

## Chen-Nee Chuah

Electrical and Computer Engineering  
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### RESEARCH INTERESTS

Communications/computer networks and wireless/mobile computing, with emphasis on Internet measurement, data analytics, anomaly detection, online learning, and software-defined networking.

Collaborative, interdisciplinary research exploring the interface of networking with emerging societal-scale application (e.g., intelligent transportation systems and online social networks) and security & privacy issues.

### EDUCATION

- 2001 Ph.D. in Electrical Engineering & Computer Sciences, University of California, Berkeley, CA  
Thesis: A Scalable Framework for IP-Network Resource Provisioning  
Advisor: Prof. Randy H. Katz
- 1997 M.S. in Electrical Engineering & Computer Sciences, University of California, Berkeley, CA  
Thesis: Capacity of Multi-Antenna Array Systems  
Advisors: Prof. Joseph M. Kahn and Prof. David N. Tse
- 1995 B.S. in Electrical Engineering, Rutgers University, Piscataway, NJ

### PROFESSIONAL EXPERIENCE

- 2010-present Professor, Electrical & Computer Engineering (ECE) Department  
University of California (UC), Davis, CA
- 2008-2010 Vice Chair & Associate Professor, ECE Department., UC Davis, CA  
Designated chair for ECE Graduate Program
- 2006-2008 Associate Professor, ECE Department, UC Davis, CA
- 2002-2006 Assistant Professor, ECE Department, UC Davis, CA
- 2002-present Member of Graduate Group of Computer Science, UC Davis, CA
- 2001- 2002 Visiting Researcher (Leave of absence from UC Davis)  
Sprint Advanced Technology Laboratories – IP Group, Burlingame, CA
- 1995-2001 Graduate Student Research and Teaching Assistant,  
Electrical Engineering & Computer Sciences  
University of California, Berkeley, CA
- June – August 1998 Research Intern  
Lucent Technologies – UMTS Technology & Trials Group, UK
- June – August 1997 Research Intern  
Lucent Technologies Bell Laboratories – Wireless Communications, Crawford Hill, NJ
- June – August 1994 Technical Associate  
AT&T – Wireless Network Core Technologies, Whippany, NJ

## AWARDS/HONORS

- 2015 IEEE Fellow
- 2012 ACM Distinguished Scientist
- 2008 UC Davis Chancellor's Fellow
- 2005 Narus Research Fellow  
ACM Recognition of Service Award, in appreciation for co-organizing the First ACM Workshop on Vehicular Ad Hoc Networks (VANET) at ACM MobiCom 2004
- 2004 College of Engineering - Outstanding Junior Faculty Award, UC Davis
- 2003 National Science Foundation (NSF) CAREER Award
- 1998 Recognition Award, Lucent Technologies-UK
- 1998 IEEE Globecom'98 Student Travel Grant
- 1997 Schlumberger Foundation Graduate Fellowship
- 1995 Tau Beta Pi Graduate Fellowship Award  
Helen Bangle and Earl Anthony Fellowship Award, UC Berkeley  
Outstanding Engineering Scholar, College of Engineering, Rutgers University  
John Smith Memorial Prize and James Leroy Potter Award, ECE Department, Rutgers University
- 1994 SWE/Hewlett Packard Annual Scholarship Award
- 1993 Outstanding Junior Initiate Award, Golden Key National Honor Society
- 1993-95 Engineering Merit Scholarship, Rutgers College of Engineering
- 1991 Individual and Team Gold Medal, Penang State Mathematics Olympiad, Malaysia

## RESEARCH GRANTS

### *Federal*

- NIH Clinical and Translational Science Center (CTSC) Highly Innovative Award, "Leveraging Big Data Analytics for Precision Medicine in Critical Care – Development of Statistical & Machine Learning Methods for Managing Acute Respiratory failure Requiring Mechanical Ventilation," \$50,000, 2016-17, **Lead-PI**, with J. Adams (Dept. of Internal Medicine), J. P. Delplanque (MAE), N. Anderson (Dept. of Public Health Sciences)
- National Science Foundation CNS-1302691, "NeTS: Medium: Collaborative Research: Towards Building Time Capsule for Online Social Activities," \$609,000 (\$913K total), 2013-18, **Lead-PI**, with R. D'Souza (CS) and external PI, J. Xu (Georgia Inst. of Technology)
- National Science Foundation CNS-1321115, "NeTS: Small: Beating the Odds in Traffic Measurements/Detection with Optimal Online Learning and Adaptive Policies," \$300,000, 2013-16, **Lead-PI**, with Q. Zhao (ECE)
- GENI "Shakedown Experiments and Prototype Services on Scalable, Agile, Robust, and Secure Multi-Domain Software Defined Networks," \$280,000, 2013-15, **co-PI**, with S. J. Ben Yoo (ECE) and M. Bishop (CS)
- National Science Foundation CMMI-1301496, "User-Centric Sensing and Distributed Control of Corridor Transportation Networks," \$424,998, 2013-18, **co-PI**, with M. Zhang (Civil & Environmental Engineering) and D. Ghosal (Computer Science)
- National Science Foundation NeTS-Medium-0905273, "Collaborative Research: Towards Versatile and Programmable Measurement Architecture for Future Networks," \$200,000 (\$800K total), 2009-12, **Lead-**

**PI**, with external collaborators: J. Xu (Georgia Institute of Technology), Z. Zhang (Univ. of Minnesota), and B. Lin (UC San Diego).

- National Science Foundation CT-ISG-0716831, “Collaborative Research: Accurate Sampling of the Internet for Effective Anomaly Detection,” \$175,000 (\$350,000 total), 2007-10, **Lead-PI**, with external collaborator: J. Xu (Georgia Institute of Technology)
- National Science Foundation CMMI-0700383, “Distributed Vehicular Traffic Management via DSRC-Enabled Vehicles,” \$341,074, 2007-10, **co-PI**, with M. Zhang (Civil & Environmental Engineering) and D. Ghosal (Computer Science)
- National Science Foundation CAREER Award 0238348, “RoSE: Robust, Stable, and Secure Routing,” \$427,333, 2003-08, **PI**
- National Science Foundation NeTS-NBD Grant #0520320, “Automatic Validation, Optimization, and Adaptation of Distributed Firewalls for Network Performance and Security,” \$400,000, 2005-08, **PI**, with: H. Chen and Z. Su (Computer Science)
- National Science Foundation NeTS-NBD Collaborative Research Grant#0520333, “Intelligent and Adaptive Networking for the Next Generation Internet,” \$200,000, 2005-06, **co-PI**, with S. J. Yoo, B. Olshausen, S. Wu, K. Levitt. External collaborator: R. H. Katz (UC Berkeley)
- National Science Foundation Networking Research Testbed (NRT) Grant#0335301, “Unified Networking Research Testbed for the Next Generation Optical Network,” \$300,000, 2003-05, **co-PI**, with S. J. Yoo, V. Akella, and J. Heritage

### *State*

- Univ. of California Micro Program, “SAND: Accurate Sampling of the Internet for Effective Anomaly Detection,” \$45,500, 2007-08, **PI** (with matching funds from Sprint and Narus)
- Univ. of California Micro Program, “Resource Management in Wireless Mesh Networks (Year 1-3),” \$214,800, 2005-08, **co-PI**, with P. Mohapatra and X. Liu (with matching funds from Intel, Hewlett Packard, Nokia)
- Univ. of California Micro Program, “Mobile Infrastructure Enablers for Streaming Optimization & New Services (Year 1-3),” \$63,533.75, 2004-07, **PI** (with matching funds from Hewlett Packard and Fujitsu)
- Univ. of California Micro Program, “Improving Network Robustness and Survivability,” \$13,202, 2003-04, **PI** (with matching funds from Fujitsu)

### *Industry*

- CITRIS Seed Funding, “Predicting Cancer Patients Who Develop Venous Thromboembolism Episodes using Routine Patient Care Data and Machine Learning Techniques,” \$50,000, 2018-19, **Co-PI** (with Lead PI: Dr. Theodore Wun, and Co-PI: Dr. Prabhu Shankar)
- UCD Health Collaborative for Diagnostic Innovation, “Validation of A Machine Learning-based Automated ARDS Diagnostic Test,” \$28,715.52, 2018-19, **Co-PI** (with lead-PI Prof. Jason Adams, and co-PI Prof. Nathan Kuppermann)
- Intel Science and Technology Center on Secure Computing (ISTC-SC), “Multi-Dimensional Data Analytics for Uncovering Malicious Activities in Mobile/Wireless Traffic”, \$150,000, 2013-14, **PI**
- Hewlett Packard Labs Innovation Research Program, “Programmable Measurement Framework for Uncovering Global Events in Dynamic Network Environment,” \$225,000, 2011-14, **PI**
- Google Research Award, “Measurement-Driven Activity Graph Modeling and Sybil Identity Detection for OSN-based Applications,” \$42,203, 2012, **PI**
- Gift from AT&T-Labs Research, “Measurement-based Characterization of Online Social Networks and Applications,” \$25,000, 2010-11, **PI**

- Gift from Hewlett-Packard, “Network Coding Based Cooperative Peer-to-Peer Repair”, \$25,000, 2008-09, **PI**
- CITRIS Seed Funding, “Programmable Real-time Traffic Analysis on Many-Core Architectures,” \$50,000, 2007-08, **co-PI: C-N. Chuah** (with lead PI: Prof. S. Ghiasi)
- Gift from Intel, “Wireless Management Overlay (WiMO)”, \$210,000, 2005-08, **PI**, with P. Mohapatra.
- Gift from Sprint Advanced Technology Laboratories, “Network Sampling and Anomaly Detection,” \$75,000, 2005-08, **PI**
- Gift from Narus, Inc., “BGP Anomaly Detection,” \$55,000, 2005-08, **PI**
- Gift from Hewlett-Packard, “Mobile Infrastructure Enablers for Streaming Optimization & New Services (Year 1-3),” \$75,000, 2004-07, **PI**
- Gift from Fujitsu, “Improving Network Robustness and Survivability,” \$35,000, 2003-06, **PI**
- Gift from Hewlett-Packard, “Performance study of Overlay Networks and PlanetLab,” \$15,000, 2004-05, **PI**
- CENIC, “High-Performance Networking and Collaborative Real-Time Visualization for the Next Generation CalREN,” \$38,000, June-Dec 2004, **co-PI** (with lead PI: Prof. S. J. Yoo, and co-PIs: Prof. B. Hamann, and Prof. O. Staadt)
- Gift from Sprint Advanced Technology Laboratories and Fujitsu, “Characterizing and Improving IP Network Availability,” \$60,000, 2003-04, **PI**
- Gift from Microsoft, “Smart Classroom II,” \$35,000, 2003-04, **co-PI**, with S. J. Yoo, B. Hamann, and O. Staadt
- Cisco Systems URP Program, “Inter-Domain Policy Distribution & Traffic Engineering,” \$72,000 (Cash) + \$168,000 (equipment), 2002-03, **PI**

### *University of California*

- Univ. of California, Davis - Faculty Research Grant, “Network Infrastructure Support for Collaborative Virtual Reality Systems,” \$14,000, 2003-04, **PI**

### **TRAINING/EQUIPMENT GRANTS**

- National Science Foundation, Research Experience for Teachers (RET) Site Project “Computing Research Experience for STEM Teachers (CREST),” \$500,000, 2011-14, **Senior Personnel**
- National Science Foundation, “Student Travel Support for the 2010 Internet Measurement Conference,” \$10,000, 2010-11, **PI**.
- Department of Education GAANN Program, “Resilient Information Systems targeting Societal-Scale Applications,” \$760,032, 2006-10, **PI**
- National Science Foundation, “Student Travel Support for the 2009 Internet Measurement Conference,” \$10,000, 2009-10, **PI**
- Intel 2006 California Public Affairs Higher Education Equipment Grant, \$87,830, 2006-07, **PI** (co-PIs: S. Ghiasi, P. Mohapatra, J. Owens, and K. Wilken)
- Department of Education GAANN Program, “Networked Systems of Embedded Computers,” \$694,176, 2003-08, **co-PI** (PI: A. Knoesen)
- UC Davis Teaching Resource Center, Undergraduate Instructional Improvement Program, “Location-Aware Applications and Mobile Computing,” \$5,119, Spring 2005, **PI**

- Developed a senior-level undergraduate project-elective course, “EEEC173B/ECS152C: Design Projects in Communication Networks”, which is cross-listed between both the Department of Electrical & Computer Engineering and the Department of Computer Science at UC Davis.
- Microsoft, “Smart Classroom,” \$35,000, Co-PI (PI: S. J. Yoo).

## PUBLICATIONS: JOURNAL, BOOK CHAPTERS, & MAGAZINE ARTICLES

- [J1] X. Wang, M. Malboubi, J. Ren, S. Wang, S. Xu, and C-N. Chuah, “ProgLIMI: Programmable Link Metric Identification in Software Defined Networks,” *IEEE/ACM Trans. on Networking*, vol. 26, no. 5, pp.1558-2566, October 2018.
- [J2] G. Relm, J. Han, B. T. Kuhn, J-P. Delplanque, N. R. Anderson, C-N. Chuah, and J. Y. Adams, “Creation of a Robust and Generalizable Machine Learning Classifier for Patient Ventilator Asynchrony,” *Methods of Information in Medicine*, vol. 57, no, 4, pp. 208-219, September 2018.
- [J3] M. Malboubi, S. M. Peng, P. Sharma, and C. N. Chuah, “A Learning-based Measurement Framework for Traffic Matrix Inference in Software Defined Networks,” *Elsevier Computers & Electrical Engineering Journal Special Issue on Network Measurement for Software Defined Networking and Information-Centric Networking*, pp. 369-387, February 2018.
- [J4] J. Wu, D. Ghosal, H. M. Zhang, C-N. Chuah, “Delay-based Traffic Signal Control for Throughput Optimality and Fairness at Isolated Intersection,” *IEEE Transactions on Vehicular Technology*, vol. 67, no. 2, pp. 896-909, February 2018.
- [J5] C. Wang, Q. Zhao, and C-N. Chuah, “Optimal Nested Test Plan for Combinatorial Quantitative Group Testing,” *IEEE Transactions on Signal Processing*, vol. 66, no.4, pp. 992-1006, Feb 2018.
- [J6] M. Malboubi, Y. Gong, Z. Yang, W. Xiong, C-N. Chuah, and P. Sharma, “Software defined Network Inference with Evolutionary Optimal Observation Matrices,” *Elsevier Computer Networks*, vol. 129, no. P1, pp. 93-104, December 2017.
- [J7] H. Chai, M. Zhang, D. Ghosal, C-N. Chuah, “Dynamic Traffic Routing in a Network with Adaptive Signal Control,” *Elsevier Transportation Research Part C*, vol. 85, pp. 64-85, December 2017.
- [J8] A. Das, P. Pathak, C-N. Chuah, P. Mohapatra, “Privacy-Aware Contextual Localization through Network Traffic Analysis,” *Elsevier Computer Networks*, vol. 118, pp. 24-36, May 2017.
- [J9] M. R. Rahman, J. Han, and C-N. Chuah, “Analyzing the Adoption and Cascading Process of OSN-based Gifting Applications: An Empirical Study,” *ACM Transactions on Web*, vol. 11, no. 2, Article #10, April 2017.
- [J10] M. Malboubi, J. Garrison, C-N. Chuah, and P. Sharma, “Parallelizing Under-Determined Inverse Problems for Network Applications,” *IEEE Transactions on Emerging Topics in Computational Intelligence*, vol. 1, no. 2, pp. 135-141, April 2017.
- [J11] A.K. Das, P. H. Pathak, C-N. Chuah, and P. Mohapatra, “Characterization of Wireless Multi-Device Users,” *ACM Transactions on Internet Technology (TOIT)*, vol. 16, no. 4, Article #29, December 2016.
- [J12] A. Raghuramu, H. Zang, P. Pathak, J. Han, C. Liu, and C-N. Chuah, “Uncovering Footprints of Malicious Traffic in Wireless/Mobile Networks,” *Elsevier Computer Communications Journal*, vol. 95, pp. 95-107, December 2016.
- [J13] M. Malboubi, C. Vu, C-N. Chuah, and P. Sharma, “Decentralizing Network Inference Problems with Multiple-Description Fusion Estimation (MDFE),” *IEEE/ACM Transactions on Networking*, vol. 24, no. 4, pp 2539-2552, August 2016.
- [J14] M. Amoozadeh, A. Raghuramu, C-N. Chuah, D. Ghosal, H. Michael Zhang, J. Rowe, and K. Levitt, “Security Vulnerabilities of Connected Vehicles Streams and their Impact on Cooperative Driving,” *IEEE Communications Magazine – Automotive Networking Series*, vol. 53, no. 6, pp. 126-132, June 2015.
- [J15] M. Amoozadeh, H. Deng, C-N. Chuah, H. Michael Zhang, D. Ghosal, “Platoon Management with Cooperative Adaptive Cruise Control Enabled by VANET,” *Elsevier Vehicular Communications*, vol. 2, no. 2, pp. 110-123, April 2015.

- [J16] C. Chang, G. Huang, B. Lin, and C-N. Chuah, "Leisure: A Framework for Load-Balanced Network-Wide Traffic Measurements," *IEEE Transactions on Parallel and Distributed Systems*, vol. 26, no. 4, pp. 1059-1070, April 2015.
- [J17] M. S. Ilyas, S. Raza, C. Chen, Z. A. Uzmi, and C-N. Chuah. RED-BL: Evaluating Dynamic Right Sizing for Data Center Networks, *Elsevier Computer Networks*, vol. 72, pp. 140-155, October 2014.
- [J18] C. Chen, L. Yuan, A. Greenberg, C-N. Chuah, and P. Mohapatra, "Routing-As-A-Service (Raas): A Framework For Tenant-Directed Route Control in Data Center," *ACM/IEEE Transactions on Networking*, vol. 22, no. 5, pp. 1401-1414, October 2014.
- [J19] C. Chen, P. Sun, L. Yuan, D. Maltz, C-N. Chuah, and P. Mohapatra, "SWIM: SWItch Manager for Data Center Networks," *IEEE Internet Computing Special Issue on Web-Scale Data Centers*, vol. 18, no. 4, pp.30-36, July/Aug 2014.
- [J20] C. Colman Meixner, F. Dikbiyik, M. Farham Habib, M. Tornatore, C-N. Chuah, and B. Mukherjee, "Disaster-Survivable Cloud-Network Mapping," to appear in *Springer Journal on Photonic Network Communication* (DOI 10.1007/s11107-014-0434-6).
- [J21] F. Khan, N. Hosein, S. Ghiasi, C-N. Chuah, and P. Sharma, "Streaming Solutions for Fine-Grained Network Traffic Measurements and Analysis," *IEEE/ACM Transactions on Networking*, vol. 22, no. 2, pp. 377-390, April 2014.
- [J22] F. Khan, C-N. Chuah, and S. Ghiasi, "A Dynamically Reconfigurable System for Close-Loop Measurements of Network Traffic," *IEEE Transactions on Computers*, vol. 63, no.2, February 2014.
- [J23] M. R. Rahman, P-A. Noel, C-N. Chuah, B. Krishnamurthy, R. M. D'Souza, and S. Felix Wu, "Peeking into the Invitation-based Adoption Process of OSN-based Applications," *ACM Computer Communication Review*, vol. 44, no. 1, pp. 21-27, January 2014.
- [J24] C. Chen, L. Yuan, K. Kant, P. Mohapatra, and C-N. Chuah, "A Proxy View of Quality of Domain Name Service, Poisoning Attacks, and Survival Strategies" *ACM Transactions on Internet Technology (TOIT)*, vol. 12, no. 3, article 9, May 2013.
- [J25] K. Pandit, D. Ghosal, H. M. Zhang, C-N. Chuah, "Adaptive Traffic Signal Control with Vehicular Ad Hoc Networks (Vanet)," *IEEE Transactions on Vehicular Technology Special Section: Graph Theory and Its Application in Vehicular Networking*, vol. 62, no. 4, pp. 1459-1471, May 2013.
- [J26] B. Liu, B. Khorashadi, D. Ghosal, C-N. Chuah, and M. Zhang, "Analysis of The Information Storage Capability of VANET for Highway and City Traffic," *Transportation Research, Part C: Special Issue on Data Management in Vehicular Networks*, vol. 23, pp. 68-84, August 2012.
- [J27] G. Huang, C. Chang, C-N. Chuah, and B. Lin, "Measurement-Aware Monitor Placement and Routing: A Joint Optimization Approach for Network-Wide Measurements in Dynamic Environments," *IEEE Transactions on Network and Service Management*, vol. 9, no.1, pp. 48-59, March 2012.
- [J28] S. Raza, G. Huang, C-N. Chuah, S. Seetharaman, and J. Pal Singh, "MeasuRouting: A Framework For Routing Assisted Traffic Monitoring," *ACM/IEEE Transactions on Networking*, vol. 20, no. 1, pp. 45-56, February 2012.
- [J29] B. Liu, D. Ghosal, C-N. Chuah, and M. Zhang, "Reducing Greenhouse Effects via Fuel Consumption-Aware Variable Speed Limit (FC-VSL)," *IEEE Transactions on Vehicular Technology*, vol. 61, no. 1, pp. 111-122, January 2012.
- [J30] M. Nicholes, C-N. Chuah, S. Wu, and B. Mukherjee, "Analysis of Inter-Domain Collaborative Routing (IDCR): Provider Competition for Clients," *IEEE/KICS Journal of Communications and Networks*, vol. 13, no. 5, pp. 499-510, October 2011.
- [J31] M. Nicholes, C-N. Chuah, S. Wu, and B. Mukherjee, "Inter-Domain Collaborative Routing (IDCR): Server Selection for Optimal Client Performance," *Elsevier Computer Communication*, vol. 34, no. 15, pp. 1798-1809, September 2011.

- [J32] S. Raza, Y. Zhu, and C-N. Chuah, "Graceful Network State Migrations," *ACM/IEEE Transactions on Networking*, vol. 19, no.4, August 2011.
- [J33] D. Gupta, P. Mohapatra, and C-N. Chuah, "Seeker: A Bandwidth Based Association Control Framework for Wireless Mesh Networks," *Wireless Networks Journal*, vol. 17, no. 5, July 2011.
- [J34] G. Huang, S. Raza, S. Seetharaman, and C-N. Chuah, "Dynamic measurement-aware routing in practice," *IEEE Networks Special Issue on Network Traffic Monitoring and Analysis*, vol. 25, no. 3, pp. 29-34, May/June 2011.
- [J35] G. Huang, A. Lall, C-N. Chuah, and J. Xu, "Uncovering Global Icebergs in Distributed Streams: Results and Implications," *Journal of the Network and Systems Management*, vol. 19, no. 1, pp. 84-110, March 2011.
- [J36] L. Yuan, C-N. Chuah, and P. Mohapatra, "ProgMe: Towards Programmable Network Measurement," *ACM/IEEE Transactions on Networking*, vol. 19, no. 1, pp. 115-128, February 2011.
- [J37] B. Khorashadi, D. Ghosal, C-N. Chuah, and M. Zhang, "Distributed Automated Incident detection with VGrid," *IEEE Wireless Communication Magazine*, vol. 18, no.1, pp. 64-73, February 2011.
- [J38] (Leo) X. Liu, G. Cheung, and C-N. Chuah, "Rate Distortion Optimized Joint Source/Channel Coding of WWAN Multicast Video for a Cooperative Peer-to-Peer Collective," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 21, no. 1, pp. 39-52, January 2011.
- [J39] H. Yang, Z. Pan, V. Akella, C-N. Chuah, S. J. Yoo, "Optical Router Control Architecture and Contention Resolution Algorithms Capable of Asynchronous, Variable Length Packet Switching," *Optical Communications and Networking Series*, vol. 2, no. 9, pp. 745-759, September 2010.
- [J40] J. Mai, A. Sridharan, H. Zang, and C-N. Chuah, "Fast Filtered Sampling: Catching Mice and Elephants with One Net," *Elsevier Computer Networks*, vol. 54, no. 11, pp. 1885-1898, August 2010.
- [J41] R. Keralapura, A. Nucci, and C-N. Chuah, "A Novel Self-Learning Architecture for P2P Traffic Classification in High Speed Networks," *Elsevier Computer Networks*, vol. 54, no. 7, pp. 1055-68, May 2010.
- [J42] D. Gupta, P. Mohapatra, and C-N. Chuah, "A Study of Overheads and Accuracy for Efficient Monitoring of Wireless Mesh Networks," *Journal of Pervasive and Mobile Computing (PMC)*, vol. 6, no.1, pp. 93-111, February 2010.
- [J43] C-N. Chuah and R. Keralapura, "Overlay Networks: Applications, Co-existence with IP-Layer, and Transient Dynamics," Chapter 8 in *Algorithms for Next Generation Networks*, Springer (ISBN: 978-1-84882-764-6), pp. 159-179, 2010.
- [J44] (Leo) X. Liu, G. Cheung, and C-N. Chuah, "Structured Network Coding and Cooperative Wireless Ad-hoc Peer-to-Peer Repair for WWAN Video Broadcast," *IEEE Transactions on Multimedia*, vol. 11, no. 4, pp. 730-741, June 2009.
- [J45] B. Liu, B. Khorashadi, H. Du, D. Ghosal, C-N. Chuah and M. Zhang, "VGSim: An Integrated Networking and Microscopic Vehicular Mobility Simulation Platform," *IEEE Communication Magazine Automotive Networking Series*, vol. 47, no. 5, pp. 134-141, May 2009.
- [J46] G. Misgherghi, L. Yuan, Z. Su, C-N. Chuah, and H. Chen, "A General Framework for Benchmarking Firewall Optimization Techniques," *IEEE Transactions on Network and Service Management*, vol. 5, no. 4, pp. 227-238, December 2008.
- [J47] A. Markopoulou, Y. Ganjali, G. Iannaccone, C-N. Chuah, S. Bhattacharyya, and C. Diot, "Failures in an Operational IP Backbone Network," *ACM/IEEE Transactions on Networking*, vol.16, no. 4, pp. 749-762, August 2008.
- [J48] R. Keralapura, C-N. Chuah, N. Taft, and G. Iannaccone, "Race Conditions in Coexisting Overlay Networks," *IEEE/ACM Transactions on Networking (TON)*, vol. 16, no. 1, pp. 1-14, February 2008.

- [J49] S. Nelakuditi, Z. Zhong, J. Wang, R. Keralapura, C-N. Chuah, "Mitigating Transient Loops Through Interface-Specific Forwarding," *Elsevier Computer Networks*, vol. 52, issue 3, pp. 593-609, February 2008.
- [J50] D. Li, C-N. Chuah, G. Cheung, and S. J. B. Yoo, "Peer-to-Peer Assisted Video Streaming Over IEEE 802.11 Wireless Local Area Networks," *Broadband Mobile Multimedia: Techniques and Applications*, Auerbach Publications, CRC Press, 20pp, March 2008.
- [J51] Y. Chen, C-N. Chuah, and Q. Zhao, "Network Configuration for Optimal Utilization Efficiency of Wireless Sensor Networks," *Elsevier Ad Hoc Networks Journal*, vol. 6, issue 1, pp. 92-107, January 2008.
- [J52] S. Raza and C-N. Chuah, "Interface Split Routing for Finer-Grained Traffic Engineering," *Performance Evaluation Journal*, vol. 64, issue 9-12, pp. 994-1008, October 2007.
- [J53] Z. Li, L. Yuan, P. Mohapatra, and C-N. Chuah, "On the Analysis of Overlay Failure Detection and Recovery," *Computer Networks Journal*, vol. 51, issue. 13, pp. 3838-3843, September 2007.
- [J54] S. Lee, Y. Yu, S. Nelakuditi, Z-L. Zhang, and C-N. Chuah, "Proactive vs. Reactive Approaches to Failure Resilient Routing," *IEEE/ACM Trans. On Networking*, vol. 15, no. 2, pp. 359-372, April 2007.
- [J55] J. Mai A. Sridharan, C-N. Chuah, T. Ye, and H. Zang, "Impact of Packet Sampling on Portscan Anomaly Detection," *IEEE Journal on Selected Areas of Communications – Special Issue on Sampling the Internet*, vol. 24, no. 12, pp. 2285-2298, December 2006.
- [J56] Y. Andreopoulos, R. Keralapura, M. van der Schaar, C-N. Chuah, "Failure-Aware, Open-Loop, Adaptive Video Streaming with Packet-Level Optimized Redundancy," *IEEE Transactions on Multimedia*, vol. 8, no. 6, pp. 1274-1290, December 2006.
- [J57] G. Cheung, D. Li, and C-N. Chuah, "On the Complexity of Cooperative Peer-to-Peer Repair for Wireless Broadcasting," *IEEE Communication Letters*, vol. 10, no. 11, pp. 742-744, November 2006.
- [J58] R. Keralapura, A. Moerschell, C-N. Chuah, G. Iannaccone, and S. Bhattacharria, "A Case for Using Service Availability to Characterize IP Backbone Topologies," *Journal of Communications and Networks*, vol. 8, no.2, pp. 241-252, June 2006.
- [J59] D. Li, C-N. Chuah, G. Cheung, and S. B. Yoo, "MUVIS: Multi-Source Video Streaming Service over WLANs," *Journal of Communication Networks - Special Issue on Towards the Next Generation Mobile Communications*, vol. 7, no. 2, pp. 144-156, June 2005.
- [J60] Z. Zhong, R. Keralapura, S. Nelakuditi, Y. Yu, J. Wang, C-N. Chuah, and S. Lee, "Avoiding Transient Loops through Interface-Specific Forwarding," *Springer-Verlag Lecture Notes in Computer Science (LNCS) series*, vol. 3552, pp. 219-232, June 2005.
- [J61] Z. Li, P. Mohapatra, and C-N. Chuah, "Virtual Multi-Homing: On the Feasibility of Combining Overlay Routing with BGP Routing," *Springer-Verlag Lecture Notes in Computer Science (LNCS) series*, vol. 3462, pp. 1348-1352, May 2005.
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- [C113] C-N. Chuah, L. Subramanian, R. H. Katz and A. D. Joseph, "QoS Provisioning Using A Clearing House Architecture," *Proc. IEEE/IFIP Intl. Workshop on Quality of Service (IWQoS)*, pp. 115-124, June 2000. (Acceptance rate 25%)
- [C114] C-N. Chuah, J. M. Kahn and D. N. Tse, "Capacity of Multi-Antenna Array Systems in Indoor Wireless Environment," *Proc. IEEE Globecom*, vol. 4, pp.1894-9, November 1998.
- [C115] C-N. Chuah and R. Yates, "Evaluation of Minimum Power Handoff Algorithm", *Proc. 6th International Symposium in Personal Indoor-outdoor Mobile Radio Communications (PIMRC)*, pp. 814-818, September 1995.
- [C116] C-N. Chuah, R. Yates, and D. J. Goodman, "Integrated Dynamic Radio Resource Management," *Proc. IEEE International Vehicular Technology Conference (VTC)*, vol. 2, pp. 584-588, July 1995.

### ***Invited Papers***

- [C117] L. Gong, L. Huang, P. Tune, J. Han, C-N. Chuah, M. Roughan, and J. Xu, "ForestStream: Accurate Measurement of Cascades in Online Social Networks," *IEEE ICCCN*, July/Aug 2017.
- [C118] M. Malboubi, Y. Gong, W. Xiong, C-N. Chuah, and P. Sharma, "Software defined Network Inference with Passive/active Evolutionary-optimal pRobing (SNIPER)," *IEEE ICCCN*, August 2015. (invited)
- [C119] C. Buckley, P. H. Pathak, A. Das, C-N. Chuah, and P. Mohapatra, "AnonAD: Privacy-aware Micro-targeted Mobile Advertisement without Proxies," To appear in ICCCN, August 2015 (Invited)
- [C120] B. Khorashadi, A. Chen, C-N. Chuah, D. Ghosal, and M. Zhang, "Impact of Transmission Power on TCP Performance in Vehicular Ad Hoc Networks," *the 4<sup>th</sup> Annual Conference on Wireless On Demand Network Systems and Services*, pp. 65-71, January 2007. (Invited)
- [C121] D. Li, Q. Zhang, C-N. Chuah, and S. J. Ben Yoo, "Error-Resilient Concurrent Video Streaming over Wireless Mesh Networks," *Packet Video Workshop*, April 2006 (Invited).
- [C122] B. Reynolds, D. Ghosal, C-N. Chuah, and S. F. Wu, "Vulnerability Analysis and A Security Architecture for IP Telephony," *Proc. IEEE GlobeCom Workshop on VoIP Security – Challenges and Solutions*, November 2004 (Invited).
- [C123] L. Yuan, C. Gui, C-N. Chuah, and P. Mohapatra, "Applications and Design of Heterogeneous and/or Broadband Sensor Networks," *Proc. IEEE Workshop on Broadband Advanced Sensor Networks (BASENETS)*, October 2004 (Invited).
- [C124] C-N. Chuah, S. Bhattacharya, G. Iannacone, and C. Diot, "Analysis of Link Failures and Their Impact on Traffic," *Proc. IEEE Computer Communication Workshop (CCW) – Internet Traffic and Topology Session*, October 2002 (Invited).

- [C125] D. Tse, C-N. Chuah and J. M. Kahn, "Capacity Scaling in Dual Antenna Array Wireless Systems," *Proc. 34th Asilomar Conf. on Signals, Systems and Computers*, October 2000 (Invited).
- [C126] D. Tse, C-N. Chuah and J. M. Kahn, "Capacity Scaling in Dual Antenna Array Wireless Systems," *Proc. IEEE Wireless Communications & Networking Conf. (WCNC)*, September 2000 (Invited).

### **Poster/Demo Papers**

- [C127] M. R. Rahman and C. N. Chuah, "Can Sampling Preserve Application Adoption Process over OSN Graphs?" *International School and Conference on Network Science (NetSci)*, June 2014.
- [C128] B. Liu, D. Ghosal, Y. Dong, C-N. Chuah, and M. Zhang, "CarbonRecorder: A Mobile-Social Vehicular Carbon Emission Tracking Application Suite," *IEEE Wireless Vehicular Communications Demo Track*. September 2011.
- [C129] J. LeBrun and C-N. Chuah, "Feasibility Study of Bluetooth-based Content Distribution Kiosks on Public Transit Systems," *ACM Workshop on Decentralized Resource Sharing in Mobile Computing and Networking (MobiShare)*, in conjunction with *ACM Mobicom*, September 2006. (Short paper)
- [C130] D. Gupta, J. LeBrun, P. Mohapatra, and C-N. Chuah, "A WDS-Based Layer-2 Routing Scheme for Wireless Mesh Networks," *ACM Workshop on Wireless Testbeds, Experimental Evaluation, and Characterization (WiNTECH)*, in conjunction with *ACM MobiCom*, September 2006. (Poster paper)
- [C131] C-N. Chuah, L. Subramanian, R. H. Katz, and A. D. Joseph, "Resource Provisioning Using a Clearing House Architecture," *Poster Session, ACM SIGCOMM*, September 2000.

### **PATENTS**

- [1] A. Nucci, S. Teoh, and C-N. Chuah, "Method for Real-Time Visualization of BGP Analysis and Troubleshooting," US Patent 7945658, issued on May 17, 2011.
- [2] S. Raza, C-N. Chuah, G. Huang, S. Seetharaman, and J. Singh, "A Method for Routing-Assisted Traffic Monitoring," US Patent 20110267954, issued on November 2011.
- [3] H. Zang, S. Gatzmir-Motahari, C-N. Chuah, and H. Liu, "Data Fraud Detection via Device Type Identification," US Patent 9107076, issued on August 11, 2015.
- [4] M. Malboubi, C-N. Chuah, and P. Sharma, "Solving Under-Determined Problems for Networks," provisional patent filed April 3, 2012 (#13438493).
- [5] H. Zang, S. Gatzmir-Motahari, H. Liu, and C-N. Chuah, "Periodic Traffic Detection" patent filed March 2013.
- [6] E. Ioannidis, H. Liu, S. Bhagat, C-N. Chuah, "Network Inference using Graph Priors," patent filed Aug 14 2014 (#14/459886).

### **TUTORIAL/ SELECTED TALKS (NOT A COMPLETE LIST)**

- [1] "Smart Transportation with Connected Vehicles," Keynote speech, the 2nd IEEE INFOCOM Workshop on Smart Cities and Urban Computing, April 11, 2016
- [2] "Network Inference with Online Learning in Software Defined Networking," AT&T SDN Forum, July 2015.
- [3] "Software Defined Networking (SDN) based Measurements and Inference under Hard Resource Constraints," Lawrence Livermore Berkeley Lab, July 2015.
- [4] "Measuring and Modeling User Interactions in Online Social Network-based Applications," UC Berkeley CITRIS Research Exchange Seminar, February 2013.
- [5] "Evolution of User Activity Graphs (UAGs) in OSN-based Applications," invited talk at GOOGLE, CA, October, 2012.



- [6] “Programmable Network-wide Measurements and Synergistic Networking,” Invited talk at Lawrence Livermore National lab, August 2010.
- [7] “Peeking into Facebook Applications: Activity Graphs & Fake Profiles,” Guest Seminar at Princeton University, July 2010.
- [8] “Impact of Sampling on Anomaly Detection,” *DIMACS/DyDAn Workshop on Internet Tomography*, May 2008.
- [9] “Overlay Networks: Indirection and Virtualization,” *DIMACS Tutorial on Algorithms for Next Generation Networks*, August 2007.
- [10] “Vehicular Ad Hoc Networks and Opportunistic Communications,” Invited talk at *Hewlett Packard Labs-Tokyo, Japan*, September 2007.
- [11] “Measuring and Validating the Global Internet – System Behavior and End-to-End Properties,” (Invited) *Google, Inc.*, Aug 2006.
- [12] “Validating System Behavior of Large-Scale Networked Computers,” *NSF Workshop on Theory of Networked Computation*, March 2006.
- [13] “Understanding Network Dynamics: The Race is On!” (Invited) *Computer Science Colloquium*, Princeton University, NJ, Aug. 2005.
- [14] “Internet Routing Dynamics and Their Implications”, (Invited) *UC Berkeley Networking, Communications, and DSP Seminar*, November 2004.
- [15] “Performing BGP Experiments on a Semi-Realistic Internet Environment,” with K. Zhang, S. Teoh, S. Tseng, K. Ma and F. Wu, North American Network Operators’ Group (*NANOG*)’32 Meeting, Reston, VA, October 2004.
- [16] “Impact of BGP Dynamics on Intra-Domain Traffic Patterns in the Sprint IP Backbone,” with S. Agarwal, S. Bhattacharrya, and C. Diot *NANOG27 Meeting*, Phoenix, AZ, Feb 2003.
- [17] “Analysis of Link Failures and Their Impact on Traffic,” (Invited) *IEEE Computer Communications Workshop*, Sante Fe, NM, October 13-16, 2002.
- [18] “Design Principles of a Tier-1 IP Backbone: Are there routing problems in the Internet,” (Invited) *Internet Routing and Topology*, part of *IPAM Workshop on Large-Scale Communication Networks: Topology, Routing, Traffic and Control*, March 18-22, 2002.

## PROFESSIONAL ACTIVITIES

- **Professional societies:**
  - Fellow of IEEE
  - Distinguished Scientist of ACM
  - Member of Tau Beta Pi and Eta Kappa Nu
- **IEEE Communication Society:**
  - IEEE Fellow Evaluation Committee (2015-18)
- **Associate Editor**
  - IEEE Transactions on Mobile Computing (2016- )
  - IEEE/ACM Transactions on Networking (2008-2013)
- **Conference Executive Committee:**
  - Steering Committee
    - ACM Internet Measurement Conference (2009-2014)
    - IEEE IWQoS (2008-2010)
  - Chair of Technical Program Committee

- Co-Chair, IEEE IWQoS 2007
  - Co-Chair, ACM VANET 2004 (in conjunction with ACM MobiCom 2004)
  - Vice-Chair, IEEE Globecom 2006 (consisting of 13 Technical Symposia)
  - Co-Chair of IEEE Globecom General Symposium 2006
- Publicity Chair, ACM Second Workshop on Vehicular Ad Hoc Networks (VANET) 2005, in conjunction with ACM MobiCom 2005
- Mentorship Co-Chair, 4<sup>th</sup> Networking Networking (N2) Women Workshop, co-located with ACM SIGCOMM 2014.
- Student Travel Grant Chair
  - ACM Internet Measurement Conference (2009-13)
  - NSF/INFOCOM Student Travel Grants 2006
- **Conference Technical Program Committee:**
  - IEEE INFOCOM: every year since 2005
  - IEEE IWQoS: 2004-2007, 2009
  - IEEE SECON: 2005, 2006
  - IEEE ICC: 2005
  - IEEE ICON/COQODS 2004
  - IEEE/IFIP: MWCN 2004
  - IEEE ICDCS: 2013
  - ACM Symposium on SDN Research (SOSR): 2017
  - ACM SIGCOMM: 2007, 2009
  - ACM SIGCOMM Student Travel Grant (2009), Poster Session (2005, 2006)
  - ACM MOBICOM: 2005
  - ACM Internet Measurement Conference (IMC): 2008, 2012, 2013
  - ACM CoNext: 2011, 2014
  - ACM Workshop on Challenged Networks (CHANTS): 2006, 2007
  - ACM Workshop on Vehicular Ad Hoc Networks (VANET): 2004, 2005, 2006
  - ACM Workshop on Online Social Networks (WOSN): 2009
- **Conference Session Chair:** IEEE INFOCOM, IEEE IWQoS, IEEE ICC, ACM MobiCom, ACM CHANTS, ACM VANET, UC Davis CITRIS Workshop (Sensors, Sensor Networks, and Sensor Applications, 2004)
- **Reviewer:**
  - Journals: IEEE/ACM Transactions on Networking, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Signal Processing, IEEE Transactions on Vehicular Technology, IEEE Network, ACM Transactions on Internet Technology, ACM Transactions on Sensor Networks, Elsevier Computer Networks Journal, Wireless Networks
  - Conferences/Workshops: IEEE INFOCOM, IEEE ICC, IEEE Global Internet, ACM Internet Measurement Workshop
  - Book review: Design and Management of Large-Scale IP Networks
- **Proposal Reviewer:**
  - NSF panels, UC MICRO & Discovery programs

## TEACHING

- Winter 2003-present: Developing and teaching graduate and undergraduate classes in the Department of Electrical & Computer Engineering, University of California, Davis, CA.
  - *EEC 1 Introduction to Electrical & Computer Engineering*
  - *EEC10 Introduction to Analog and Digital Systems*
  - *EEC 70 Computer Structures and Assembly Language*: Low-division, core undergraduate course
  - *EEC 173A Computer Networks*: Junior/senior-level technical elective
  - *EEC 173B Design projects in Communication Network*: Senior-level project elective in the area of wireless/mobile computing
  - *EEC193AB Self-Driving Car*: Senior Design Project (2 teams of 9 students)
  - *EEC 273 Computer Networks*: Graduate-level course on computer networks
  - *EEC 274 Internet Measurements, Routing, and Traffic Engineering*: Graduate-level seminar on new topics such as network measurements, and disruption tolerant networking.
- Spring 1998: Teaching Assistant in the Department of Electrical Engineering & Computer Sciences, University of California, Berkeley, CA
  - Senior-level class *EE121: Introduction to Digital Communication*
- March 1996: Voluntary Instructor, Science and Mathematics Conference, Mills College, Oakland, CA
  - *Expanding Your Horizons* outreach program to introduce science and mathematics to elementary school and junior high students
- 1994-05: Tutor, Mathematics and Science Center, Rutgers University, Piscataway, NJ

## COMMITTEE SERVICE AT UC DAVIS

- UC Davis Campus:
  - UCD Chancellor Fellow Evaluation Committee (2015-18)
  - ECE representative in Academic Senate (2011-13)
  - Steering Committee, Center for Future Information Technology (2007-present)
  - Hellman Fellowship Review Panel (2008, 09)
  - Panelist, campus-wide New Faculty Workshop – “Recently Tenured Faculty Panel” (2006)
  - UCD Graduate Council Support and Welfare Committee (2005-07)
- College of Engineering (CoE)
  - CoE Faculty Executive Committee (2017-20)
  - Faculty Advisory Group (2016-17)
  - Faculty Personnel Committee (2012-15): reviewing faculty merit advancements within CoE
  - Engineering Communication Design Committee (2013-14)
  - 2025 Engineering Committee (2011-12)
  - Graduate Study Committee (2008-10)
  - Sandia National Lab Fellowship Ranking Committee (2007, 2009)
  - Panelist, CoE New Faculty Orientation Workshop (2006)
- Electrical & Computer Engineering Graduate Program (ECEGP)
  - Designed Program Chair (2008-10)
  - Chair of Executive Committee (2008-10)
  - PhD Preliminary Oral Exam (2005, 2007, 2012, 2014)
  - Member of Executive Committee (2005-07)
  - Alternate Graduate Adviser

- Graduate Group of Computer Science (GGCS)
  - Executive Committee (2004-present)
  - Chair's Nomination Committee (2006-07)
- Electrical & Computer Engineering (ECE) Department
  - Chair of Faculty Search Committee, Faculty Search Coordinator (2015-16)
  - Vice Chair of Graduate Studies (2008-10)
  - Personnel Committee (2010-11)
  - Chair's Search Committee (2006-07, 2012-14)
  - Faculty Search Committee (2003-04, 2014-15)
  - Chair of Graduate Study Committee (2008-10)
  - Graduate Study Committee (2002-04, 2013-14)
  - GAANN Project Director (2006-2011)
  - Outreach Committee (2008-10)
  - Undergraduate Program Committee (2005-06)
  - Industrial Affiliates Committee (2004-05)
  - Sub-committee to review nomination for the Anil Jain Memorial Prize (2001/02)

## OUTREACH ACTIVITIES

- 2012-18 Member of Mentorship & Networking Initiative Committee for NSF-funded ADVANCE program committed to recruiting, retaining, and supporting women and minority faculty in STEM
- Development of pilot LAUNCH mentoring program for new faculty as they begin their careers at UC Davis
  - Development of the ADVANCE Scholar Award program and lecture series to highlight and celebrate contributions women STEM faculty at UC Davis have made to their fields through outstanding scholarship and mentorship
  - Development towards UC Davis Institutional membership with the National Center for Faculty Development and Diversity (NCFDD) which provided resources to all academic senate and academic federation faculty, post-docs and graduate students at UC Davis.
- 2018 Panelist for Diversity Round Table, UC Berkeley WICSE 40<sup>th</sup> Anniversary
- Discussion on what has worked and what hasn't to include more women in Tech
- 2007 Panelist, Sprint's Research Retreat
- 2006-07 Nominated to and completed UC Davis Leadership Program
- 2006 & 04 Faculty Panelist, Society of Women Engineers - Little Sister's Day
- 2005 Panelist, IEEE INFOCOM Student Workshop 2005
- 2003-07 Faculty Mentor, Engineering Undergraduate Research Program, U. C. Davis
- 1996-97 Co-president, WICSE – Women in Computer Science & Electrical Engineering, U. C. Berkeley
- 1995-96 Secretary, WICSE – Women in Computer Science & Electrical Engineering, U. C. Berkeley
- 1994-95 Secretary, Eta Kappa Nu, Rutgers University
- 1993-94 Major representative, Society of Women Engineers (SWE), Rutgers University  
*SWE Certificate of Outstanding Contribution*, Rutgers chapter of SWE, Spring 1994.
- 1994-05 Tau Beta Pi, Rutgers University (Co-Author of "Hitchhiker's Guide to Unix and Internet")

## POSTGRADUATE SCHOLAR SPONSORSHIP

- Dr. Soshant Bali (2009-10), currently with AT&T Labs, NJ
- Dr. Jinyoung Han (2014-17), currently an Assistant Professor at Hanyang University, Korea

## GRADUATE STUDENT SUPERVISION

- **Completed Doctoral Students**

1. Ram Keralapura (2007), *Characterizing Internet Routing Dynamics for Enhanced Network Management*, first appointment at Narus, Inc., CA.
2. Danjue Li (2007), *Hybrid Infrastructure/P2P Approach to Optimize Performance of Multimedia Streaming over Heterogeneous Networks* (co-advised with Prof. Yoo), first appointment at Cisco, CA
3. Jason LeBrun (2008), *Opportunistic Networking: Measurement and Implementation*, first appointment at Sentilla, CA.
4. Lihua Yuan (2008), *Towards Network Verification and Introspection* (co-supervised with Prof. Mohapatra), first appointment at Microsoft, WA.
5. Jianning Mai (2008), *Sampling Network Traffic for Anomaly Detection*, first appointment at Park, Vaughan & Fleming LLP, CA.
6. Behrooz Khorashadi (2009), *Enabling Traffic Control and Data Dissemination Applications with VGrid – A Vehicular Ad Hoc Distributed Computing Framework* (co-advised with Prof. D. Ghosal and Prof. M. Zhang), first appointment at Qualcomm, Inc., CA
7. (Leo) Xin Liu (2010), *Multimedia Transport on Cooperative Multi-homed Wireless Networks*, first appointment at Cisco, CA.
8. Haiping Liu (2010), *Efficient Resource Allocation and Network Design in Heterogeneous Wireless Networks* (co-supervised w/ Prof. Liu and Prof. Ghosal), first appointment at China Mobile, China.
9. Dhruv Gupta (2010), *Managing 802.11s Wireless Mesh Networks: A Measurement-based Approach* (co-supervised w/ Prof. Mohapatra), first appointment at AT&T, CA.
10. Saqib Raza (2010), *Synergistic Network Operations*, first appointment at Cisco, CA
11. Bojin Liu (2011), *Next Generation Vehicular Traffic Management Enabled by Vehicular Ad Hoc Networks and Cellular Mobile Devices* (co-supervised w/ Prof. Ghosal and Prof. Zhang), first appointment at Qualcomm, Inc. CA
12. Guanyao Huang (2012), *Scalable and Flexible Network-Wide Traffic Measurement*, first appointment at Cisco Systems, CA
13. Atif Nazir (2012), *Measuring and Modeling User Activities on Online Social Network-based Applications*, first appointment at General Workings, Inc., CA
14. Faisal Khan (2012), *Programmable and Closed-Loop Traffic Measurements for Better Accountability and Security in Future Networks* (co-supervised w/ Prof. Ghiasi), first appointment at Altera Corp., CA
15. Han Liu (2014), *Measuring and Modeling the Cascades/Diffusions through Online Social Networks*, first appointment at Hewlett Packard, CA.
16. (George) Chao-Chi Cheng (2014), *Practical Management as a Service (MaaS) Substrate for Data Center Networks* (co-supervised w/ Prof. Mohapatra), first appointment at Microsoft, WA
17. Mohammad Rezaur Rahman (2015, co-supervised by Prof. Wu), *Content and Cascade Identification via Online Social Dynamics*, first appointment at Cisco, CA
18. Mehdi Malboubi (2015), *Software Defined Network Measurement and Inference under Hard Resource Constraints*, first appointment at AT&T, CA
19. Arun Raghuramu (2017), *In-Network Security Analytics and Compliance Monitoring*, first appointment at Forescout, CA

20. Mani Amoozadeh (2018), *Towards Robust and Secure Collaborative Driving and Interactive Traffic Intersection*, first appointment at RedPineSignals, CA
  21. Aveek Das (2018, co-supervised by Prof. Mohapatra), *Context-aware Information Mining for Wireless Networks*, first appointment at Forescout, CA
- **Current Doctoral Students**
    - Chang Liu, *Network Inference and Management with SDN-enabled Online Learning*
    - Ehsan Gholami, *Graph-based Approaches to Attribute Inference in Effective Learning Models*
    - Gregory Rehm, *Use of Machine Learning for Detection and Management of Acute Patients' Conditions in Intensive Care Units*
    - Ali Khodadadi, *TBA*
    - Hugo Mailhot, *TBA*
  - **Completed Masters Students (Plan I - Thesis Option)**
    1. Christopher Carde (2004), *A Framework for the Rapid Design and Implementation of Distributed CAN Control Networks for Prototype Vehicles*, first appointment: Daimler-Chrysler Research and Technology North America (RTNA), Inc., Palo Alto, CA
    2. Peng Cheng (2004), *Energy Conservation in Wireless Sensor Networks*, first appointment: Cisco Systems, CA.
    3. Howard Chang (2004), *Architecture and Routing Design for Enabling Energy Demand Response with Vehicular Mesh Networks*, first appointment: Brocade, CA
    4. Chris Dana (2005), *BitTorrent Assisted Streaming System for Video-On-Demand Services*, first appointment: Boeing, CA.
    5. Andrew Chen (2007), *Vehicular Network Simulation Platform for Highway Traffic Management and Wireless Applications*, first appointment: Intel Folsom, CA
    6. Ferhat Dikbiyik (2009), *Scalable Interface-Split Routing*, first appointment: Sakarya Univ. Turkey
    7. Collin Smith (2009), *Doppler Spread Analysis and Dynamic Power Control for Vehicular Wireless Networks*, first appointment: Sierra Nevada Corporation, CA.
    8. Brian Estrada (2010), *Longitudinal Study of Online Social Games and Applications*
    9. Ali Sharokhi (2011), *Measurement and Development of Online Social Network-based Applications*, first appointment; SmartBites, CA
    10. Kristen Kennedy (2013), *Quantifying the Effects of Permission Removal from Android Applications*
    11. Liyuan Wang (2013), *Adaptive Network Traffic Estimation using OpenFlow: An Implementation on Mininet*, first appointment: IBM, CA
    12. Kashyap Thimmaraju (Mar 2015), *Performance Evaluation of a Paravirtualized Smartphone*, now a PhD student, TU Berlin
    13. Theo Pan (2015), *Interest Meets Pinterest: Identifying Important User Roles in Content Propagation*, first appointment: Microsoft, WA
    14. Ali Emara (Dec 2016), *Inferring Mobile Applications Usage among Different Demographics*, first appointment: Adobe
    15. Gregory Rehm (Dec 2017), *An End-to-End Platform for Creating an Ensemble Asynchrony Detection Algorithm for Mechanically Ventilated Patients*, currently PhD student at UC Davis
  - **Completed Masters Students (Plan II - Project Option)**
    1. Jonathan Wagoner (2008), *A Survey and Characterization of Energy Efficiency in Heterogeneous Wireless Network Interfaces*, first appointment: Emphase Energy, CA

2. Yuanbo Zhu (June 2010), *Graceful Network Operation and Management*, first appointment: Cisco, CA
  3. Shu Ming Peng (Mar 2015), *Intelligent Traffic Sampling and Inference: An Implementation on Mininet*, first appointment: Verizon, CA
  4. Yiwei (Sally) Sun (Mar 2015), *Data Driven Prediction of Cascades on Online Social Networks*, first appointment: Cisco, CA
  5. Lingxuan Li (June 2015), *Adaptive Network Traffic Estimation in Data Centers: A Software Defined Networking Approach*
  6. Zejun Huang (Dec 2015), *Analyzing Social Interactions and Relationships in OSN-based Gifting Applications*, first appointment: Adobe
  7. Jingyu Zhang (March 2016), *Uncovering Synergistic Business Relationship through Online User Reviews*, first appointment: Amazon
  8. Santhosh Chandrasekar (June 2016), *Dynamically Load Balanced SDN based Routing*, first appointment: Apple
  9. Janice Fredrick (March 2017), *Community Detection Applied to Brand Prediction*
  10. Aditi Garg (March 2017), *Predicting User Engagement on University Facebook Pages*, first appointment: Trulia
  11. Devika Joshi (March 2017), *Characterizing user engagement on social media during political campaigns*, first appointment: Moodys Analytics
  12. Zhongyi Lin (Dec 2017), *Using IoT Device to Actuate Traffic Signal Prioritization for Mass Transit*, currently PhD student at UC Davis
  13. Yue Xia (June 2018), *Anomaly Detection of Mechanical Ventilator Waveform Data Based on Dynamic Time Warping*.
  14. Deepika Chandrasekaran (Sep 2018), *Clustering Households by Their Purchasing Behavior on Retail Data*
- **Current Masters Students**
    - Adithya Premkumar, Bryan Ching, Ishita Sharma, Kevin Manuel, Tina Mashhour, and Zach Harris
  - **Other Student Guidance Committees**
    - Served on 41 other PhD dissertation committees, 28 other M.S. thesis/exam committees, and 117 PhD oral qualifying examination committees for students in Electrical & Computer Engineering, Computer Science, Civil & Environmental Engineering, Mechanical & Aeronautical Engineering, and Applied Math Graduate Programs

## **OTHER ADVISEES**

- **UC Davis Undergraduate Research Program, EEC192 internship, or EEC199 Special Study**
  - Adam Jones, *IoTs for Intelligent Intersection*, Winter 2017 - present
  - Zhening Zhang, *IoTs for Intelligent Intersection*, Spring 2017 - present
  - Hasith Rajakarunanay, *Connected cars and corridors*, Spring 2016
  - Jiaming Xie, *Data analytics for online social networks*, Spring 2015
  - Qijia Cao, Chingyeung Fang: *GENI demo on intelligent traffic sampling/inference*, Summer–Fall,14
  - R. Marquiss, *Software-Defined Measurements with OpenFlow*, Spring 14
  - J. Vaughen, *Detecting Malicious Traffic in Campus Wireless Networks*, Fall13-Spring 14

- C. Vu and J. Garrison, *Multiple Description Fusion Estimation with Compressive Sensing*, Spring 2012-Winter 13
- S. Lee, *Fast Filtered Sampling and Modulated Packet Sampling*, Spring 2008
- A. Qureshi, E. Lee, and G. Wu, *Monitoring and Compressing BGP Routing Tables*, Spring 2008
- J. Yin, *Wavelet based BGP Anomaly Detection*, Spring 2008
- B. Vuong, *Facebook Applications*, Spring 2008
- C. Chen, *Monitoring Framework for Wireless Mesh Networks*, Winter 2007
- B. Rodriguez, *Web Interface for Student Database and Messaging System*, Winter 2007
- A. Stromberg and M. Siegenthaler, *CollaborActive Transfer System (CATS)*, Spring 2006
- B. Iskikian, M. Pignati, and S. Wilson, *Exploring Wireless Ad-Hoc, Peer-to-Peer Connectivity for Delay/Disruption-Tolerant Applications*, Winter 2005
- A. Moerschell, *Characterizing Service Availability of IP-Backbone Networks*, Summer 2004
- K. Widjaja, *Hierarchical representation of PlanetLab Monitoring Data*, co-supervised by Matt Massie (UC Berkeley), Summer 2004
- P. Satarzadeh, *Improving Transport Protocols for Wireless Networks*, Summer/Fall 2003
- Y. Chin and T. Nguyen, *Router Testbed*, Summer 2003
- **UC Davis GREAT Program**
  - Shiliang Tang, *Network Inference with Active Probing*, Summer 2013 (winner of Outstanding Research Award for GREAT'2013)
  - Yumo Rong, *Trace Anonymization*, Summer 2013
  - Chuankai An, *Data Flow Measurements with Kalman Filter*, Summer 2012
  - Y. Dong, *Tracking Carbon Footprint with Smart Phone*, Summer 2010 UC Davis GREAT Program
  - J. Ma, *Understanding Internet Traffic Landscape Through Traffic Dispersion Graphs (TDGs)*, Summer 2010 UC Davis GREAT program
- **Summer interns at Sprint Advanced Technology Laboratories**
  - S. Agarwal, *The Impact of BGP Dynamics on Intra-Domain Traffic and Router CPU load*, Summer/Fall 2002, currently PhD candidate, University of California, Berkeley
  - A. Zeitoun, *An AS-Level Study of Internet Path Delay Characteristics*, currently PhD candidate, Summer/Fall 2002, University of Michigan, Ann Arbor
- **Undergraduate research project, UC Berkeley**
  - G. J. Lee, *Detecting Misbehaving Flows via Collaborative Aggregate Policing (DCAP): Implementation on Click Router*, co-supervised with L. Subramanian, Summer/Fall 2000

(Updated: Oct-18)