

VIJAY G. SUBRAMANIAN

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EDUCATION

Ph.D. Electrical Engineering, University of Illinois at Urbana-Champaign – October 1999.

Dissertation: Broadband Fading Channels: Signal Burstiness and Capacity.

Master of Science (Engineering) (M.Sc.(Eng)), Electrical Communication Engineering, Indian Institute of Science (IISc), Bangalore, India – October 1995.

Bachelor of Technology (B.Tech.), Electronics and Communication, Indian Institute of Technology (IIT), Madras, India – July 1993.

AREAS OF EXPERTISE

Social networks & network science, Economics & game theory, Cloud Computing, Optimization, Statistics & mathematics, Networks, Wireless systems, Algorithms

PROFESSIONAL EXPERIENCE

ACADEMIC EMPLOYMENT

- **Associate Professor**, Electrical Engineering & Computer Science Dept, University of Michigan, Ann Arbor, MI, USA. *Sept 2014–present.*
- **Research Assistant Professor**, Electrical Engineering & Computer Science Dept, Northwestern University, Evanston, IL, USA. *Nov 2011–Aug 2014.*
- **Senior Research Associate**, Electrical Engr. & Computer Science Dept, Northwestern University, Evanston, IL, USA. *Nov 2010–Oct 2011.*
- **Research Fellow**, Hamilton Institute, National University of Ireland, Maynooth, Co. Kildare, Ireland. *May 2006–Nov 2010.*

INDUSTRIAL EMPLOYMENT

- **Distinguished Member of Technical Staff**, Performance Analysis and Availability Department, Networks Business, Motorola Inc., Arlington Heights, IL, USA. *Oct 2004–May 2006.*
- **Senior Staff Engineer**, Mathematics of Communication Networks, Global Telecommunications Solutions Sector, Motorola Inc., Arlington Heights, IL, USA. *Jan 2001–Sept 2004.*
- **Lead Engineer**, Mathematics of Communication Networks, Global Telecommunications Solutions Sector, Motorola Inc., Arlington Heights, IL, USA. *Nov 1999–Dec 2000.*

CONSULTANCY

- **Visiting Professor**, Nokia Solutions Networks, Arlington Heights, IL. *July–Dec 2014.*
- **Visiting Professor**, NJRC, QFT, Qualcomm, Bedminister, NJ. *July–Dec 2013.*
- **Visiting Professor**, NJRC, QFT, Qualcomm, Bedminister, NJ. *July–Dec 2012.*

HONORARY POSITIONS

- **Visiting Researcher**, Laboratory for Information & Decision Sciences (LIDS), Massachusetts Institute of Technology, Cambridge, MA, USA. *Aug–Nov 2010.*

RESEARCH GRANTS

ACTIVE:

- NSF ECCS: A control-theoretic framework for analysis and design of networked systems with strategic agents via structured strategies, (Co-PIs A. Anastasopoulos), USD 400,000.00; Sept 2016-Aug 2019.
- NSF EARS: Collaborative Research: Creating an Ecosystem for Enhanced Spectrum Utilization Through Dynamic Market Mechanisms, (Co-PIs S. Shakkottai & T. Nguyen), USD 239,198.00; Sept 2014-Aug 2017.
- NSF EARS: Spectrum Sharing in the Shadow of Uncertainty: Risk, Incentives and Investment, (Co-PIs R. Berry, M. Honig & R. Vohra), USD 1,200,000.00, Sept 2013-Aug 2017.
- NSF-IIS III: Inferring first movers in large-scale socio-technical networks (Co-PI R. Berry), USD 500,000.00, Aug 2012-Aug 2017.

EXPIRED:

- NSF-SES EARS-Market Structures for Efficient Spectrum Sharing (Co-PIs R. Berry, M. Honig & R. Vohra), USD 141,489.00, Aug 2012-July 2013.

TRAVEL GRANTS

- Science Foundation of Ireland Short-Term Travel Fellowship 2009 - 11,090.43 Euros for a 3 month research visit to LIDS, MIT in 2010.

PUBLICATIONS

BOOK CHAPTERS:

1. J. Huang, V. G. Subramanian, R. Berry and R. Agrawal, "Scheduling and resource allocation in OFDMA wireless systems," Book Chapter in *Orthogonal Frequency Division Multiple Access, Auerbach Publications*, CRC Press, April 2010.

ARTICLES IN REFEREED JOURNALS:

1. T. N. Le, V. G. Subramanian and R. A. Berry, "Information Cascades with Noise," *IEEE Transactions on Signal and Information Processing over Networks* (Special Issue on Distributed Information Processing in Social Networks). 02/2017, Accepted for publication.
2. T. Nguyen, V. Subramanian and R. Berry, "Delay in Trade Networks," *Operations Research* (Special Issue on Information and Decisions in Social and Economic Networks). 04/2016; 64(3): 646-661.
3. J. Li, R. Bhattacharya, S. Paul, S. Shakkottai and V. Subramanian, "Incentivizing Sharing in Realtime D2D Streaming Networks: A Mean Field Game Perspective," *IEEE/ACM Transactions on Networking*. 01/2016; Pre-Publication(99): 1-15, Accepted and published online.
4. M. Moharrami, V. Subramanian, M. Liu and M. Lelarge, "Impact of Community Structure on Cascades," *EC'16: Proceedings of the 2016 ACM Conference on Economics and Computation*. 07/2016: 635-636. (Also see corresponding conference entry.)
5. V. R. Raja, V. Ramaswamy, S. Shakkottai and V. Subramanian, "Mean Field Equilibria of Pricing Games in Internet Marketplaces," *SIGMETRICS'16: Proceedings of the 2016 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Science*. 06/2016; 44(1): 387-388. (Also see corresponding poster entry.)
6. J. Li, B. Xia, X. Geng, H. Ming, S. Shakkottai, V. Subramanian and L. Xie, "Energy Coupon: A Mean Field Game Perspective on Demand Response in Smart Grids," *ACM SIGMETRICS 2015*: 455-456. (Also see corresponding poster entry.)

7. J. Nair, V. G. Subramanian, and A. Wierman, "On competitive provisioning of cloud services," SIGMETRICS Performance Evaluation Review, 42(2):30–32, Oct 2014. (Also see corresponding conference entry.)
8. V. G. Subramanian and D. J. Leith, "On the rate-region of CSMA/CA WLANs," *IEEE Trans. Info. Theory*, 3932–3938, June 2013.
9. X. Chen, V. G. Subramanian and D. J. Leith, "PHY modulation/rate control for fountain codes in 802.11 WLANs," accepted to *Elsevier Journal on Physical Communication*, October 2012.
10. R. Berry, M. Honig, T. Nguyen, V. Subramanian, H. Zhou and R. Vohra, "Newsvendor model of capacity sharing," ACM SIGMETRICS Performance Evaluation Review 40(2):26–29, Sept 2012. (Also see corresponding conference entry.)
11. D. J. Leith, Q. Cao and V. G. Subramanian, "Max-min fairness in 802.11 mesh networks," *IEEE/ACM Trans. on Networking*, 20(3), 756–769 June 2012.
12. V. G. Subramanian, S. Kittipiyakul and T. Javidi, "Many-sources large deviations of Max-Weight scheduling," *IEEE Trans. on Info. Theory*, 57(4), 2151–2168, April 2011.
13. V. G. Subramanian, "LDP for Max-Weight scheduling over convex compact rate-regions," *Mathematics of Operations Research*, 35(4), 881–910, Nov 2010.
14. V. G. Subramanian, R. A. Berry and R. Agrawal, "Joint scheduling and resource allocation in DL of CDMA systems," *IEEE Transactions on Information Theory*, 56(5), 2416–2432, 2010.
15. D. J. Leith, V. G. Subramanian and K. R. Duffy, "Log convexity of rate region in 802.11e WLANs," *IEEE Comm. Letters*, 14(1), 57–59, 2010.
16. V. Badarla, V. G. Subramanian and D. J. Leith, "Low-delay dynamic routing using fountain codes," *IEEE Comm. Letters*, 13(7), 552–554, 2009.
17. V. G. Subramanian, K. R. Duffy and D. J. Leith, "Existence and uniqueness of fair rate allocations in lossy wireless networks," *IEEE Transactions on Wireless Communications*, 8(7), 3401–3406, 2009.
18. J. Huang, V. G. Subramanian, R. Agrawal and R. Berry, "Joint scheduling and resource allocation in uplink OFDM systems for broadband wireless access networks," *IEEE JSAC Special Issue on Broadband Access Networks*, 27(2), 226–234, 2009.
19. J. Huang, V. G. Subramanian, R. Agrawal and R. Berry, "Downlink scheduling and resource allocation for OFDM systems," *IEEE Transactions on Wireless Communications*, 8(1), 288–296, 2009.
20. K. R. Duffy and V. G. Subramanian, "On the impact of correlation between collaterally consanguineous cells on lymphocyte population dynamics," *Journal of Mathematical Biology*, 59(2), 255–285, 2009.
21. V. G. Subramanian, K. R. Duffy, M. L. Turner and P. D. Hodgkin, "Determining the expected variability of immune responses using the Cyton model," *Journal of Mathematical Biology*, 56(6), 861–892, June 2008.
22. B. Hajek and V. G. Subramanian, "Capacity and reliability function for small signal constraints," *IEEE Transactions on Information Theory*, 48(4), 828–839, April 2002.
23. V. G. Subramanian and B. Hajek, "Broadband fading channels: Signal burstiness and capacity," *IEEE Transactions on Information Theory*, 48(4), 809–827, April 2002.
24. V. Subramanian and R. Srikant, "Statistical multiplexing with priorities: Tail probabilities of queue-lengths and waiting times," *Queueing Systems: Theory and Applications*, 34(1-4), pp. 215–236, 2000.

REFEREED CONFERENCE PAPERS:

1. C. Chen, R. Berry, M. Honig and V. Subramanian, "The Impact of Small-Cell Bandwidth Requirements on Strategic Operators," IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN) 2017, Baltimore, MD, United States of America, 03/2017, Accepted and to be presented in March 2017.

2. T. Le, V. Subramanian and R. Berry, "Quantifying the Utility of Imperfect Reviews in Stopping Information Cascades," in *Proc. IEEE Conference on Decision and Control (CDC) 2016*, Pages: 6990 - 6995 , Las Vegas, NV, United States of America, 12/2016.
3. S.-T. Tang and V. Subramanian, "Descending Price Algorithm for Determining Market Clearing Prices in Matching Markets," in *Proc. of Allerton Conference 2016*, Monticello, IL, United States of America, 09/2016.
4. M. Moharrami, V. Subramanian, M. Liu and M. Lelarge, "Impact of Community Structure on Cascades," EC'16, in *Proceedings of the 2016 ACM Conference on Economics and Computation* (Also see journal entry.), Maastricht, Netherlands, 07/2016.
5. T. Le, V. Subramanian and R. Berry, "Are imperfect reviews helpful in social learning?" in *Proc. of IEEE International Symposium on Information Theory (ISIT) 2016*, Pages: 2089 - 2093, Barcelona, Catalunya, Spain, 07/2016.
6. C. Chen, R. Berry, M. Honig and V. Subramanian, "The Impact of Unlicensed Access on Small-Cell Resource Allocation," in *Proc. of IEEE INFOCOM 2016*, Pages: 1 - 9, San Francisco, CA, USA, 2016.
7. C. Chen, R. Berry, M. Honig and V. Subramanian, "Bandwidth optimization in HetNets with Competing Service Providers," in *Proc. of IEEE Workshop on Smart Data Pricing 2015*, Hong Kong. (In conjunction with IEEE INFOCOM 2015.)
8. J. Li, R. Bhattacharya, S. Paul, S. Shakkottai, and V. Subramanian, "Incentivizing sharing in realtime D2D streaming networks: A mean field game perspective," in *Proc. of IEEE INFOCOM 2015*, Hong Kong.
9. T. Le V. Subramanian and R. Berry, "The Impact of Observation and Action Errors on Informational Cascades," in *Proc. of IEEE CDC 2014*, Los Angeles.
10. J. Nair, V. G. Subramanian, and A. Wierman, "On competitive provisioning of cloud services," in *Proc. of IFIP WG 7.3 PERFORMANCE 2014*, Torino, Italy.
11. G. Askalidis, R. Berry and V. Subramanian, "Explaining Snapshots of Network Diffusions: Structural and Hardness Results," Workshop on Computational Social Networks (CSoNet'14), Atlanta, Co-located with COCOON 2014.
12. T. Le, V. Subramanian and R. Berry, "The Value of Noise for Information Cascades," in *Proc. of IEEE ISIT 2014*, Hawaii.
13. W. Wang, V. Subramanian and D. Guo, "Low complexity scheduling algorithms for wireless networks with full duplex state exchange," 2014 48th Annual Conference on Information Sciences and Systems (CISS), Pages: 1 - 6 , Princeton, NJ, United States of America, 03/2014.
14. C. Chen, R. Berry, M. Honig and V. Subramanian, "Distributed Interference Pricing in Wireless Networks with Local Cooperation," in *Proc. of IEEE Globecom 2013*, Atlanta.
15. T. Nguyen, V. G. Subramanian and R. Berry, "Searching and bargaining with middlemen," in *Proc. of Allerton 2013*, Monticello.
16. R. Agrawal, N. Arulselman, S. Kalyanasundaram, B. Natarajan, H. Xu and V. Subramanian, "Interference Penalty Algorithm (IPA)- A novel algorithm for uplink inter-cell interference co-ordination in LTE," in *Proc. of IEEE WCNC 2013*, Shanghai.
17. R. Berry, M. Honig, T. Nguyen, V. Subramanian, H. Zhou and R. Vohra, "On the nature of revenue-sharing contracts to incentivize spectrum-sharing," in *Proc. of INFOCOM 2013*, Turin.
18. X. Chen, V. Subramanian and D. Leith, "An Upper Bound on the Packet Error Rate of 802.11a/g Viterbi Soft Decision Decoding in the AWGN Channel", in *Proc. of IFIP Wireless Days 2012*, Dublin.
19. K.-H. Hui, V. Subramanian, D. Guo and R. Berry, "Diffusion of innovation in two-sided markets," in *Proc. of Allerton 2012*, Monticello.
20. R. Berry, M. Honig, T. Nguyen, V. Subramanian, H. Zhou and R. Vohra, "Newsvendor model of capacity sharing," in *Proc. of W-PIN 2012* (1st Workshop on Pricing and Incentives in Networks), June, 2012, in conjunction with ACM SIGMETRICS/Performance 2012 (London). (Also see corresponding journal entry.)

21. V. G. Subramanian and M. Alanyali, "Delay performance of CSMA in networks with bounded degree conflict graphs," in *Proc. of IEEE ISIT 2011*, St. Petersburg.
22. X. Chen, V. G. Subramanian and D. J. Leith, "Binary Symmetric Channel Based Aggregation with Coding for 802.11n WLANs," in *Proc. of IEEE Broadnets 2010*, Athens.
23. D. Vasudevan, V. G. Subramanian and D. J. Leith, "Scheduling jobs with hard deadlines over Multiple Access and Degraded Broadcast Channels," in *Proc. of IEEE ISIT 2010*, Austin.
24. D. Vasudevan, V. G. Subramanian and D. J. Leith, "On ARQ for Packet Erasure Channels with Bernoulli Arrivals," in *Proc. of IEEE ISIT 2010*, Austin.
25. H. Qi, D. Malone and V. G. Subramanian, "Does every bit need the same power? An investigation on unequal power allocation for irregular LDPC codes," in *Proc. of International Conference on Wireless Communications and Signal Processing 2009*, Nanjing.
26. A. Nedich, V. G. Subramanian, "Approximately Optimal Utility Maximization," in *Proc. of IT Workshop June 2009*, Volos.
27. V. G. Subramanian and D. J. Leith, "On a class of optimal rateless codes," in *Proc. of Allerton 2008*, Monticello.
28. S. Bodas, S. Viswanath and V. G. Subramanian, "Random access over multiple access channels: A queueing perspective," in *Proc. of CISS 2008*, Princeton.
29. T. Coleman, N. Kiyavash and V. G. Subramanian, "Alternate proof of rate-distortion function of a Poisson Process," in *Proc. of DCC 2008*, Snowbird.
30. J. Huang, V. G. Subramanian, R. Agrawal and R. Berry, "Scheduling and resource allocation for DL of OFDM systems," in *Proc. of CISS 2006*, Princeton.
31. R. Agrawal, V. Subramanian, and R. Berry, "Joint Scheduling and Resource Allocation in CDMA Systems," in *Proc. of WiOpt 2004*.
32. R. Agrawal, A. Bedekar, R. La, and V. Subramanian, "A Class and Channel-Condition based Weighted Proportionally Fair Scheduler," in *Proc. of ITC 2001*, Salvador.
33. V. G. Subramanian and B. Hajek, "Capacity and reliability function for small signal constraints," in *Proc. of CISS 2000*, Princeton.
34. B. Hajek and V. G. Subramanian, "Capacity and reliability function per fourth moment cost for WSSUS fading channels," in *Proc. of IT Workshop June 1999*, Kruger National Park.
35. V. G. Subramanian and B. Hajek, "Capacity and reliability function per unit cost for WSSUS fading channels," in *Proc. of CISS 1999*, Baltimore.
36. V. Subramanian and R. Srikant, "Tail probabilities of queue-lengths, workloads and waiting times," in *Proc. of IEEE CDC 1997*, San Diego.
37. V. G. Subramanian and U. Madhow, "Blind demodulation of direct-sequence CDMA signals using an antenna array," in *Proc. of CISS 1996*, Princeton.

INVITED CONFERENCE PAPERS:

1. D. Vial and V. Subramanian, "Towards Fast Algorithms for Estimating Personalized PageRank Using Commonly Generated Random Walks," in *Proc. of Allerton Conference 2016*, Monticello, IL, United States of America, 09/2016.
2. C. Chen, R. Berry, M. Honig and V. Subramanian, "The Impact of Investment on Small-Cell Resource Allocation," in *Proc. of CISS 2016*, Princeton, NJ.
3. D. Vasal, A. Anastasopoulos and V. Subramanian, "Incentive Design for Learning in 2:45 PM User-Recommendation Systems," in *Proc. of Asilomar 2015*, Pacific Grove, CA.
4. J. Nair, V. Subramanian and A. Wierman, "On Competitive Provisioning Of Ad-Supported Cloud Services," in *Proc. of Allerton Conference 2014*.

5. C. Cheng, R. Berry, M. Honig and V. Subramanian, "Pricing and Bandwidth Optimization in Heterogeneous Wireless Networks," in *Proc. of Asilomar 2013*, Pacific Grove, CA.
6. T. Nguyen, V. Subramanian and R. Berry, "Bargaining with middlemen," in *Proc. of INFORMS 2013*, Minneapolis.
7. R. Berry, M. Honig, T. Nguyen, V. Subramanian and R. Vohra, "Market Structures for Wireless Service with Shared Spectrum," in *Proc. of Allerton 2013*, Monticello.
8. R. Berry and V. Subramanian, "Spotting trendsetters: Inference in network games," in *Proc. of Allerton 2012*, Monticello.
9. D. J. Leith and V. G. Subramanian, "Utility Fairness in 802.11-Based Wireless Mesh Networks," in *Proc. of Allerton 2010*, Monticello.
10. D. J. Leith, Q. Cao and V. G. Subramanian, "Realising Max-min Fairness in 802.11e Mesh Networks," in *Proc. of IEEE International Symposium on Wireless Pervasive Computing 2010*, Modena.
11. S. Kittipiyakul, T. Javidi and V. G. Subramanian, "Many sources large deviations of max-weight scheduling," appeared in *Proc. of Allerton Conference 2008*, Monticello.
12. V. G. Subramanian, "Large deviations of max-weight scheduling policies on convex rate regions," appeared in *Proc. of ITA 2008*, UCSD.
13. V. G. Subramanian and D. J. Leith, "Draining-time based scheduling algorithm," appeared in *Proc. of CDC 2007*, New Orleans.
14. J. Huang, V. G. Subramanian, R. Berry and R. Agrawal, "Scheduling and resource allocation for UL of OFDM systems," appeared in *Proc. of Asilomar 2007*, Pacific Grove.
15. R. Agrawal, R. Berry, J. Huang and V. G. Subramanian, "Scheduling and resource allocation for DL of OFDM systems," appeared in *Proc. of Asilomar 2006*, Pacific Grove.
16. R. Agrawal and V. Subramanian, "Optimality of Certain Channel Aware Scheduling Policies," in *Proc. of Allerton 2002*, Monticello.
17. R. Agrawal, A. Bedekar, R. La, R. Pazhyannur, and V. Subramanian, "A Class and Channel-Condition based Weighted Proportionally Fair Scheduler for EDGE/GPRS," in *Proc. of ITCOM'01*, Denver.

SUBMITTED CONFERENCE PAPERS:

1. S.-T. Su, V. Subramanian, G. Schoenebeck and J. Abernethy, "Descending Price Auction Algorithm for Finding Market Clearing Prices in Matching Markets," submitted to ACM Conference on Economics and Computation , 02/2017.
2. D. Tang, T. Nguyen, V. Subramanian and R. Vohra, "Stable matchings with couples using Scarf's lemma," submitted to ACM Conference on Economics and Computation , 02/2017.

REFEREED POSTERS:

1. V. R. Raja, V. Ramaswamy, S. Shakkottai and V. Subramanian, "Mean Field Equilibria of Pricing Games in Internet Marketplaces," *Poster in ACM SIGMETRICS 2016*. (Also see corresponding journal entry.)
2. J. Li, B. Xia, X. Geng, H. Ming, L. Xie, S. Shakkottai, and V. Subramanian, "Energy coupon: A mean field game perspective on demand response in smart grids," *Poster in ACM SIGMETRICS 2015*, Portland, OR. (Also see corresponding journal entry.)
3. R. Berry , T. Nguyen and V. Subramanian, "The role of search friction in networked markets' stationarity," Interdisciplinary Workshop on Information and Decision in Social Networks, LIDS, MIT, 2012.

SUBMITTED JOURNAL PAPERS

1. J. Nair, V. Subramanian and A. Wierman, "Provisioning of ad-supported cloud services: The role of competition," submitted to *Performance Evaluation*, 02/2017.
2. J. Li, B. Xia, X. Geng, H. Ming, S. Shakkottai, V. Subramanian and L. Xie, "Mean Field Games in Nudge Systems for Societal Networks," submitted to *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (TomPECS)*, 12/2016.

WORKING PAPERS

1. J. Li, S. Shakkottai, J. C. S. Lui and V. Subramanian, "Accurate Learning or Fast Mixing? Dynamic Adaptability of Caching Algorithms," document in preparation.
2. K.-H. Hui, V. Subramanian, D. Guo and R. Berry, "Diffusion of innovation in two-sided markets," document in preparation.
3. C. Chen, R. Berry, M. Honig and V. Subramanian, "Bandwidth optimization in HetNets," document in preparation.
4. C. Cheng, R. Berry, M. Honig and V. Subramanian, "Pricing and Bandwidth Optimization in Heterogeneous Wireless Networks," document in preparation.
5. R. Vohra, V. Subramanian, T. Nguyen, M. Honig and R. Berry, "Provisioning of intermitted spectrum: Licensed versus unlicensed sharing regimes," document in preparation.
6. M. Moharrami, V. Subramanian, M. Liu and M. Lelarge, "Impact of community structure on cascades," document in preparation.
7. D. Tang and V. Subramanian, "Approximately envy-free spectrum allocation with complementarities," document in preparation.

TEACHING

University of Michigan

- **Instructor & course designer**, *EECS 498 Introduction to Social, Economic and Technological Networks*, Fall 2015-2016, Undergraduate/Graduate Technical Elective.
- **Instructor**, *EECS 557 Communication Networks*, Winter 2015-2017, Graduate Course.
- **Instructor & course designer**, *EECS 598 Probabilistic Analysis of Large Scale Systems*, Fall 2014, Graduate Course.

Northwestern University

- **Instructor**, *EECS 302 Probabilistic Systems and Random Signals*, Spring Quarter 2014, Undergraduate Course.
- **Co-Instructor**, *EECS 454 Advanced Communication Networks*, Spring Quarter 2013, Graduate Course.
- **Instructor & course designer**, *EECS 495 Stochastic Models for Web2.0*, Spring Quarter 2011, Graduate Course.

PH.D. STUDENTS

- Mehrdad Moharrami, 2014-present (Ph.D.), University of Michigan, Co-supervised with Prof. M. Liu.
- Shih-Tang Su, 2015-present (M.S. & Ph.D.), University of Michigan.
- Hsu Kao, 2015-present (Ph.D.), University of Michigan.
- Daniel Vial, 2015-present (Ph.D.), University of Michigan.

- Dengwang Tang, 2015-present (SURE program, Undergraduate & Ph.D.), University of Michigan.
- Tho Le, 2012-present (Ph.D.), Northwestern University, “Information Cascades: Impact of Observation Noise and Imperfect Reviews,” Co-supervised with Prof. R. Berry.
- Jian Li, 2011-2016 (Ph.D.), Texas A&M University, “In Pursuit of Desirable Equilibria in Large-Scale Networked Systems,” Co-supervised with Prof. Srinivas Shakkottai. Graduated Oct 2016.
- Cheng Chen, 2011-2016 (Ph.D.), Northwestern University, “Pricing, Competition, and Resource Allocation in Heterogeneous Wireless Networks,” Co-supervised with Prof. M. Honig and Prof. R. Berry. Graduated Aug 2016.
- Xiaomin Chen, 2008-2012 (Ph.D. Eng), National University of Ireland Maynooth, “Coding solutions to improve WiFi throughput,” Co-supervised with Prof. Doug J. Leith. Graduated 2012.

MASTER’S STUDENTS

- Yang Xiao, 2016-present (M.S.), University of Michigan, Independent study.
- Lan Xing, 2012-2013 (M. Eng.), Northwestern University, “Capacity of cellular systems with random base-station placement.”
- Xiaochen Zhang, 2012-2013 (M. Eng.), Northwestern University, “Inference of early adopters.”

UNDERGRADUATE STUDENTS

- Aman Sharma, 2015-2016 (Undergraduate), University of Michigan, Independent study + senior honors thesis, “Analysis of Curing Strategies for Epidemics over Time-varying Connectivity Graphs.”
- Mack Lee, 2012-2014 (High-school), Illinois Math & Science Academy, Student Inquiry and Research, “Capacity of cellular systems with random base-station placement.”
- Motoki Mizuguchi, 2013-2014 (BS-MS), Northwestern University, Capstone Project, “Simulating an Information Cascade Model with Varying Private Signal Strengths.”
- Matt Dzugan, 2010-2011 (BS-MS), Capstone Project, Northwestern University, “Capacity of cellular systems with regular base-station placement.”

SUMMER INTERNS

- Jianwei Huang, 2004 & 2005, Summer Intern, Motorola Inc., Scheduling algorithms for Downlink and Uplink for WiMAX.
- Abhishek Sharma, 2005, Summer Intern, Motorola Inc., Distributed resource management with applications to WiMAX.
- Juan Alvarez, 2000, Summer Intern, Motorola Inc., Scheduling for GPRS/EDGE.

TUTORIALS

1. Tutorial at IEEE VTC Fall 2005, Scheduling in Wireless Networks, Dallas, TX, USA.

PRESENTATIONS

RECENT PRESENTATIONS:

1. ITA Workshop 2015, UCSD, Feb. 2015.
2. Department Seminar, IOE Dept, U. of Michigan, March 2015.
3. Invited Seminar, France Research Centre, Huawei France, May 2015.
4. Invited Seminar, DYOGENE, INRIA, Pairs, France, May 2015.
5. Department Seminar, School of Computing and Statistics, Trinity College Dublin, May 2015.
6. Department Seminar, Hamilton Institute, National University of Ireland, Maynooth, May 2015.
7. Financial Mathematics Seminar, Mathematics Dept, U. of Michigan, May 2015.
8. ISMP 2015, Pittsburgh, PA, July 2015.
9. HajekFest: A Workshop on Networks, Games, and Algorithms, UIUC, Oct. 2015.
10. CSP Seminar, EECS Dept, U. of Michigan, Nov. 2015.
11. Theory Seminar, EECS Dept, U. of Michigan, Dec. 2015.
12. ITA Workshop 2016, UCSD, Feb. 2016.
13. ECE Dept Seminar, IISc, ECE Dept, IISc., Bangalore, India, Feb. 2016.
14. EE Dept Seminar, IITM, EE Dept, IIT Chennai, India, March 2016.
15. ISAT/DARPA Workshop on Technological Disruptions of Societies and Organizations: Communications Networks, Computational Trust, Reputation, Anonymity, and Beyond, Arlington, VA, March 2016.
16. Invited Speaker, RAWNET 2016, held in conjunction with WiOpt 2016, ASU, May 2016.
17. NCRC Group Seminar, RLE, MIT, May 2016.
18. Systems, Control & Robotics (SCR) Seminar, TAMU, Oct. 2016.
19. CESG Seminar, ECE Dept, TAMU, Oct. 2016.
20. EE Department Seminar, IIT Mumbai, India, Nov. 2016.
21. STCS Seminar, TIFR, Mumbai, India, Speaker, Nov. 2016.
22. LogitTalk, Logic Serve Inc., Mumbai, India, Nov. 2016.
23. Colloquium, IPS Seminar Series, ECE Dept, OSU, Jan. 2017.
24. CSP Seminar, EECS Dept, U. of Michigan, Feb. 2017.
25. ITA Workshop 2017, UCSD, Feb. 2017.
26. BIRS Workshop: Optimization and Inference for Physical Flows on Networks, Banff, CA, March 2017.

MISCELLANEOUS/SERVICE

• Conference Organizing Committee:

- Tutorials Chair, ACM SIGMETRICS 2017 Organizing Committee, June 21 2017.
- Co-Chair, 6th Midwest Controls & Game Theory Workshop Organizing Committee, April 22-23 2017.
- Web-manager, HajekFest, UIUC, Oct 2015.
- Publicity Chair, COMSNETS 2014, Bangalore, India, Jan 2014.
- Posters Chair, IEEE Communication Theory Workshop, Hawaii, May 2012.

• NSF Review Panels: CCF (March 2013) & IIS (May 2013).

• ARO Reviewer: Oct-Nov 2016.

- **Editorial Board:** Multimedia Communications Technical Committee IEEE Communications Society E-Letter, 2010.
- **Session Organizer:** Information Theory & Applications Workshop, University of California, San Diego, 2009 & 2010.
- **Technical Program Committee:** BroadWim2004, WCNC 2006, RAWNET2006, Wireless Networks Symposium of GLOBECOM 2008, WICON 2008, MACOM 2009, COMSNETS 2010-14, INFOCOM 2010 WIP Session, NETWORKING 2011, , ACM MobiHoc 2011-12, 2015-2017, WiOpt 2013-17, ICCCN-MRTM 2013, ACM SIGMETRICS/PERFORMANCE 2014-16, NetEcon 2015-2016.
- **Ph.D. Thesis Defense Committee:**
 - Sanae Rosen, EECS Dept, University of Michigan, Dec. 2015 & Dec. 2016.
 - Jian Li, ECE Dept, Texas A&M University, April 2015 & Oct. 2016. Co-chair.
 - Pin-Yu Chen, EECS Dept, University of Michigan, Dec. 2015 & Aug. 2016.
 - Cheng Chen, EECS Dept, Northwestern University, April 2014 & Aug. 2016. Co-chair
 - Parinaz Ardabili, EECS Dept, University of Michigan, May 2015 & May 2016.
 - Deepanshu Vasal, EECS Dept, University of Michigan, Oct. 2015 & May 2016.
 - Yue Liu, EECS Dept, University of Michigan, May 2015 & Dec. 2015.
 - Yang Liu, EECS Dept, University of Michigan, May 2015 & Nov. 2015.
 - Tho Le, EECS Dept, Northwestern University, Oct. 2015. Co-chair.
 - Habiba, CS Dept, University of Illinois Chicago, May 2013.
 - Chayant Tantipathananandh, CS Dept, University of Illinois Chicago, April 2013.
 - Rajmonda Caceres, CS Dept, University of Illinois Chicago, Dec. 2012.
 - Ka-Hung Hui, EECS Dept, Northwestern University, Dec. 2012.
- **Project Technical Reviewer:** Reviewer for an EU FP7 project in 2009 and two projects in 2011 Projects: OPNEX (1.43 million Euros) & CONECT (1.94 million Euros)
- **Reviewing:**

IEEE Journals and Conferences: Trans. on Information Theory, Trans. on Communications, Trans. on Networking, Journal on Special Areas in Communication (JSAC) , Trans. on Vehicular Technology, Trans. on Mobile Computing, Trans. on Wireless Communications, Trans. on Automatic Control, Trans. on Network Science and Engineering, INFOCOM, International Symposium on Information Theory (ISIT), Conference on Decision and Control (CDC), Personal Indoor and Mobile Radio Conference (PIMRC).

International Journals and Conferences: Operations Research, Mathematics of Operations Research, Performance Analysis, Queueing Systems, EURASIP, ACM SIGMETRICS, ACM SIGCOMM, ACM MOBIHOC, ICC, AMS Mathematical Reviews, Nature Communications, PloS ONE, WiOpt.

PATENTS

GRANTED:

1. US Patent, A method for packet scheduling and resource allocation in a wireless communication system, #6987738, Jan. 2006.
2. European Patent, Method for packet scheduling and radio resource allocation in a wireless communication system, #EP1227626, Oct. 2006.
3. Japan/Korea Patent, Method and apparatus for resource allocation and scheduling, #JP3950460, Jan. 2007.
4. US Patent, Method to facilitate determination of a data rate, #7447154, Nov. 2008.
5. US Patent, System and method for increased battery saving during idle mode in a wireless communication system, #7471942, Dec. 2008.

6. US Patent, Method and apparatus for improved channel maintenance signaling, #7492752, Feb. 2009.
7. US Patent, Variable reliability wireless communication transmission method and apparatus, #7539214, May 2009.
8. US Patent, Methods for dividing base station resources, #7558577, Jul. 2009.
9. US Patent, Method and apparatus for resource allocation and scheduling, #7564820, Jul. 2009.
10. US Patent, Method and system for allocating subcarriers to subscriber devices, #7586990, Sept. 2009.
11. US Patent, Method and apparatus for spreading channel code selection, #8009637, Aug. 2011.
12. US Patent, Method and apparatus for decreasing latencies during handover, #8175600, May 2012.

STANDARDS CONTRIBUTIONS

1. 802.16g - Contribution on Network Reference Model - October 2004.
2. 802.16e - Contributions on handover triggers, clarification on association procedures, May- June 2005.

PAST HONORS

- Recipient of the National Talent Scholarship - Govt. of India, 1987.
- Motorola Industrial Fellowship - for year 1998-99.