

Ellen W. Zegura
Regents and Fleming Professor of Computer Science
(By courtesy) School of Interactive Computing, Georgia Tech
School of Computer Science, Georgia Tech

I. Earned Degrees

D.Sc. in Computer Science, Washington University, St. Louis, 1993
Thesis: Analysis of Switching Networks for Multipoint and Multirate Communication
Advisor: Jonathon Turner

M.S. in Computer Science, Washington University, St. Louis, 1990
Thesis: Parallel Simulated Annealing Using Speculative Computation
Advisor: Mark Franklin

B.S. in Computer Science, Washington University, St. Louis, 1987
B.S. in Electrical Engineering, Washington University, St. Louis, 1987

II. Employment History

Tenure-track Appointments:

Regents Professor, 2020-present
Fleming Chair Professor, 2017-present
Full Professor, 2004-present
Associate Professor, 1999-2004
Assistant Professor, 1993-1999

Administrative Appointments:

Chair, School of Computer Science, 2005-2007 (as a Division), 2007-2012 (as a School)
Associate Dean, Research, Space and Graduate Programs, College of Computing 2003-2007
Interim Dean, College of Computing (May 2002-October 2002)
Assistant Dean, Space, College of Computing 2000-2003 (Klaus Building Project, TSRB)

III. Honors and Awards

1. NSF CAREER Award, 1995
2. DARPA Coordination Award, December 2000
3. GT College of Computing Dean's Award, May 2002
4. GT College of Computing Dean's Award, May 2003 (for work on re-organization)
5. Editor-in-Chief of ACM/IEEE Transactions on Networking Appreciation Award, 2004
6. Washington University Alumni Achievement Award, 2008
7. GT College of Computing Faculty Mentor Award, May 2011
8. Raytheon Faculty Fellowship, May 2011 (with Michael Best)
9. IEEE Fellow 2011
10. ACM Fellow 2013

11. Georgia Tech Outstanding Faculty Woman of Distinction, 2015
12. Ten Women in Communications/Networking You Should Know, 2016
13. Best Paper Award, ACM International Symposium on Mobile Ad Hoc Networking and Computing, 2012
14. Best Paper Award, IFIP/IEEE Network Traffic Measurement and Analysis Conference, 2018
15. Best Paper Award, ASEE Annual Conference & Exposition, Ethics Division, 2022
16. Top Cited Article, Wiley Journal of Engineering Education, 2021-2022

IV. Research, Scholarship, and Creative Activities

A. Published and Accepted Journal Articles (bold indicates students)

1. Witte (Zegura), E., Chamberlain, R., Franklin, M. "Parallel Simulated Annealing Using Speculative Computation." IEEE Transactions on Parallel and Distributed Systems, 2(4), October 1991.
2. Zegura, E.W. "A Quantitative Comparison of Architectures for ATM Switching Systems." IEEE Communications Magazine, 31(2), February 1993.
3. Zegura, E.W. "Evaluating Blocking Probability in Generalized Connectors." ACM/IEEE Transactions on Networking, August 1995.

**** All papers that follow are from work at Georgia Tech.*

4. Calvert, K.L., Doar, M., Zegura, E.W. "Modeling Internet Topology." IEEE Communications Magazine, June/July 1997.
5. **Donahoo, M.J.**, Zegura, E.W., Calvert, K.L. "Center Selection and Migration for Widearea Multicast Routing." Journal of High Speed Networks, 6(2,) 1997.
6. Zegura, E.W., Calvert, K.L., **Donahoo, M.J.** "A Quantitative Comparison of Graph-based Models for Internet Topology." ACM/IEEE Transactions on Networking, 5(6), December 1997.
7. Zegura, E.W., **McFarland, S., Parekh, O.** "A Survey and New Results in Renegotiated Service." Journal of High Speed Networks, 6(3), 1997.
8. **Park, W.-B.**, Owen, H., Zegura, E.W. "SONET/SDH Traffic Generation Models." European Transactions on Telecommunications, M. Decina, editor-in-chief, January/February 1998.
9. **Bhattacharjee, S.**, Calvert, K.L., Zegura, E.W. "Active Networking and End-to-end Arguments." IEEE Network, May 1998. (Note that this is a two-page peer-reviewed commentary.)
10. Calvert, K.L., **Bhattacharjee, S.**, Zegura, E.W., Sterbenz, J. "Directions in Active Networks." IEEE Communications Magazine Special Issue on Programmable Networks, October 1998.
11. **Park, W.-B.**, Owen, H., Zegura, E.W. "Intact versus Fractional Switching in SONET/SDH Crossconnects." European Transactions on Telecommunications, M. Decina, Editor-in-Chief, 1999.

12. Zegura, E.W., Ammar, **M., Bhattacharjee, S., Fei, Z.** "Application Layer Anycasting: A Server Selection Architecture and Use in a Replicated Web Service." IEEE/ACM Transactions on Networking, August 2000.
13. **Hao, F.**, Zegura, E.W., Ammar, M. "QoS Routing for Anycast Communications: Motivation and an Architecture for DiffServ Networks." IEEE Communications Magazine, June 2002.
14. **Fei, Z.**, Ammar, M., Zegura, E. W. "Multicast Server Selection: Problems, Complexity and Solutions." IEEE Journal on Selected Areas in Communications, September 2002.
15. **Chae, Y.**, Guo, K., Buddhikot, M., Suri, S., Zegura, E.W. "Silo, Rainbow and Caching Token: Schemes for Scalable, Fault Tolerant Stream Caching." IEEE Journal on Selected Areas in Communications, Fall 2002.
16. **Fei, Z.**, Yang, M. Ammar, M., Zegura, E.W. "A Framework for Allocating Clients to Rate- Constrained Multicast Servers." Computer Communications, July 2003.
17. **Merugu, S., Srinivasan, S.**, Zegura, E.W. "Adding Structure to Unstructured Peer-to-Peer Networks: the Use of Small-World Graphs." Special Issue of Journal of Parallel and Distributed Computing on Theoretical and Algorithmic Aspects of Sensor, Ad Hoc Wireless and Peer-to-Peer Networks, Vol. 65, No. 2, pp. 142-153, February 2005.
18. **Jun, H., Zhao, W.**, Ammar, M., Zegura, E.W., Lee, C. "Trading Latency for Energy in Densely Deployed Wireless Ad Hoc Networks using Message Ferrying." Elsevier Ad Hoc Networks Journal, May 2007.
19. **Jun, H.**, Ammar, M., Corner, M., Zegura, E.W. "Hierarchical Power Management in Disruption Tolerant Networks Using Traffic Aware Optimization." Elsevier Computer Communications, October 2009.
20. **Chen, Y., Borrel, V.**, Ammar, M., Zegura, E.W. "A Framework for Characterizing the Wireless and Mobile Network Continuum." Computer Communications Review, January 2011.
21. **Polat, B., Sachdeva, P.**, Ammar, M., Zegura, E.W. "Message Ferries as Generalized Dominating Sets in Intermittently Connected Mobile Networks", Elsevier Journal on Pervasive and Mobile Computing Journal, 7(2): 189-205 (2011).
22. **Whitbeck, J.**, Dias de Amorim, M., Conan, V., Ammar, M., Zegura, E.W. "From Encounters to Plausible Mobility," Elsevier Journal on Pervasive and Mobile Computing,7(2): 206-222 (2011).
23. **Shi, C., Luo, X.**, Traynor, T., Ammar, M., Zegura, E. W. "Arden: Anonymous Networking in Delay Tolerant Networks," Journal of Ad Hoc Networks, 10(6), 2012.
24. Feamster, N., Rexford, J., Zegura, E. W. "The Road to SDN: An Intellectual History of Programmable Networks" ACM Queue, 11(12), 2013.
25. Zegura, E.W. "Achieving and Assessing Learning in Computing Service Learning: Lessons from Computing for Good," International Journal on Service Learning in Engineering (2015).

26. **Schiff, D., Logevall, E.**, Borenstein, J., Newstetter, W., Potts, C., Zegura, E., "Linking personal and professional social responsibility development to microethics and macroethics: Observations from early undergraduate education," Journal of Engineering Education, December 2020. **Top Cited Article**, 2021-2022.

27. M. Duarte, M. Vigil-Hayes, E. Zegura, E. Belding, **I. Masara**, J. Case Nevarez, "'As a Squash Plant Grows: Social Textures of Sparse Internet Connectivity in Rural and Tribal Communities'", ACM Transactions on Computer-Human Interaction, 28(3), June 2021.

28. **T. Mangla, E. Showalter, V. Adarsh**, K. Jones, E. Belding, M. Vigil-Hayes, E. Zegura, "A Tale of Three Datasets: Towards Characterizing Mobile Broadband Access in the United States," Communications of the ACM, March 2022.

Conference Presentation with Proceedings (Refereed)

(In computer science, conference paper review processes are double blind and rigorous. They are recognized with status comparable, or even better, than journal publications.)

1. Chamberlain, R., Edelman, M., Franklin, M., Witte (Zegura), E. "Simulated Annealing on a Multiprocessor." Proceedings of IEEE International Conference on Computer Design (ICCD), 1988.

2. Witte (Zegura), E., Chamberlain, R., Franklin, M. "Parallel Simulated Annealing Using Speculative Computation." Proceedings of International Conference on Parallel Processing (ICPP), 1990.

3. Witte (Zegura), E., Chamberlain, R., Franklin, M. "Task Assignment by Parallel Simulated Annealing." Proceedings of IEEE International Conference on Computer Design (ICCD), 1990.

4. Zegura, E.W. "Evaluating Blocking Probability in Distributors." Proceedings of IEEE INFOCOM, 1993.

5. Zegura, E.W. "Routing Algorithms in Multicast Switching Topologies." Proceedings of Allerton Conference on Communication, Control and Computing, 1993.

**** All papers that follow are from work at Georgia Tech.*

6. Zegura, E.W. "An Improved Model for Evaluating Blocking Probability in Generalized Connectors." Proceedings of IEEE INFOCOM, 1994.

7. **Park, W.-B.**, Owen, H.L., Zegura, E.W. "Sonet/SDH Multicast Routing Algorithms in Symmetrical Three-Stage Networks." Proceedings of International Conference on Communications (ICC), 1995.

8. Calvert, K.L., Zegura, E.W., **Donahoo, M.J.** "Core Selection Methods for Multicast Routing." Proceedings of International Conference on Computer Communications and Networks (ICCCN), 1995.

9. Zegura, E.W. "Impact of Multichip Module Technology on ATM Switch Architectures." Proceedings of Third ORSA Telecommunications Conference, Boca Raton, FL. 1995.

10. Zegura, E.W., Calvert, K.L., **Bhattacharjee, S.** "How to Model an Internetwork." Proceedings of IEEE INFOCOM, 1996.

11. **Park, W.-B.**, Owen, H.L., Zegura, E.W. "Connection Request Model for Sonet/SDH Switch Evaluation." Proceedings of International Conference on Communications (ICC), 1996.
12. **Donahoo**, M.J., Zegura, E.W. "Core Migration for Dynamic Multicast Routing." Proceedings of International Conference on Computer Communications and Networks (ICCCN), 1996.
13. **Schneck, P.**, Zegura, E.W., Schwan, K. "DRRM: Dynamic Resource Reservation Manager." Proceedings of International Conference on Computer Communications and Networks (ICCCN), 1996.
14. **Hao, F., Wilson, K.**, Fujimoto, R., Zegura, E. "Logical Process Size in Parallel Simulations." Proceedings of Winter Simulation Conference '96. Hao is the primary author, with contributions from Wilson and supervision by Fujimoto and Zegura.
15. **Bhattacharjee, S.**, Calvert, K.L., Zegura, E.W. "An Architecture for Active Networking." Proceedings of IFIP Conference on High Performance Networking, 1997.
16. **Bhattacharjee, S.**, Ammar, M., Zegura, E.W., **Shah, V., Fei, Z.** "Application-Layer Anycasting." Proceedings of IEEE INFOCOM, 1997.
17. **Cao, Z.**, Zegura, E.W. "ABR Service for Applications with Non-linear Functions." Proceedings of International Conference on Network Protocols (ICNP), 1997.
18. **Bhattacharjee, S.**, Calvert, K.L., Zegura, E.W. "Active Networking Applications and the End-to-End Argument." Proceedings of IEEE International Conference on Network Protocols (ICNP), 1997.
19. **Fei, Z., Bhattacharjee, S.**, Zegura, E.W., Ammar, M. "A Novel Server Selection Technique for Improving the Response Time of a Replicated Service." Proceedings of IEEE INFOCOM, 1998.
20. **Bhattacharjee, S.**, Calvert, K.L., Zegura, E.W. "Self-Organizing Wide-Area Network Caches." Proceedings of IEEE INFOCOM, 1998.
21. **Hao, F.**, Nikolaidis, I., Zegura, E.W. "Efficient Simulation of ATM Networks with Accurate End-to-End Delay Statistics." Proceedings of IEEE International Conference on Communications (ICC), 1998.
22. **Jiang, T.**, Ammar, M., Zegura, E.W. "Inter-Receiver Fairness: A Novel Performance Measure for Multicast ABR Sessions." Proceedings of ACM SIGMETRICS, 1998.
23. **Jiang, T.**, Zegura, E.W., Ammar, M. "Improved Consolidation Algorithms for Point-to- Multipoint ABR Service." Proceedings of IEEE ATM Workshop, 1998.
24. **Hao, F.**, Zegura, E.W., Bhatt, S. "Performance of the PNNI Protocol in Large Networks." Proceedings of IEEE ATM Workshop, 1998.
25. **Bhattacharjee, S.**, Calvert, K.L., Zegura, E.W. "Reasoning about Active Networking Protocols." Proceedings of IEEE International Conference on Network Protocols (ICNP), 1998.

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26. **Chae, Y.-S.**, Zegura, E.W. "Service-Specific ABR Routing Algorithms." Proceedings of International Conference on Computer Communications and Networks (ICCCN), 1998.
27. **Chamblee, M.**, Zegura, E.W. "Clustering Algorithms for Hierarchical Address Assignment." Proceedings of International Conference on Computer Communications and Networks (ICCCN), 1998.
28. **Cao, Z.**, Zegura, E.W. "Utility Max-Min: An Application-Oriented Bandwidth Allocation Scheme." Proceedings of IEEE INFOCOM, March 1999.
29. **Donahoo, M.**, Ammar, M., Zegura, E.W. "Multiple-Channel Multicast Scheduling for Scalable Bulk-data Transport." Proceedings of IEEE INFOCOM, March 1999.
30. **Jiang, T.**, Ammar, M., Zegura, E. W. "Inter-receiver fair multicast communication over the Internet." Proceedings of NOSSDAV, June 1999.
31. **Merugu, S., Bhattacharjee, S., Chae, Y.**, Sanders, M., Calvert, K., Zegura, E.W. "Bowman and CANEs: Implementation of an Active Network." Invited paper in Thirty-Seventh Annual Allerton Conference on Communication, Control and Computing, Monticello, Illinois, September 1999.
32. **Fei, Z.**, Ammar, M., Zegura, E.W. "Optimal Allocation of Clients to Replicated Multicast Servers." Proceedings of IEEE International Conference on Network Protocols (ICNP), October 1999.
33. **Cao, Z.**, Zegura, E.W., Wang, Z. "Rainbow Fair Queueing: Fair Bandwidth Sharing Load Balancing." Proceedings of IEEE INFOCOM, March 2000.
35. **Hao, F.**, Zegura, E.W. "On Scalable Qos Routing: Performance Evaluation of Topology Aggregation." Proceedings of IEEE INFOCOM, March 2000.
36. **Merugu, S., Bhattacharjee, S.**, Calvert, K., Zegura, E.W. "Bowman: A NodeOS for Active Networking." Proceedings of IEEE INFOCOM, March 2000.
37. **Jiang, T.**, Ammar, M., Zegura, E.W. "On the Use of Destination Set Grouping to Improve Inter-Receiver Fairness for Multicast ABR Sessions." Proceedings of IEEE INFOCOM, March 2000.
38. **Chae, Y., Merugu, S.**, Zegura, E. W., Bhattacharjee, S. "Exposing the Network: Support for Topology Sensitive Applications." Proceedings of IEEE Open Arch, March 2000.
39. **Hao, F.**, Zegura, E.W., Ammar, M. "Supporting Server Selection in Differentiated Service Networks." Proceedings of IEEE INFOCOM, April 2001.
40. Sanders, M., Keaton, M., Bhattacharjee, S., Calvert, K., Zabele, S., Zegura, E.W. "Active Reliable Multicast on CANEs: A Case Study." Proceedings of IEEE Open Arch, April 2001.
41. **Liston, R.** and Zegura, E.W. "Using a Proxy to Measure Client-Side Web Performance." Proceedings of Web Caching and Content Distribution Workshop, June 2001.

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42. **Fei, Z.**, Ammar, M., Zegura, E.W. "Efficient server replication and client re-direction for multicast services." SPIE Int'l Conference on Scalability and Traffic Control in IP Networks, August 2001.
43. **Hutchins, R.**, Zegura, E.W., Liashenko, A., Enslow, P. Jr. "Internet User Access via Dialup Networks-Traffic Characterization and Statistics." Proceedings of IEEE International Conference on Network Protocols (ICNP), November 2001.
44. **Fei, Z., Yang, M.**, Ammar, M., Zegura, E.W. "Allocating Clients to Constrained Multicast Servers: An Optimal Solution." Proceedings of International Conference on Computer Communications and Networks (ICCCN), October 2001.
45. **Srinivasan, S.**, Zegura, E.W. "Network Measurement as a Cooperative Enterprise." Proceedings of International Workshop on Peer-to-Peer Systems (IPTPS), March 2002.
46. **Hutchins, R.**, Zegura, E.W. "Measurements from a Campus Wireless Network." Proceedings of IEEE International Conference on Computer Communications (ICC), April 2002.
47. **Guo, M.**, Ammar, M., Zegura, E.W., **Hao, F.** "A Probe-Based Server Selection Protocol for Differentiated Service Networks." Proceedings of IEEE International Conference on Computer Communications (ICC), April 2002.
48. **Guo, M.**, Ammar, M., Zegura, E.W., "Selecting Among Replicated Batching Video-on- Demand Servers." Proceedings of NOSSDAV, May 2002.
49. **Chae, Y.**, Zegura, E.W., Delalic, H. "PAMcast: Programmable Any-Multicast for Scalable Message Delivery." Proceedings of Open Arch, June 2002.
50. **Clay, L.**, Ammar, M., Zegura, E.W. "Protocols for Selection Among Replicated Multicast Servers". Proceedings of the International Conference on Internet Computing, June 2002.
51. **Zou, L.**, Zegura, E.W., Ammar, M. "The Effect of Peer Selection and Buffering Strategies on the Performance of Peer-to-Peer File Sharing." IEEE/ACM MASCOTS, October 2002.
52. **Liston, R.**, Zegura, E.W. "Diversity in DNS Performance Measures." Internet Measurement Workshop (IMW), November 2002.
53. **Karbhari P.**, Zegura, E.W., Ammar, M. "Multipoint-to-point Session Fairness in the Internet." Proceedings of INFOCOM, March 2003.
54. **Clay, L.**, Ammar, M., Zegura, E.W., Clark, R. "Posting Protocol for Improved Keyword Searches in Peer-to-Peer Systems." Proceedings of Multimedia Computing and Networking (MMCN), January 2003.
55. **Jun, H.**, Sanders, M., Ammar, M., Zegura, E.W. "Binding Clients to Replicated Servers: Initial and Continuous Binding." Proceedings of the IEEE Workshop on Future Trends in Distributed Computing Systems (FTDCS), June 2003.

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56. **Karbhari, P.**, Ammar, M., **Dhamdhare, A., Raj, H.**, Riley, G., Zegura, E.W. "Bootstrapping in Gnutella: A Measurement Study," Proceedings of the Passive and Active Networking Workshop (PAM), April 2004.
57. **Zhao, W.**, Ammar, M., Zegura, E.W. "A Message Ferrying Approach for Data Delivery in Sparse Mobile Ad Hoc Networks." Proceedings of ACM MOBIHOC, May 2004.
58. **Guo, M.**, Ammar, M., Zegura, E.W. "Cooperative Patching: A Client-based P2P Architecture for Supporting Continuous Live Video Streaming," Proceedings of the IEEE International Conference on Computers, Communications and Networks (IC3N), October 2004.
59. **Zhao, W.**, Ammar, M., Zegura, E.W. "The Energy-Limited Capacity of Wireless Networks." Proceedings of IEEE Conference on Sensor and Ad hoc Communications and Networks, October 2004.
60. **Zhao, W.**, Ammar, M., Zegura, E.W. "Controlling the Mobility of Multiple Data Transport Ferries in a Delay Tolerant Network." Proceedings of IEEE INFOCOM, 2005.
61. **Guo, M.**, Ammar, M., Zegura, E.W. "V3: A Vehicle-to-Vehicle Live Video Streaming Architecture." Proceedings of IEEE Conference on Pervasive Computing and Communications (PerCom), March 2005.
62. **Jun, H., Zhao, W.**, Ammar, M., Zegura, E.W. "Trading Latency for Energy in Wireless Ad hoc Networks using Message Ferrying." Proceedings of IEEE PerCom Workshop on Pervasive Wireless Networking, March 2005.
63. **Karbhari, P.**, Ammar, M., Zegura, E.W. "Optimizing End-to-End Throughput for Data Transfers on an Overlay-TCP Path." Proceedings of IFIP NETWORKING, May 2005.
64. **Srinivasan, S.**, Zegura, E.W. "Scheduling Uplink Bandwidth in Application-Layer Multicast Trees." Proceedings of IFIP NETWORKING, May 2005.
65. **Gao, R.**, Dovrolis, C., Zegura, E.W. "Interdomain Ingress Traffic Engineering through Optimized AS-Path Prepending." Proceedings of IFIP NETWORKING, May 2005.
66. **Zhao, W.**, Ammar, M., Zegura, E.W. "Multicast Routing in Delay Tolerant Networks: Semantic Models and Routing Algorithms." SIGCOMM DTN Workshop, August 2005.
67. **Jun, H.**, Ammar, M., Zegura, E.W. "Power Management in Delay Tolerant Networks: A Framework and Knowledge-Based Mechanisms" IEEE Conference on Sensor and Ad hoc Communications and Networks, September 2005.
68. **Gao, R.**, Dovrolis, C., Zegura, E.W. "Avoiding Oscillations due to Intelligent Route Control Systems." IEEE Infocom, April 2006.
69. **Tariq, M.**, Ammar, M., Zegura, E.W., "Message Ferry Route Design for Sparse Ad hoc Networks Ad hoc Networks with Mobile Nodes," ACM Mobihoc, May 2006.

70. **Chen, Y., Yang, J., Zhao, W.**, Ammar, M., Zegura, E.W., "Multicasting in Sparse MANETs using Message Ferrying," IEEE Wireless Communications and Networking Conference (WCNC), April 2006.
71. **Jun, Y.**, Ammar, M., Corner, M., Zegura, E.W. "Hierarchical Power Management in Disruption Tolerant Networks with Traffic-Aware Optimization." ACM CHANTS, September 2006.
72. **Zhao, W., Chen, Y.**, Ammar, M., Corner, M., Levine, B., Zegura, E.W. "Capacity Enhancement using Throwboxes in DTNs." IEEE MASS, October 2006.
73. **Chen, Y., Zhao, W.**, Ammar, M., Zegura, E.W. "Hybrid Routing in Clustered DTNs with Message Ferrying," Proceedings of ACM MobiOpp Workshop, Puerto Rico, May 2007.
74. **Borrel, V.**, Ammar, M., Zegura, E.W., "Understanding the Wireless and Mobile Network Space: A Routing-Centered Classification," Proceedings of CHANTS 2007, Montreal, September 2007.
75. **Mansy, A.**, Ammar, M., Zegura, E.W. "Reliable Roadside-to-Roadside Data Transfer Using Vehicular Traffic," Proceedings of The IEEE International Workshop on Mobile Vehicular Networks (MoVeNet) (IEEE MASS Workshop), Pisa, Italy, October 2007.
76. **Gao, R.**, Blair, D., Dovrolis, C., Morrow, M., Zegura, E.W. "Interactions of Intelligent Control with TCP Congestion Control," In the Proceedings of the IFIP Networking conference, Atlanta, May 2007.
77. **Hyewon Jun**, Mostafa Ammar, Mark Corner, Ellen Zegura, "Hierarchical Power Management in Disruption Tolerant Networks Using Traffic Aware Optimization," Computer Communications, Volume 32, # 16, 2009.
78. **Polat, B., Sachdeva, P.**, Ammar, M., Zegura, E.W. "Message Ferries as Generalized Dominating Sets in Intermittently-Connected Networks", 2nd ACM International Workshop on Mobile Opportunistic Networking, February 2010, Pisa, Italy.
79. **Mansy, A.**, Ammar, M., Zegura, E., "Deficit Round-Robin Based Message Ferry Routing," IEEE GLOBECOM 2011, Houston TX, Dec. 2011
80. **Shi, C.**, Ammar, M., Zegura, E., "iDTT: Delay Tolerant Data Transfer for P2P File Sharing Systems," IEEE GLOBECOM 2011, Houston TX, Dec. 2011
81. **Yang Chen**, Jens O. Berg, Mostafa Ammar, Ellen Zegura, "Evaluation of data communication opportunities from oil field locations at remote areas," IMC '11 Proceedings of the 2011 ACM SIGCOMM conference on Internet measurement conference, 2011.
82. **Cong Shi**, Mostafa H. Ammar, Ellen W. Zegura, Mayur Naik, "Computing in cirrus clouds: the challenge of intermittent connectivity," MCC '12 Proceedings of the first edition of the MCC workshop on Mobile cloud computing, 2012.
83. **Cong Shi, Vasileios Lakafosis**, Mostafa H. Ammar, Ellen W. Zegura, "Serendipity: enabling remote computing among intermittently connected mobile devices," MobiHoc '12 Proceedings of the ACM

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International Symposium on Mobile Ad Hoc Networking and Computing, 2012.

Best Paper Award.

84. **Lo, S.**, Ammar, M., Zegura, E., "Design and Analysis of Schedules for Virtual Network Migration," Proceedings of IFIP Networking Conference, Brooklyn, NY, May 2013.
85. **Monfared, A.**, Ammar, M., Zegura, E., "Plausible Mobility Inference from Wireless Contacts Using Optimization," Proceedings of the ACM CHANTS Workshop, Miami, FL, September 2013.
86. Zegura, E.W., Grinter, B., "Community building for capacity building: case study of Liberia's iLab," Proceedings of Information and Communication Technologies and Development (ICTD), December 2013.
87. **Lo, S.**, Ammar, M., Zegura, E.W., Fayed, M. "Virtual network migration on real infrastructure: a PlanetLab case study," Proceedings of IFIP Networking Conference, 2014.
88. **Shi, C.**, Habak, K., **Pandurangan, P.**, Ammar, M., Naik, M., Zegura, E.W. "COSMOS: computation offloading as a service for mobile devices," Proceedings of the ACM International Symposium on Mobile ad hoc Networking and Computing, 2014.
89. **Shi, C.**, Joshi, K., Panta, R., Ammar, M., Zegura, E.W. "CoAST: collaborative application-aware scheduling of last-mile cellular traffic," Proceedings of ACM International Conference on Mobile Systems, Applications and Services, 2014.
90. Zegura, E.W., Derkits, E., Cooper, J., "See my work: Sustaining a data reporting practice by mental health clinicians in Liberia," Proceedings of Information and Communication Technologies and Development (ICTD), May 2015.
91. Gillani, F., Al-Shaer, E., **Lo, S.**, Duan, Q., Ammar, M., Zegura, E.W. "Agile Virtualized Infrastructure to Proactively Defend Against Cyber Attacks," Proceedings of IEEE Infocom, April 2015.
92. **Mtibaa, A.**, Harras, K., **Habak, K.**, Ammar, M., Zegura, E., "Towards Mobile Opportunistic Computing," (Short Paper) Proceedings of the 8th IEEE International Conference on Cloud Computing, June 2015, New York.
93. **Habak, K.**, Ammar, M., Harras, K., Zegura, E., "FemtoClouds: Leveraging Mobile Devices to Provide Cloud Service at the Edge," Proceedings of the 8th IEEE International Conference on Cloud Computing, June 2015, New York.
94. **Monfared, A.**, Ammar, M., Zegura, E., Doria, D., Bruno, D., "Computational Ferrying: Challenges in Deploying a Mobile High Performance Computer," IEEE Autonomic and Opportunistic Communications (AOC), June 2015, Boston, MA.
95. **Saeed, A.**, Ammar, M., Harras, K., Zegura, E., "Vision: The Case for Symbiosis in the Internet of Things," MCS '15 Proceedings of the 6th International Workshop on Mobile Cloud Computing and Services, 2015

96. **Mangla, T., Theera-Ampornpunt, N.**, Ammar, M., Zegura, E., Bagchi, S., "Video through a crystal ball: effect of bandwidth prediction quality on adaptive streaming in mobile environments," MoVid '16 Proceedings of the 8th International Workshop on Mobile Video, 2016
97. Zegura, E., Meng, A, Rosales, C., **Wilson, P., Hampton, E., Washington, T., Gangwani, P., Phadke, G., Marun, V.**, Best, M., Jablonski, M., " A First Look at Eyes on the Vote," ICTD '16 Note, Proceedings of the Information and Communication Technologies and Development Conference, June 2016, Ann Arbor, MI.
98. Smyth, T., Meng, A., Zegura, E., Moreno, A., Best, M., " Lessons in Social Election Monitoring," ICTD '16 Note, Proceedings of the Information and Communication Technologies and Development Conference, June 2016, Ann Arbor, MI.
99. **Madaio, M.**, Grinter, R., Zegura, E., " Experiences with MOOCs in a West-African Technology Hub," ICTD '16 Note, Proceedings of the Information and Communication Technologies and Development Conference, June 2016, Ann Arbor, MI.
100. **Nawanol Theera-Ampornpunt, Tarun Mangla**, Saurabh Bagchi, Rajesh Panta, Kaustubh Joshi, Mostafa Ammar, and Ellen Zegura, "TANGO: Toward a More Reliable Mobile Streaming through Cooperation between Cellular Network and Mobile Devices," The 2016 IEEE 35th Symposium on Reliable Distributed Systems (SRDS 2016), Hungary, September 2016.
101. **Habak, K.**, Ammar, M., Zegura, E., Harras, K., "Workload Management for Dynamic Mobile Device Clusters in Edge Femtoclouds," The Second ACM/IEEE Symposium on Edge Computing (SEC), San Jose, CA, October 2017.
102. **Mangla, T.**, Halepovic, E., Ammar, M., Zegura, E., "MIMIC: Using Passive Network Measurements to Estimate HTTP-based Adaptive Video QoE Metrics," The IEEE/IFIP Workshop on Mobile Network Measurement, Dublin, Ireland, June 2017.
103. Ammar, M., Zegura, E., **Zhao, Y.**, "A Vision for Zero-Hop Networking (ZeN)," Proceedings of the 2017 IEEE International Conference on Distributed Computing Systems (ICDCS) – Vision Track, Atlanta, GA, June 2017.
104. **Zhao, Y., Lo, S.**, Zegura, E., Riga, N., Ammar, M., "Virtual Network Migration on the GENI Wide-Area SDN-Enabled Infrastructure," Proceedings of CNERT '17, the 2017 IEEE INFOCOM International Workshop on Computer and Networking Experimental Research Using Testbeds, May 2017, Atlanta, GA.
105. **Saeed, A.**, Harras, K.A., Zegura, E., Ammar, M., "Local and Low-Cost White Space Detection," Proceedings of the IEEE International Conference on Distributed Computing Systems (ICDCS), June 2017, Atlanta, GA.
106. **M. Vigil-Hayes**, E. Belding and E. Zegura, "FiDO: A Community-based Web Browsing Agent and CDN for Challenged Network Environments", Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Sept. 2017
107. **Jeremy Auerbach, Hayley Barton, Takeria Blunt, Vishwamitra Chaganti, Bhavya Ghai**, Amanda Meng, **Christopher Blackburn**, Ellen Zegura, "Using data science as a community advocacy tool to

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promote equity in urban renewal programs: An analysis of Atlanta's Anti-Displacement Tax Fund," Bloomberg Data for Good Exchange 2017 and Chicago Data Science for Social Good Conference 2017.

108. **Erwin, A.**, Borenstein, J., Newstetter, W., Potts, C., Zegura, E., "Community Engagement and Ethics: Embarking on a Transformational Initiative," International Conference of Association for Professional and Practical Ethics, March 2018.

109. **T. Mangla**, E. Halepovic, M. Ammar, E. Zegura, "eMIMIC: Estimating HTTP-based Video QoE Metrics from Encrypted Network Traffic," Proceedings of IFIP/IEEE Network Traffic Measurement and Analysis Conference, June 2018, Vienna. **Best Paper Award.**

110. **T. Mangla**, E. Halepovic, R. Jana, K.-W. Hwang, M. Platania, M. Ammar, E. Zegura, "VideoNOC: Assessing Video QoE for Network Operators using Passive Measurements," Proceedings of ACM Multimedia Systems Conference, June 2018, Amsterdam.

111. E. Zegura, C. DiSalvo, A. Meng, "Care and the Practice of Data Science for Social Good," Proceedings of First ACM Computing and Sustainable Societies (COMPASS), June 2018.

112. **A. Erwin**, J. Borenstein, W. Newstetter, C. Potts, and E. Zegura. "Undergraduate STEM Students and Community Engagement Activities: Initial Findings from an Assessment of Their Concern for Public Well-Being." 2018 ASEE Annual Conference & Exposition (Salt Lake City-UT).

113. **A. Saeed**, M. Ammar, E. Zegura, K. A. Harras, "If you can't beat them, augment them: Improving Local WiFi with Only Above-driver Changes," 2018 IEEE International Conference on Network Protocols (ICNP), Cambridge, UK, September 2018.

114. **A. Saeed, Y. Zhao**, N. Dukkipati, E. Zegura, M. Ammar, K. Harras, A. Vahdat, "Eiffel: Efficient and Flexible Software Packet Scheduling," USENIX Networked Systems Design and Implementation (NSDI) 2019.

115. **Yimeng Zhao, Ahmed Saeed**, Mostafa Ammar, Ellen Zegura, "zD: A Scalable Zero-Drop Network Stack at End Hosts," Proceedings of ACM CoNext Conference, December 2019, Orlando, FL.

116. **Yimeng Zhao, Ahmed Saeed**, Mostafa Ammar, Ellen Zegura, "Unison: Enabling Content Provider/ISP Collaboration using a vSwitch Abstraction," Proceedings of IEEE ICNP 2019, October 2019, Chicago, IL.

117. **Tarun Mangla**, Emir Halepovic, Mostafa Ammar and Ellen Zegura, "Using Session Modeling to Estimate HTTP-based Video QoE Metrics from Encrypted Network Traffic," in IEEE Transactions on Network and Service Management, Vol. 16, No. 3, 2019.

118. **Vivek Adarsh, Michael Nekrasov**, Ellen Zegura, Elizabeth Belding, "Packet-level Overload Estimation in LTE Networks using Passive Measurements," Internet Measurement Conference (IMC) 2019.

119. Amanda Meng, Carl DiSalvo, Ellen Zegura, "Collaborative Data Work Towards a Caring Democracy," ACM SIGCHI Computer Supported Collaborative Work (CSCW) 2019.

120. **Ahmed Saeed, Varun Gupta, Prateesh Goyal, Milad Sharif, Rong Pan**, Mostafa Ammar, Ellen Zegura, Keon Jang, Mohammad Alizadeh, Abdul Kabbani, and Amin Vahdat, "Annulus: A Dual Congestion Control Loop for Datacenter and WAN Traffic Aggregates," ACM SIGCOMM, January 2020
121. **Tarun Mangla**, Emir Halepovic, Ellen Zegura, Mostafa Ammar, "Drop the packets: using coarse-grained data to detect video performance issues," Proceedings of ACM CoNext 2020, November 2020.
122. B. Shapiro, **E. Logevall**, A. Meng, J. Borenstein, E. Zegura, "Using Role-Play to Scale the Integration of Ethics across the Computer Science Curriculum," ACM SIGCSE, March 2021
123. **E. Showalter**, M. Vigil-Hayes, E. Zegura, R. Sutton and E. Belding, "Tribal Mobility and COVID-19: An Urban-Rural Analysis in New Mexico," ACM HotMobile, February 2021
124. **V. Adarsh, M. Nekrasov, U. Paul, A. Ermakov**, A. Gupta, M. Vigil-Hayes, E. Zegura, E. Belding, "Too Late for Playback: Estimation of Video Stream Quality in Rural and Urban Contexts," Passive and Active Measurement (PAM) Conference, April 2021.
125. **Y. Zhao**, A. Saeed, E. Zegura, and M. Ammar, "Scouting the Path to a Million-Client Server," Passive and Active Measurement (PAM) Conference, April 2021.
126. **V. Adarsh, M. Nekrasov, U. Paul**, T. Mangla, A. Gupta, M. Vigil-Hayes, E. Zegura, E. Belding, "Coverage is Not Binary: Quantifying Mobile Broadband Quality in Urban, Rural, and Tribal Contexts," IEEE ICCCN Conference, July 2021.
127. M. Vigil-Hayes, **Md Nazmul Hossain, A. Elliott**, E. Belding, and E. Zegura, "LoRaX: Repurposing LoRa as a Low Data Rate Messaging System to Extend Internet Boundaries," In ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS), June 2022.
128. **K. Yamin, M. Oswald, N. Jadali**, Y. Xie, E. Zegura, and D. Nazzal. "An Unsupervised Density Based Clustering Algorithm to Detect Election Anomalies: Evidence from Georgia's Largest County." In ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS), June 2022.
129. **B. Palacios Abad**, E. Belding, M. Vigil-Hayes, and E. Zegura. "Note: Towards Community-Empowered Network Data Action." In ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS), June 2022.
130. **Q. Kreth**, D. Schiff, J. Lee, E. Zegura, J. Borenstein. "Social Responsibility Attitudes Among Undergraduate Computer Science Students: An Empirical Analysis," 2022 ASEE Annual Conference & Exposition, August 2022. **Best Paper Award** for the ASEE Engineering Ethics Division.
131. **B. Palacios Abad**, M. Vigil-Hayes, and E. Zegura. "Alone and Together: Resilience in a Fluid Socio-Technical-Natural System," To appear in ACM SIGCHI Computer Supported Collaborative Work (CSCW) 2023.
132. **R. MacDonald**, C. Zegura, B. Shapiro, J. Borenstein, and E. Zegura. "Developing Community Support for Computing Ethics Teaching Assistants," To appear in ACM SIGCSE Computer Science Education, March 2023.

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133. C. Zegura, B. Shapiro, **R. MacDonald**, J. Borenstein, and E. Zegura. "Moment to Moment": A View From the Front Lines with Computing Ethics Teaching Assistants," To appear in ACM SIGCHI Human Factors in Computer Systems, April 2023.

134. **J. He**, M. Ammar, and E. Zegura, "A Measurement-Derived Functional Model for the Interaction between Congestion Control and QoE in Video Conferencing," To appear in the Passive and Active Measurement Conference 2023 (PAM 2023), March 2023.

B. Grants and Contracts

As Principal Investigator or Co-PI (not separated)

Distributed Mentor Project

Computing Research Association

Funded \$5000/year (1994-1998, 2000)

A Testbed for Multimedia Communication Protocols

AT&T Special Purpose Grants

Funded \$20,000, Collaborators: Ammar, Calvert, Enslow, Mukherjee, September 1994

Low-Cost ATM Switching Architectures

Georgia Tech Engineering Research Center in Packaging

Funded \$17,500, Fall 1994-Summer 1995

A Systematic Approach to the Design of Cost-Effective, High Performance Switching Architectures

National Science Foundation (NSF) CAREER Award

Funded \$131,479, 5/1/95 – 5/1/98

Networking Instructional Laboratory Enhancements

AT&T Special Purpose Grants

Collaborators: Ammar, Calvert, Enslow, Jr., Limb, Mukherjee

Funded \$30,000, October 1995

Application-Based Traffic Management for ATM Networks

Hitachi Telecom, USA

Collaborators: Aaron, Ammar, Evans, Howard, Limb

Funded \$260,000, 11/1/95 – 11/1/96

S3: Scalable, Self-Organizing Simulations

Defense Advanced Research Projects Agency (DARPA)

Collaborators: M. Chen, J. Cowie, R. Fujimoto, D. Leskiw, D. Nichol, A. Ogielski, S. Bhatt

Funded \$3,200,000, 8/1/96 – 8/1/99

GT Subcontract Amount: \$440,000

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Remote Teaching and Collaboration Facility

AT&T Special Purpose Grants
Collaborators: M. Ammar, K. Calvert, P. Enslow, Jr., J. Limb
Funded \$20,000, October 1996

Application-Driven ABR Support

Hitachi Telecom, USA
Funded \$54,100, 11/1/96 – 11/1/97

Research Experience for Undergraduates – Supplement to CAREER Award

National Science Foundation (NSF)
Funded \$20,125, April 1997

Research and Teaching in High Performance Networking and Distributed Systems

Washington University and NSF (Gigabit ATM Network Kits Program)
Collaborators: K. Calvert, K. Schwan and S. Yalamanchili
Funded as Hardware Award, Summer 1997

CANEs: Composable Active Network Elements

Defense Advanced Research Projects Agency (DARPA)
Collaborators: K. Calvert and J. Sterbenz (U Kansas)
Funded \$944,248, 6/15/97 – 6/1/99

Satellite Aware Multicasting

NASA Graduate Student Researchers Program
Funded \$44,000, 6/1/97 – 6/1/99

Travel Support for ACM SIGCOMM '97

National Science Foundation (NSF)
Funded \$14,000, September 1997

LAWS: Load-Adaptive Web Server

Georgia Tech Broadband Telecommunications Center
Funded \$45,000, May 1997

ActiveCast

Defense Advanced Research Projects Agency (DARPA)
Collaborators: K. Calvert (U Kentucky) and J. Griffioen (U Kentucky)
Funded \$1.5M, 5/99 – 4/02
GT Subcontract Amount: \$500,000

Server Selection in Emerging Information Delivery Environments

National Science Foundation (NSF)
Collaborator: M. Ammar
Funded \$399,000, 11/99 – 10/02

Internet Topology Models – A Foundation for Large-Scale Simulations

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National Science Foundation (NSF)
Collaborators: J. Stasko and K. Calvert (U Kentucky)
Funded \$500,000, 9/00 – 8/03
GT Amount: \$385,000

MOWER – Mobile Endpoint Wireless Routing for the LAWN

Cisco Systems, Inc.
Collaborators: R. Clark and R. Hutchins
Funded \$60,000, January 2002 – January 2003

Peer-to-Peer Content Distribution Services and Architectures

Georgia Tech Broadband Institute
Collaborator: M. Ammar
Funded \$30,000, August 2002 – July 2003

Design and Evaluation of Retrieval Functions in Peer-Peer File Sharing Systems

National Science Foundation (NSF)
Collaborator: M. Ammar
Funded \$300,000, October 2003 – September 2006

ITR: Message Ferrying: Mobility-Assisted Data Delivery in Highly Partitioned Networks

National Science Foundation (NSF)
Collaborator: M. Ammar
Funded \$300,000, October 2003 – September 2006

Mobility-Assisted Data Delivery in Wireless Networks

Georgia Tech Broadband Institute
Collaborator: M. Ammar
Funded \$30,000, August 2004 – July 2005

ALeRT: Adaptive Learning and Routing Technologies for Disruption Tolerant Networks

Defense Advanced Research Projects Agency (DARPA)
Collaborators: M. Ammar, M. Corner (UMass) and B. Levine (UMass)
Funded \$274,400, February 2005 – April 2006

Collaborative Research in Construction of Robust and Efficient Disruption Tolerant Networks

National Science Foundation (NSF)
Collaborators: M. Ammar, Mark Corner (UMass) and Brian Levine (UMass)
Funded \$1,500,000, August 2005 – July 2009
GT Amount: \$750,000

Intelligent Route Control

National Science Foundation (NSF)
Collaborators: M. Ammar, C. Dovrolis
Funded \$200,000, September 2005 – August 2007

Architectures and Protocols for Disruption Tolerant Mobile Wireless Networks

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Cisco University Research Program

Collaborator: M. Ammar

Funded \$80,000, September 2006 – August 2007

DOMe: Disruption Tolerant Outdoor Mobile Environments

Defense Advanced Research Projects Agency (DARPA)

Collaborators: M. Ammar, M. Corner (UMass) and B. Levine (UMass)

Funded \$1.2M, GT Amount \$600,000, September 2006 – March 2008

Funded \$1.2M, GT Amount \$600,000, Fall 2008 – April 2010

The WAM Continuum: Unified Design and Operation for Mobile Wireless Networks

National Science Foundation (NSF)

Collaborators: M. Ammar

Funded \$450,000, August 2008 – July 2011

ARRA: Campus Trials of Enterprise GENI

BBN System and Technologies

Collaborators: R. Clark, N. Feamster

Funded \$252,800, March 2010

ICTD PEER MENTORSHIP PROGRAM

International Development Corporation

Collaborator: M. Best

Funded ~\$90,000, June 2011

NeTS: Recovery and Transformation of Human Mobility Traces for Mobile Wireless Experimentation

National Science Foundation (NSF)

Collaborator: M. Ammar

Funded \$399,000, August 2011-September 2014

NeTS: Mobile Computing over Intermittently Connected Networks National Science Foundation (NSF)

Joint Proposal with M. Ammar, I. Essa, M. Naik (co-IPs)

Funded \$695,000, August 2012-August 2015

Development of a Web-Based Prototype System for Small Shop Owner Management

Cooperative for Assistance and Relief Everywhere, Inc. (CARE)

Funded \$6,000, May 2013

NeTS: Enabling Network Agility through Virtualized Infrastructure Migration

National Science Foundation (NSF)

Collaborators: M. Ammar, E. Al-Shaer

Funded \$500,000, GT Amount \$250,000, August 2013-July 2016

A Mobile Personal Health Record for Behavioral Health Homes

Emory University (prime sponsor is NIH)

Last updated: February 2023

Collaborators: Beki Grinter

Funded \$183,293, October 2013-May 2015

Stratus Clouds: Mobile Computing with Tactical HPC in the Field Army Research Laboratory (ARL)

Collaborator: M. Ammar

Funded: \$100,000, July 2014-June 2015

Funded: \$100,000, July 2015-June 2016

Launching the Public Service Pathway of Serve Learn Sustain, Georgia Tech's Comprehensive Effort to Foster an Environment for Creating Sustainable Communities

Commerce Club Foundation of Atlanta

Collaborators: Jennifer Hirsch, Carl DiSalvo, Beril Toktay, Colin Potts

Funded: \$200,000, September 2015

TribalNet: Expanding Internet Accessibility and Participation on Native American Reservations

National Science Foundation

Elizabeth Belding (UCSB, PI); Beki Grinter (GT), Carleen Maitland (PSU)

Funded \$400,000, GT Amount: \$175,000, July 2016-June 2019

EAGER: A Multi-Network Architecture for Expanding Internet Participation and Community-Building on Native American Reservations

National Science Foundation

Elizabeth Belding (UCSB), Beki Grinter (GT)

Funded \$300,000, GT Amount: \$150,000, July 2016-June 2018

CCE STEM: Institutional Transformation: The Role of Service Learning and Community Engagement on the Ethical Development of STEM Students and Campus Culture

National Science Foundation

Collaborators: Colin Potts (PI); Jason Borenstein (PubPol), Wendy Newstetter (CoE)

Funded: \$600,000, August 2016-August 2021

Note: I led the development of this proposal. Colin is PI because the Institutional Transformation award category required a senior administrative official as PI.

EIFFEL: Efficient and Flexible Software Packet Scheduling

National Science Foundation

Collaborator: Mostafa Ammar (PI)

Funded: \$500,000, August 2018-July 2021

PuebloConnect: Expanding Internet Access and Content Relevance in Tribal Communities

National Science Foundation

Collaborators: Elizabeth Belding (UCSB, PI), Marisa Duarte (ASU), Morgan Vigil-Hayes (NAU)

Funded \$2,000,000, GT Amount: ~650,000, October 2018-September 2022 (extended Sept 2023)

Computing and Access to Justice: A Workshop

National Science Foundation

Collaborators: Tanina Rostain (Georgetown, PI), Jon Gould (American University)

Funded \$93,000, 09/01/2018 – 01/31/2019

Last updated: February 2023

VIQI: Video Quality of Experience Inference Using Network Measurements

National Science Foundation

Collaborator: Mostafa Ammar (PI)

Funded: \$500,000, October 2019 – September 2022

Rewiring Computer Science Mindset

Mozilla Responsible Computer Science Challenge

Funded: \$150,000, April 2019 – July 2020

Prototyping a Regional Public Interest Technology Faculty Fellows Program

Ford Foundation/New America

Collaborators: Susan Snyder (GSU), Scott Jacques (GSU)

Funded: \$180,000, October 2019 – September 2020

Computing Innovation Fellows 2020

National Science Foundation

Collaborators: Andrew Bernat (CRA), Elizabeth Bradley (CU Boulder), Ann Drobnis (CRA), Mark Hill (Wisconsin)

Funded: \$16.8M, May 2020-April 2024

Mozilla Phase 2: Scaling Train the Trainers

Mozilla Responsible Computer Science Challenge

Collaborators: Jason Borenstein (GT Public Policy), Ben Shapiro (GSU)

Funded: \$54,000, Summer 2021-Summer 2022

Computing Innovation Fellows 2021

National Science Foundation

Collaborators: Andrew Bernat (CRA), Elizabeth Bradley (CU Boulder), Ann Drobnis (CRA),

Funded: \$20M, May 2021-April 2025

Fostering a Culture of Computing Ethics by Broadening Participation in Curriculum Development

National Science Foundation

Collaborators: Jason Borenstein (PI, GT Public Policy), Charles Isbell

Funded: \$400,000, September 2021-August 2024

Georgia Smart Communities Challenge

Collaborators: Ada Gavrilovska

Funded: \$100,000

MapQ: Mapping Quality of Coverage in Mobile Broadband Networks using Latent Gaussian Process Models

National Science Foundation

Collaborators: Elizabeth Belding (UCSB), Yao Xie (GT, ISyE)

Funded: \$410K (GT share \$220K), October 2022-September 2025

CellWatch: Tools for Empowering Citizen-Driven Mobile Broadband Data Collection

Rockefeller Foundation

Last updated: February 2023

Collaborators: Elizabeth Belding (UCSB), Morgan Vigil-Hayes (NAU)
Funded: \$500K (GT share ~\$350K), July 2022-December 2023

V. Education

Courses Taught (since 2016)

Undergrad research team, Bits of Good, Sp 2019-present, 20-40 students per term

Sp 2023, CS 2050: Introduction to Discrete Mathematics, 275

Fa 2022, CS 3251, Computer Networking I, 111

Sp 2022, CS 2050: Introduction to Discrete Mathematics, 262

Sp 2022, VIP Bits of Good, 37

Fa 2021, CS 3251: Computer Networking I, 103

Fa 2021, VIP Bits of Good, 40

Sp 2021, CS 3251: Computer Networking I, 82

Sp 2021, VIP Bits of Good, 40

Fa 2020, SLS 3110: Technology and Sustainable Community Development, 53 (with Yao)

Fa 2020, VIP Bits of Good, 22

Fa 2019, SLS 3110: Technology and Sustainable Community Development, 38 (with Yao)

Fa 2019, VIP Bits of Good, 20

Sp 2019, CS 3251: Computer Networking I, 71

Sp 2019, VIP Bits of Good, 20

Fa 2018, SLS 3110: Technology and Sustainable Community Development, 35 (with Yao)

Sp 2018, CS 3251: Computer Networking I, ~75

Fa 2017, CS 3251: Computer Networking I, 89

Fa 2017, SLS 3110: Technology and Sustainable Community Development, 35

Sp 2017, CS 8803: Smart Cities, 11

Fa 2016, Computing and Social Good, 45 (with Grinter)

Fa 2016, SLS 3110: Technology and Sustainable Community Development, 17

Sp 2016, SLS 3110: Technology and Sustainable Community Development, 16

Individual Student Guidance

Ph.D. Students

Michael Jeff Donahoo, Graduation date: Summer 1998

Thesis title: Application-based enhancement to network-layer multicast

Initial Position: Assistant Professor, Baylor University

Samrat Bhattacharjee, Graduation date: Summer 1999 (co-advised by Ken Calvert)

Thesis title: Active networking: architectures, composition, and applications

Initial Position: Assistant Professor, University of Maryland

Fang Hao, Graduation date: Summer 2000

Thesis title: Scalability techniques in QoS networks

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Initial Position: Lucent Technologies, Bell Labs Research

Zhiruo Cao, Graduation date: Summer 2000

Thesis title: Network support for adaptive applications

Initial Position: Cisco Systems

Tianji Jiang, Graduation date: Summer 2000 (co-advised by Mostafa Ammar)

Thesis title: Accommodating heterogeneity and scalability for multicast communication

Initial Position: Cisco Systems

Yongsu Chae, Graduation date: Fall 2002

Thesis title: Algorithms, protocols and services for scalable multimedia streaming

Initial Position: Samsung, Korea

Richard Liston, Graduation date: August 2004

Thesis title: Measuring user-perceived Internet performance in multiple locations

Initial Position: Assistant Professor, Ursinus College, Pennsylvania

Shashidhar Merugu, Graduation date: Fall 2005

Thesis title: Network design and routing in peer-to-peer and mobile ad-hoc networks

Initial Position: Riverbed Networks, San Francisco, California

Pradnya Karbhari, Graduation date: Fall 2005 (co-advised by Mostafa Ammar)

Thesis title: Throughput and fairness considerations in overlay networks for content distribution

Initial Position: Google Research, Mountain View, California

Meng Guo, Graduation date: Fall 2005 (co-advised by Mostafa Ammar)

Thesis title: Supporting scalable and resilient video streaming applications in evolving networks

Initial Position: Google Research, Mountain View, California

Abhishek Kumar, Graduation date: Fall 2005 (co-advised by Jim Xu)

Thesis title: Network data streaming: Algorithms for network measurement and monitoring

Initial Position: Eagle Eye Networks (startup) then Google

Wenrui Zhao, Graduation date: Summer 2006 (co-advised by Mostafa Ammar)

Thesis title: Routing and network design in delay tolerant networks

Initial Position: Ask.com

Ruomei Gao, Graduation date: August 2007 (co-advised by Constantinos Dovrolis)

Thesis title: Interdomain traffic engineering for multihomed networks

Initial Position: Akamai

Hyewon Jun, Graduation date: Fall 2007 (co-advised by Mostafa Ammar)

Thesis title: Power management in disruption tolerant networks

Initial position: Google, New York

Sridhar Srinivasan, Graduation date: Spring 2007

Thesis title: Design and use of managed overlay networks

Last updated: February 2023

Initial position: Google

Yang Chen, Graduation date: Fall 2013 (co-advised by Mostafa Ammar)

Thesis title: Characterizing and mitigating communication challenges in wireless and mobile networks

Initial position: Schlumberger, TX

Cong Shi, Graduation: Summer 2014 (co-advised by Mostafa Ammar)

Thesis title: Addressing connectivity challenges for mobile computing and communication

Initial position: Square, Inc.

Samantha Lo, Graduation: Fall 2015 (co-advised by Mostafa Ammar)

Thesis title: Design and Evaluation of Virtual Network Migration Mechanisms on Shared Substrate

Initial position: AT&T Labs Research

Alireza Monfared, Graduation: Fall 2015 (co-advised by Mostafa Ammar)

Thesis title: Tactical HPC: Scheduling High Performance Computers in a Geographical Region

Initial position: Microsoft Azure Group

Karim Habak, Graduation: Fall 2018 (co-advised by Mostafa Ammar)

Thesis title: Mobile Edge Devices as Edge Compute Resources: Design, Deployment and Role in the Computing Ecosystem

Initial position: Google

Ahmed Saeed, Graduation: Fall 2019 (co-advised by Mostafa Ammar)

Thesis title: Scalable Network Scheduling in Software

Initial position: Postdoc, MIT

Yimeng Zhao, Fa 2014-Summer 2020 (co-advised by Mostafa Ammar)

Thesis title: Mitigating Inter-Connect and End Host Congestion in Modern Networks

Initial position: Facebook

Tarun Mangla, Fa 2014-Summer 2020 (co-advised by Mostafa Ammar)

Thesis title: Video QoE Estimation and Diagnosis using Network Measurement Data

Initial position: Postdoc, UChicago

Beatriz Palacios Abad, Fa 2019-present

Progress: post-qualifier

Socio-technical-natural resilience and communities

Jia He, Fall 2021-present (co-advised by Mostafa Ammar)

Video streaming and conferencing

Jason Cox, Fall 2022-present

Cellular network measurement

Eric Greenlee, Fall 2022-present

Community networks and sustainability

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Grace Barkhuff, Fall 2022-present
Computing ethics

Mentorship of Postdoctoral Fellows or Visiting Scholars

M. Bill McKinnon III: Winter 1998-Winter 1999 (25% time)
Co-supervised by Ken Calvert
Performance analysis of active networking

Sapan Bhatia: Fall 2006
Automated methods for making legacy protocols delay tolerant
Position: Research scientist, Princeton University

Amanda Meng: January 2017 – January 2020
Co-supervised by Carl DiSalvo
Civic data and design

VI. Service

Professional Contributions (selected)

1. Program Committee Co-Chair, ACM SIGCOMM 2004
2. Program Committee Co-Chair, IEEE ICNP 2003
3. Program Committee, IEEE INFOCOM 1994-1998, 2000-2004, 2006
4. Program Committee, IEEE International Conference on Network Protocols (ICNP) 1997- 2000, 2003, 2014, 2017
5. Executive Committee (Publicity Chair), IEEE International Conference on Network Protocols (ICNP) 1997
6. Executive Committee (Co-chair, Student Travel Award Committee), ACM SIGCOMM Conference 1997
7. Executive Committee (Tutorials Chair), ACM SIGCOMM Conference 1999
8. Co-chair for 2nd Workshop on Internet Server Performance, 1999
9. Program Committee, ACM SIGCOMM Conference 1999-2004, 2006, 2008, 2011, 2014, 2016, 2020
10. Program Committee, ACM SIGMETRICS Conference 1999-2000, 2003
11. Program Committee, IEEE OpenArch 2000, 2001
12. Program Committee, International Conference on Peer-to-Peer Systems (IPTPS) 2003
13. Program Committee, ACM Hot Topics in Networks (HotNets) Workshop, 2003-2004
14. Program Committee, USENIX Networked Systems Design and Implementation (NSDI) 2005, 2010, 2019, 2022
15. Program Committee, CHANTS 2010
16. Executive Committee (General Co-Chair), Information and Communication Technologies for Development (ICTD) 2013
17. Executive Committee (General Co-Chair), ACM Development (DEV) 2013, 2014, 2015
18. Program Committee, Information and Communication Technologies for Development (ICTD) 2013, 2014, 2016, 2019
19. General Chair, HotNets 2016

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20. General Chair, Program Committee Co-Chair, and Steering Committee, ACM Computing and Sustainable Communities (COMPASS) 2018
21. Chair, ACM SIGCOMM Adhoc CARES (Committee to Aid Reporting on Discrimination and Harrassment) Committee, 2018-2021
22. ACM SIGCOMM Technical Steering Committee, 2018-2021
23. ACM SIGCOMM Chair, 2021-present
24. External Review Committee for KTH Sweden, 2021
25. Co-lead for CRA Executive Director Search, 2021
26. Community of Visitors for NSF CISE Office of Advanced Cyberinfrastructure, 2022
27. Scientific Advisory Board, SFI (Ireland) Centre for Research Training in Advanced Networks for Sustainable Societies, Fall 2022-present

Institute Contributions (selected)

1. Institute Library/Faculty Advisory Board (Chair)
2. Institute Search Committee, College of Sciences Dean
3. Institute Search Committee, Director of Admissions
4. Institute Service Learning and Community Engagement Council (Chair)
5. Institute Task Force on Service Learning for GT Strategic Plan Implementation (Co-chair)
6. Institute Serve Learn Sustain Quality Enhancement Plan (Executive Co-director), 2016-2021
7. CoC Data Science for Social Good/Civic Data Science Internship program (Creator and Director, 2014-2020)
8. Institute Creating the Next in Education Commission (2016-2018)
9. RPT Chair, School of Computer Science (~2016-2017)
10. Grad Ombudsman, School of Computer Science (~2015-present)
11. RPT Chair, College of Computing (2017-2020)
12. Chair, Search Committee for Chair of Interactive Computing (2017)
13. Task Force on Expanding Study Abroad Programs, College of Computing (2017)
14. Task Force on Scaling Undergraduate Education, College of Computing (2018)
15. Chair, Search Committee for VP IT and CIO (2020)
16. Institute International Advisory Committee (2020-present)
17. Faculty Recruiting Committee, School of Computer Science (2019-2021)
18. School Advisory Committee, School of Computer Science (2019-present)
19. RPT Committee, College of Computing (2021-present)
20. Implementation Committee for GT Strategic Plan Anchor Institution (2021)
21. Co-Director of Center for Computing and Society