin D, Bruening G, Cary RB, Pardington P, Gupta G. "Analysis of Early Host Responses for Asymptomatic Disease Detection and Management of Specialty Crops" *Critical Reviews in Immunology*, **30** (3), 2010.
29. D. Achlioptas, **R. M. D'Souza** and J. Spencer, "Explosive Percolation in Random Graphs", *Science*, **323** (5920) 1453-1455, 2009.
30. **R. M. D'Souza**, "Complex networks: Structure comes to random graphs", *Nature Physics*, **5** (9) 627-628, 2009.
31. V. Filkov, Z. M. Saul, S. Roy^{+}, **R. M. D'Souza**, P. T. Devanbu, "Modeling and verifying a broad array of network properties", *Europhysics Letters*, **86** 28003, 2009.
32. **R. M. D'Souza** and S. Roy^{+}, "Network Growth with Feedback", *Physical Review E* **78** 045101(R) (Rapid Communication), 2008.

33. N. J. Linesch* and **R. M. D'Souza**, "Periodic States, Local Effects and Coexistence in the BML Traffic Jam Model", *Physica A* **387** 6170-6176, 2008.
34. **R. M. D'Souza**, P. L. Krapivsky and C. Moore, "The power of choice in growing trees", *European Physical Journal B*, **59** (4), 535-543, 2007.
35. **R. M. D'Souza**, C. Borgs, J. T. Chayes, N. Berger, R. D. Kleinberg, "Emergence of Tempered Preferential Attachment From Optimization", *Proc. Natl. Acad. Sci. U.S.A.*, **104** (15) 6112-6117, 2007. **(Cover story).**
36. **R. M. D'Souza**, "BML revisited: Statistical Physics, Computer Simulation and Probability". *Complexity*, **12** (2) 30–39, 2006.
37. **R. M. D'Souza**, "Coexisting phases and lattice dependence of a cellular automata model for traffic flow", *Physical Review E* **71**, 2005.
38. N. Berger, C. Borgs, J. T. Chayes, **R. M. D'Souza**, and R. D. Kleinberg. "Degree Distribution of Competition-Induced Preferential Attachment Graphs", *Combinatorics, Probability and Computing* **14** (5-6), 697-721, 2005.
39. N. Berger, C. Borgs, J. T. Chayes, **R. M. D'Souza**, and R. D. Kleinberg. "Competition-Induced Preferential Attachment", *Lecture Notes in Computer Science* **3142** 208-221, 2004.
40. **R. M. D'Souza**, N. H. Margolus, and M. A. Smith. "Dimension-splitting for simplifying lattice-gas models of diffusion", *Journal of Statistical Physics*, **107** (1), 2002.
41. **R. M. D'Souza** and N. H. Margolus. "Thermodynamically reversible generalization of Diffusion Limited Aggregation", *Physical Review E* **60** (1), 1999.
42. **R. M. D'Souza**, Y. Bar-Yam, and M. Kardar. "Sensitivity of Ballistic Deposition to Pseudorandom Number Generators", *Physical Review E* **57** (5), 1998.
43. **R. M. D'Souza**. "Anomalies in Simulations of Nearest Neighbor Ballistic Deposition", *Int. Jour. of Modern Physics C* **8** 941, 1997.
44. A. A. MacDowell, et al., "Soft-X-Ray Projection Imaging with a 1:1 Ring-Field Optic", *Applied Optics* **32** (34), 1993.
45. J. M. Calvert, et al., "Projection x-ray lithography with ultrathin imaging layers and selective electroless metallization", *Optical Engineering* **32** (10), 2437-2445, 1993.
46. D. M. Tennant, et al., "Reflective mask technologies and imaging results in soft x-ray projection lithography", *Journal of Vacuum Science & Technology B* **9** (6) 3176-3183, 1991.

REFEREED CONFERENCE PROCEEDINGS

1. S. Johnson*, J. George and **R. M. D'Souza**, "Strategic Seeding of Rival Opinions", *6th EAI International Conference on Game Theory for Networks, GAMENETS*, May 11-12 2016.
2. S. Johnson* and **R. M. D'Souza**, "Brokerage and Closure in A Strategic Model of Social Capital", *32nd ACM Symposium on Principles of Distributed Computing*, July 2013.
3. D. Posnett, **R. M. D'Souza**, P. Devanbu, V. Filkov, "Dual ecological measures of focus in software development", *35th ACM/IEEE Intl. Conf. on Software Engineering*, May 2013. (Paper acceptance rate: 18.5%) **Winner, ACM SIGSOFT Distinguished Paper Award**.
4. A. Nazir, A. Waagen*, V. Vijayaraghavan*, C.-N. Chuah, **R. M. D'Souza**, B. Krishnamurthy, "Beyond Friendship: Modeling user activity graphs in social network-based applications", *ACM Internet Measurement Conference*, Nov 2012. (Paper acceptance rate: 20%)
5. W. Elmenreich, **R. M. D'Souza**, C. Bettstetter and H. de Meer, "A Survey of Models and Design Methods for Self-Organizing Networked Systems", In *Proceedings of the Fourth International Workshop on Self-Organizing Systems*. Springer Verlag, 2009.

6. C. Bird, D. Pattison, **R. M. D'Souza**, V. Filkov, P. Devanbu, "Chapels in the Bazaar? Latent Social Structure in OSS", in *Proceedings of The Sixteenth ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE 2008).* (Paper acceptance rate: 20%)
7. **R. M. D'Souza**, D. Galvin, C. Moore, and D. Randall, "Global connectivity from local geometric constraints for sensor networks with various wireless footprints", in *Procs of The Fifth International Conference on Information Processing in Sensor Networks (IPSN 2006).* (Paper acceptance rate: 15%)
8. J. Silvis, D. Niemeier, and **R. M. D'Souza**. "Social Networks and Travel Behavior: Report from an integrated travel diary", in *Proceedings of the 11th International Conference on Travel Behaviour Research*, Kyoto, Japan, 2006.
9. **R. M. D'Souza**, S. Ramanathan, and D. Temple Lang. "Measuring performance of ad hoc networks using timescales for information flow", in *Proc of IEEE, INFOCOM* 2003. (Acceptance rate: 21%)
10. J. M. Calvert, et al., "Soft x-ray (14 nm) lithography with ultrathin imaging layers and selective electroless metallization", *Proc. SPIE* **1924**, 30-41, 1993.
11. W. M. Mansfield, et al., "Effects of Absorption on Resist Performance in Soft X-Ray Projection Lithography", *OSA Proc. on Soft X-Ray Projection Lithography* **12**, 1991.

EDITED VOLUMES

1. J. C. Flack and **R. M. D'Souza** (Guest Editors), "Impact of Changing Technology on Social Networks", *Proceedings of the IEEE*, **102** (12), 2014.

BOOK CHAPTERS

1. **R. M. D'Souza**, C. D. Brummitt, and E. A. Leicht, "Modeling interdependent networks as random graphs: Connectivity and systemic risk", in *Networks of Networks – Systemic Risk and Infrastructural Interdependencies*, G. D'Agostino and A. Scala (Eds.), Springer, 2014.
2. H. R. Wen, **R. M. D'Souza**, Z. M. Saul, V. Filkov, "Evolution of Apache Open Source Software", in *Dynamics On and Of Complex Networks*, Birkhauser, Springer, 2009.
3. **R. M. D'Souza**, G. E. Homsy, and N. H. Margolus. "Simulating digital logic with the Reversible Aggregation model of cluster growth", in *New Constructions in Cellular Automata*, Oxford University Press, 2003.

RECENT PRESS COVERAGE

- "The New Laws of Explosive Networks", *Wired Magazine*, Aug 1, 2015.
- "Zealots Help Sway Popular Opinions", *Inside Science*, Feb. 19, 2015.
- "Viewpoint: Getting out of Control", *Physics* **6**, 90 (2013).
- "Physicists get to grips with complex systems", *Physics World*, Aug. 16, 2013.
- "The Mathematics of Averting the Next Big Network Failure", *Wired Magazine/Simmons Science News*, Mar. 19, 2013.
- "When networks network", *ScienceNews*, 182:18 (2012).
- "Networks in motion" *Physics Today*, 65(4), 43 (2012).
- "Too many connections weakens networks", *Computerworld*, Feb 25, 2012.
- "RETI Connessi o isolati: Un nuovo criterio per evitare i black-out", *Ilsussidiario*, Feb 29, 2012.
- "Society's vital networks prone to 'explosive' changes", *New Scientist*, Mar 13, 2009.
- "Les lois de puissance expliquées", *La Recherche*, June 2007.

GRANTS FUNDED

- **"Principles of self-organization for resilience and control"**. R. M. D'Souza (PI), DARPA, $300,000, 12/2016-11/2018.
- **"Predicting and Controlling Systems of Interdependent Networks: Exploiting Interdependence for Control"**. R. M. D'Souza (PI), J. Crutchfield, L. Dueñas-Osorio, J. Flack, D. Krakauer, M. Mesbahi, M. Roukes, DoD Multidisciplinary University Research Initiative (MURI), $6,250,000, 8/2013-6/2019.
- **"Controllability of Complex Networks"**. C. Aggarwal (PI), R. M. D'Souza, P. Mohapatra, B. Uzzi, ARL Network Science Collaborative Technology Alliance, $880,000, 10/2016-9/2018.
- **"Robustness, resilience and emergent properties of interdependent networks"**. R. M. D'Souza (PI), Defense Threat Reduction Agency, $734,125, 9/2009-8/2016.
- **"NeTS: Medium: Towards Building Time Capsule for Online Social Activities"**. Chen-Nee Chuah (PI), R. M. D'Souza, National Science Foundation, $609,000 9/2013 - 8/2016.
- **"The Effect of Shocks on Overlapping and Functionally Interacting Social and Political Networks: A Multi-Method Approach"**. Zeev Maoz (PI), George Barnett, R. M. D'Souza, Brandon Kinne, Camber Warren. ARO Minerva Research Initiative, $1,800,000, 9/2015-8/2018.
- **"Controllability of Complex Networks"**. A.-L. Barabasi (PI), R. M. D'Souza, J. George, J. H. Cho, ARL Network Science Collaborative Technology Alliance, $880,000, 8/2014-9/2016.
- **"ICES: The Effects of Shocks on Interacting Social and Physical Networks "**. Z. Maoz (PI), G. Barnett, R. M. D'Souza, K. Joyce, National Science Foundation, $398,874, 9/2012-8/2014.
- **"Structure and Function of Task-Oriented Social Networks"**. V. Filkov (PI), P. T. Devanbu, R. M. D'Souza, D. Felmlee, $700,000, 9/2011-8/2014.
- **"Quality of Information Aware Networks for Tactical Applications (QUANTA)"**. P. Mohapatra (PI), R. M. D'Souza, K. Levitt, F. Wu, Q. Zhao. Army Research Lab, Collaborative Technology Alliance. $2.5M, 9/2009 - 8/2014.
- **"Network Infrastructure: realizing the potential of underutilized urban public land through the integration of data, analysis and design"**. N. de Monchaux (PI), J. Wolch, R. M. D'Souza, CITRIS, $50,000, 9/2012-8/2013.
- **"Design Principles for Resilient Critical Infrastructure"** R. M. D'Souza (PI), National Academies Keck Futures Initiative, $50,000, 5/2009-12/2011.
- **"Longitudinal effects of Design in Open Source Projects"**. P. Devanbu (PI), R. M. D'Souza, V. Flikov, G. Hsu and A. Swaminathan. NSF Science of Design Program. $750,000, 9/2006 - 8/2009.
- **"Development and testing of a generalized reagentless chemical sensor for the real-time detection of citrus plant and fruit response"**. A. Dandekar (PI), C. E. Davis, R. M. D'Souza and O. Fiehn. UC Discovery Grant. $120,000, 5/2008 - 4/2009.
- **"Network Flows"**. R. M. D'Souza (PI). Grant, JFE R&D Corporation. $30,000, 8/2007.

REFEREE DUTIES

Recurring referee for: Science, Nature, PNAS, Nature Physics, Physical Review Letters, Physical Review E, PLOS One, Chaos, J Stat Phys, Physica A, NJP, J Phys A, SIAM Journal on Discrete Mathematics, NSF grant review panels, IEEE Transactions on Networking, IEEE Communications Letters, IEEE Foundations of Computer Science (FOCS) 2006, IEEE Infocom 2003 and 2004, Nonlinearity, Journal of Multivariate Logic, Cottrell College Science Awards 2006, United States-Israel Binational Science Foundation 2007, European Commission European FET Flagship Initiatives Area 2012.

CONFERENCE ORGANIZATION

- Faculty organizer, "Multidimensional networks symposium", UC Davis May 20-22, 2016.
- Scientific Steering Committee, NetSci 2016, NetSci X 2016, Netsci 2017, NetSci X 2017, NetSci X 2018, NetSci 2018.
- Program Committee, ICCS workshop on Paradigms for Control in Social Systems, 2015.
- NetSci 2014, International School and Conference on Network Science. **General Chair**.
- IEEE NetSciCom 2013, and IEEE NetSciCom 2012, Technical Program Committee.
- 10th Workshop on Algorithms & Models for the Web Graph (WAW'13), Technical Program Committee.
- NetSci 2013, Program Committee.
- Organizer: "Power Grids as Complex Networks: Formulating Problems for Useful Science and Science Based Engineering", Santa Fe Institute, May 16-18, 2012.
- NetONets, Networks of Networks: Systemic Risk and Infrastructural Interdependencies, Scientific Steering Committee, 2012, 2013, 2014.
- 9th Workshop on Algorithms & Models for the Web Graph (WAW'12), Technical Program Committee.
- 6th International Workshop on Self-Organizing Systems (IWSOS 2012), March 15-16, 2012, Delft, The Netherlands. Technical Program Committee.
- U.S. National Academy of Sciences, Kavli Indo-US Frontiers of Science, Symposium Chair, April 2011.
- Statistical and Applied Mathematical Sciences Institute (SAMSI), 2010-2011 Program on Complex Networks. (Dynamics of networks subprogram)
- Organizer: "Emergent Properties and Resilience of Interacting Networks", Santa Fe Institute, June 21-23, 2010.
- U.S. National Academy of Sciences, Kavli Japan-US Frontiers of Science, Symposium Chair, Dec. 2008.
- U.S. National Academy of Sciences, Kavli Japan-US Frontiers of Science, Program Cmmt, Dec. 2007.
- Organizer: "The Science of Complex Systems" Seminar Series, UC Davis, Spring 2006 and Fall 2006.
- Institute for Complex Systems Research of Valparaiso (ISCV)/Santa Fe Institute, Inaugural Residency Month, Valparaiso, Chile, December 2006.
- European Conference on Complex Systems 2006, Technical Program Committee, September 2006.

STUDENTS SUPERVISED

Current:

- Jeff Emenheiser, UC Davis, Physics, Ph.D. expected June 2019.
- Ehsan Gholami, UC Davis, ECE Ph.D. expected June 2019.
- Anastasiya Salova, UC Davis, Physics, Ph.D. expected June 2020.
- Andrew Smith, UC Davis, Computer Science, Ph.D. expected June 2017.
- Jordan Snyder, UC Davis, Applied Math, Ph.D. expected June 2019.
- Haochen Wu, UC Davis, Computer Science, Ph.D. expected June 2018.

Graduated:

- Sam Johnson, UC Davis, Computer Science, Ph.D. January 2016.
  Current Position: Postdoc, Hughes Research Lab.
- Vikram Vijayaraghavan, UC Davis, Physics, Ph.D. October 2015.
  Current Position: Research scientist, AT&T Foundry.

- Alex Waagen, UC Davis, Applied Mathematics, Ph.D. Dec 2014.
  Current Position: Postdoc, Hughes Research Lab.
- Charles Brummitt, UC Davis, Applied Mathematics, Ph.D. June 2014.
  Current Position: J. S. McDonnell Foundation Postdoctoral Fellowship Awardee, Columbia University.
- Wei Chen, Peking University, Applied Math, Ph.D. June 2012. Topic: Explosive Percolation.
  Current position: Assistant Professor, Chinese Academy of Sciences.
- Haoran Wen, UC Davis, Mechanical Eng., Ph.D. Jan 2011.
  Currently: Microsoft Corporation.
- Daniel Wuellner, UC Davis Applied Math, M.S. June 2010. Topic: Airline flight networks.
- Nicholas Linesch, UC Davis, Applied Math, B.S. 2007. Topic: BML jamming transition

Additional recent thesis committee membership:

- Trevor Ramsey, M.S. CS, Spring 2015.
- Hui Deng, Ph.D. Civil and Enviromental Engineering, Summer 2015.
- Zejun Huang M.S. CS Fall 2015.
- Mohammad Gharehyazie, Ph.D. CS, June 2016.
- Jason Barnett, Ph.D. Applied Math, June 2016.

POSTDOCTORAL SCHOLARS SUPERVISED

- Dr. Soumen Roy; 2007-2009. Current position: Associate Professor, Department of Chemistry, Bose Institute, Kolkata. (Tenured, Jan 2016.)
- Dr. Elizabeth Leicht; 2008-2010. Current position: Junior Fellow of Wolfson College, University of Oxford, Oxford, England.
- Pierre-Andre Noël: 2012-2016. In residence, UC Davis.
- Márton Pósfai: 2015-2017. In residence, UC Davis.

EDUCATIONAL FILMS

- **"Mathematics Illuminated"**. Series produced by the Annenberg Foundation and Oregon Public Broadcasting. Series began airing on television in Fall 2008.
  http://www.learner.org/resources/series210.html (Episodes 7 and 11).
- **"Lectures in Network Theory"** produced by the Santa Fe Institute 2007.

RECENT TEACHING

- ECS 15, Winter 2013. Enrollment 109 students.
- ENG 102, Winter 2013. Enrollment 91 students.
- MAE 216, Winter 2014. Enrollment 25 students.
- MAE 289/ECS 289F, Spring 2014. Enrollment 41 students.
- ECS 15, Winter 2015. Enrollment 123 students.
- ENG 105, Winter 2016. Enrollment 161 students.
- MAE 297, Winter 2016. Enrollment 47 students.
- MAE 253/ECS 253, Spring 2016. Enrollment 45 students.
- ECS 20, Winter 2017. Enrollment 253 students.

CURRICULAR DEVELOPMENT

- New graduate course MAE 253/ECS 253 "Network Theory and Applications". To date over 120 students enrolled, coming from a variety of graduate groups including: CS, MAE, EE, Physics, Statistics, Applied Math, Ecology, Population biology, Plant biology and genomics, TTP.
- Mini-course on explosive percolation, offered at the 8th Cornell Probability Summer School, Cornell University, July 16-27, 2012.
- Network Theory mini-course, offered at the SFI Complex Systems Summer School, Chinese Academy of Sciences, Beijing China, July 2006 and July 2007.

RECENT INVITED LECTURES

(Over 150 invited lectures given since 1999)

1. Keynote Speaker, **Conference on Complex Systems**, Sept 17-22, 2017.
2. Keynote Speaker, **Symposium on Controlling Complex Systems**, NetSci 2017, June 19, 2017.
3. Keynote Speaker, **Complex Networks** 2016, Milan, Italy Nov 30 - Dec 2, 2016.
4. Colloquium, Physics Department, **Boston University**, March 22, 2016.
5. Invited Speaker, **APS March meeting**, Session V3: Complex Network Dynamics, March 17, 2016.
6. Invited lecture, Mechanical Engineering/IGERT seminar, **UC Santa Barbara**, Nov 9, 2015.
7. Colloquium, Applied Mathematics, **Northwestern University**, Oct 5, 2015.
8. Invited lectures, **University of Alaska**, Anchorage, Complex Systems lecture series, April 2-3, 2015.
9. Keynote Speaker, **UC Davis**, Statistical Sciences Symposium, April 10-11, 2015.
10. Invited Speaker, **UC Davis**, Institute for Social Sciences 2015 Conference, May 8, 2015.
11. Keynote Speaker, **NetSci 2015**, Zaragoza Spain, June 1-5, 2015.
12. The John von Neumann Public Lecture, **University of Wisconsin**, Nov. 5, 2014.
13. Colloquium, Stanford Network Forum, **Stanford University**, Aug. 4, 2014.
14. Invited Speaker, Berkeley Mini-Stat Mech Meeting, **UC Berkeley**, Jan. 11, 2014.
15. Colloquium, ETH Risk Center, **ETH Zurich**, October 29, 2013.
16. Invited Speaker, **SIAM dynamical systems conference**, May 19-23, 2013.
17. Distinguished Physics & Astronomy Complex Systems Seminar, **Northwestern University**, Chicago, April 25, 2013.
18. Invited Speaker, **American Physical Society March Meeting**, Baltimore MD, Mar 18-22, 2013.
19. Invited Speaker, **Dynamics Days US**, Denver CO, Jan 3-6, 2013.
20. Physics Colloquium, **UC Riverside**, Nov 29, 2012.
21. Invited speaker, "Coupled Networks, Dragon Kings and Explosive Percolation: New Views on Extreme Events", Workshop of the ETH Risk Center, **ETH Zurich**, Oct 26th, 2012.
22. Invited speaker, **European Conference on Complex Systems**, Sept 6, 2012.
23. Lecturer, 8th Cornell Probability Summer School, **Cornell University**, July 16-27, 2012.
24. Distinguished Lecturer in Computer Science Series, **UC Irvine**, April 27, 2012.
25. **Santa Fe Institute** Colloquium, May 16, 2012.
26. **America Association for the Advancement of Science**, Annual meeting, Invited Lecture, Vancouver British Columbia, Feb. 17, 2012.
27. **Cornell University**, Center for Applied Math, Colloquium, Dec. 2, 2011.
28. **Northwestern University**, Invited speaker, Frontiers in Networks Science Workshop, Dec. 1, 2011.

29. **Tycho Brahe Planetarium**, One of four discussants on nature on time, Copenhagen Denmark, Aug. 29, 2011. Video at `http://fqxi.org/setting-time-aright.html`
30. **NetSci 2011**, Plenary Lecture, Hungarian Academy of Sciences, June 9, 2011.
31. **American Physical Society**, Invited Speaker, March Meeting, Mar. 22, 2011.
32. Invited lecture, **TTI Vanguard**, Matters of Scale, London England, July 21, 2010.
33. **Rockefeller Foundation**, Science of Cities Workshop, Bellagio Italy, July 29, 2010.
34. **Microsoft Research** Colloquium, Oct 7, 2009.
35. **NetSci 2009**, Plenary lecture, Venice Italy, July 1, 2009.
36. **Massachusetts Institute of Technology**, LIDS Seminar, Dec. 7, 2009.
37. **Massachusetts Institute of Technology**, Combinatorics Seminar, Dept of Math, Oct 28, 2009.
38. **University of Klagenfurt**, Invited Lecture, Klagenfurt Austria, July 14, 2009.
39. Invited lecture, **Canadian Discrete and Algorithmic Mathematics Conference**, Montreal, May 25, 2009.
40. **Perimeter Institute for Theoretical Physics** Colloquium, Ontario Canada, May 20, 2009.
41. **Massachusetts Institute of Technology**, Invited Lecture, Engineering Systems Division, 4/9/2009.
42. **University of California Davis** Physics Colloquium, February 9, 2009.
43. **Stanford University** ICME Colloquium, May 19, 2008.
44. **University of Maryland** Physics Colloquium, 4/29/2008.
45. Invited lecture, The Network Resilience Challenge, **Secretary of Defense Highlands Forum**, Wilmington, DE, Oct 5-7, 2008.

HIGHLIGHTS OF RECENT CAMPUS SERVICE

- MAE Department
  - 2013-14 MAE Search cmmt in controls.
  - MAE Prelim Exam Member Spring 2013, Spring 2014, Spring 2017.
  - MAE Prelim Exam Chair Spring 2016.
  - 2010-2012, 2014-16, 2016-17 MAE Grad studies cmmt.
  - Organized Winter 2016 MAE 297 graduate seminer.
- CS Department
  - 2014-15 CS LSOE Search cmmt.
  - 2014-15, and 2015-16 CS grad admissions cmmt.
  - May 2015 GGCS Best Researcher Award selection cmmt.
  - 2015-16 GGCS Educational Policy cmmt.
- Invited lectures given on campus
  - Statistics Symposium April 10, 2015
  - ISS Symposium May 8, 2015
  - GGAM Colloquium, Nov 23, 2015
  - Research Rocks, April 5, 2016
- Colloquium speakers hosted:
  - Mason Porter, April 2013; Michael Mitzenmacher, Oct 2013; Boleslaw K. Szymanski, Jan 2014; Tina Eliassi-Rad, Jan 2014.

- Founder, UC Davis Cross-campus Network Science Working Group. Weekly meetings since Sept. 2015.
- Campus wide: ADVANCE committee to recruit Latina faculty in STEM fields, 2012–present.
  - 2014-15, Convener/chair of Cindy Rubio-Gonzalez launch cmmt
  - 2015-16, Convener/chair of Dave Doty launch cmmt
  - 2012 - current ADVANCE mentorship cmmt
  - June 2015 review of ADVANCE scholar awards
- Campus wide: Executive Committee, Graduate Group in Applied Math, 2010–2012.
- Campus wide: Organizer, Graduate Group in Applied Math Annual Conference, Jan. 2013.
- Campus wide: Aiding in recruitment of students and faculty across campus, 2006–present.
- Member of multiple faculty search committees involving the following departments: MAE, Physics, Biomedical Engineering, Civil and Environmental Engineering.
- Member of over 40 PhD qualifying exams for students from the following graduate groups: MAE, Physics, Civil Engineering, CS, Statistics, Applied Math, Mathematics, Ecology and Evolution.
- Finalist, Associated Students University of CA Davis (ASUCD) Excellence in Education Award, 2012.
- Project GUTS y Girls in STEM day-long presentation, April 16, 2011, Santa Fe, NM.
- Recent major service to profession:
  - NetSci 2014, General Chair
  - President of the Network Science Society
  - Associate Editor at four major journals
  - Scientific Advisory Board, Future Resilient Systems, ETH/Singapore