Martin Reisslein

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EDUCATION

University of Pennsylvania
Ph. D. in Systems Engineering, August 1998
Thesis: Managing Prerecorded Traffic in Packet–Switched Networks
Advisor: Dr. Keith W. Ross

M. S. E. in Electrical Engineering, August 1996

Fachhochschule Dieburg, Germany
Diplom–Ingenieur(FH) in Electrical Engineering, 1994

ACADEMIC EXPERIENCE

Ira A. Fulton Schools of Engineering, Arizona State University
Program Chair, Computer Engineering, January 2018 – present

School of Electrical, Computer, and Energy Engineering, Arizona State University Professor, August 2011 – present

Department of Electrical Engineering, Arizona State University Associate Professor, August 2005 – August 2011

Department of Electrical Engineering, Arizona State University Assistant Professor, October 2000 – August 2005

German National Research Center for Information Technology (GMD FOKUS) and Technical University Berlin Post–doctoral Researcher and Lecturer, August 1998 – October 2000

PRINCIPAL AREAS of TEACHING AND RESEARCH

Teaching

- Communication Networks and Multimedia Networking
- Electrical Networks and Digital Design Fundamentals
- Performance Evaluation of Computer Networks

Research

- 5G/6G Wireless Network Systems
- Access and Metropolitan Area Networks, Hybrid Optical-Wireless Backhaul Networks
- Characterization and Network Transport of Multimedia and Digital Twin Traffic
- Distributed Robotics with Digital Twin Human-in-the-Loop
- Multi-access Edge Computing (MEC)
- Network Function Virtualization (NFV), Virtual Network Function (VNF) Acceleration
- Post-Shannon Communication, Identification via Channels
- Quaternion-based Orientation Estimation
- Semantic Compression of Extended Reality Representations
- Software-Defined Networking (SDN), Time-sensitive Networking (TSN)
- Tactile Internet and Ultra-low Latency (ULL) Networking
- Visual Simultaneous Localization and Mapping (Visual SLAM)
- Engineering Education and K-12 Outreach

MAJOR AWARDS AND PROFESSIONAL RECOGNITIONS

Career Award from United States National Science Foundation, 2002

Best Tutorial Paper Award from IEEE Communications Society, 2008

Elevation to IEEE Fellow, 2014

Friedrich Wilhelm Bessel Research Award from Alexander von Humboldt Foundation, 2015

DRESDEN Senior Fellow, Technical University Dresden, Germany, 2016, 2019

IEEE Transactions on Education Theodore E. Batchman Best Paper Award, 2016

Best Paper Award of the IEEE ComSoc Technical Committee on Communications Systems Integration and Modeling, 2017

Journal of Engineering Education Star Reviewer for 2017, top 2% of the 350 people who reviewed for JEE

IEEE Education Society Outstanding Chapter Leadership Award, 2018

IEEE Open Journal of Intelligent Transportation Systems Best Paper Award, 2020

Computer Networks journal (Elsevier), 2021 Best Paper Award

IEEE Int. Wireless Communications and Mobile Computing Conference (IWCMC) Best Paper Award, 2022

PUBLICATIONS

Publications as of November 2026

- 245 Refereed Archival Journal Articles
- 85 Referred Conference Papers
- 1 Co-Authored Book, 2 Co-Edited Books, 5 Co-Authored Book Chapters

Citation Metrics as of November 2026

- Google Scholar:
  - Total citations = **21150**
  - h-index = **70**
- ISI (Clarivate) Web of Science:
  - Total citations = **9230**
  - h-index = **47**

Complete Listing of Published Articles

Graduate student co-authors are marked with*, while undergraduate student co-authors are marked with**.

1. M. Reisslein and K. W. Ross. Call Admission for Prerecorded Sources with Packet Loss. *IEEE Journal on Selected Areas in Communications*, 15(6):1167–1180, August 1997.
2. M. Reisslein and K. W. Ross. High–Performance Prefetching Protocols for VBR Prerecorded Video. *IEEE Network*, 12(6):46–55, November/December 1998.
3. F. Fitzek* and M. Reisslein. A Prefetching Protocol for Continuous Media Streaming in Wireless Environments. *IEEE Journal on Selected Areas in Communications*, Special issue on Mobility and Resource Management in Next Generation Wireless Systems, I. Akyildiz, D. Goodmann, and L. Kleinrock, Eds., 19(10):2015–2028, October 2001.
4. M. Reisslein. Measurement–based Admission Control for Bufferless Multiplexers. *International Journal of Communication Systems (Wiley)*, 14(8):735–761, October 2001.
5. F. Fitzek* and M. Reisslein. MPEG–4 and H.263 Video Traces for Network Performance Evaluation. *IEEE Network*, 15(6):40–54, November/December 2001.
6. M. Reisslein, F. Hartanto, and K. W. Ross. Interactive Video Streaming with Proxy Servers. *Information Sciences, An International Journal (Elsevier)*, 140(1–2):3–31, December 2001.
7. M. Reisslein, K. W. Ross, and S. Rajagopal. A Framework for Guaranteeing Statistical QoS. *IEEE/ACM Transactions on Networking*, 10(1)27–42, February 2002.
8. S. Rajagopal, M. Reisslein, and K. W. Ross. Packet Multiplexers with Adversarial Regulated Traffic. *Computer Communications (Elsevier)*, 25(3):239–253, February 2002.
9. F. Fitzek*, A. Koepsel*, A. Wolisz, M. Krishnam*, and M. Reisslein. Providing Application-Level QoS in 3G/4G Wireless Systems: A Comprehensive Framework Based on Multi-Rate CDMA. *IEEE Wireless Communications*, 9(2)42–47, April 2002.

10. J. Kangasharju⋆, F. Hartanto, M. Reisslein, and K. W. Ross. Distributing Layered Encoded Video through Caches. *IEEE Transactions on Computers*, 51(6):622–636, June 2002.

11. F. Fitzek⋆, M. Reisslein, and A. Wolisz. Uncoordinated Real-Time Video Transmission in Wireless Multicode CDMA Systems: An SMPT-Based Approach. *IEEE Wireless Communications*, 9(5):100–110, October 2002.

12. M. Maier⋆, M. Reisslein, and A. Wolisz. Towards Efficient Packet Switching Metro WDM Networks. *Optical Networks Magazine (SPIE, Kluwer/Springer)*, 3(6):44–62, November/December 2002.

13. M. Maier⋆, M. Reisslein, and A. Wolisz. A Hybrid MAC Protocol for a Metro WDM Network Using Multiple Free Spectral Ranges of an Arrayed–Waveguide Grating. *Computer Networks (Elsevier)*, 41(4):407–433, March 2003.

14. H.-S. Yang⋆, M. Maier⋆, M. Reisslein, and W.M. Carlyle. A Genetic Algorithm based Methodology for Optimizing Multi-Service Convergence in a Metro WDM Network. *IEEE/OSA Journal of Lightwave Technology*, 21(5):1114–1133, May 2003.

15. M. Scheutzow, M. Maier⋆, M. Reisslein, and A. Wolisz. Wavelength Reuse for Efficient Transport of Variable-Size Packets in a Metro WDM Network *IEEE/OSA Journal of Lightwave Technology*, 21(6):1435–1455, June 2003.

16. M. Maier⋆, M. Scheutzow, and M. Reisslein. The Arrayed-Waveguide Grating Based Single-Hop WDM Network: An Architecture for Efficient Multicasting. *IEEE Journal on Selected Areas in Communications*, 21(9):1414–1432, November 2003.

17. M. Krishnam⋆, M. Reisslein, and F. Fitzek. Analytical Framework for Simultaneous MAC Packet Transmission (SMPT) in a Multi-Code CDMA Wireless System. *IEEE Transactions on Vehicular Technology*, 53(1):223–242, January 2004.

18. C. Fan⋆, M. Maier⋆, and M. Reisslein. The AWG‖PSC Network: A Performance Enhanced Single-Hop WDM Network with Heterogeneous Protection. *IEEE/OSA Journal of Lightwave Technology*, 22(5):1242–1262, May 2004.

19. F. Fitzek and M. Reisslein. Wireless Video Streaming with TCP and Simultaneous MAC Packet Transmission (SMPT). *International Journal of Communication Systems (Wiley)*, 17(5):421–435, June 2004.

20. M. Reisslein, D. Saparilla⋆, and K. W. Ross. Periodic Broadcasting with VBR–Encoded Video. *ACM/Springer Multimedia Systems Journal*, 9(6):503–516, June 2004.

21. M. Herzog⋆, M. Maier, and M. Reisslein. Metropolitan Area Packet-Switched WDM Networks: A Survey on Ring Systems. *IEEE Communications Surveys and Tutorials*, 6(2):2–20, Second Quarter 2004.

22. M. McGarry⋆, M. Maier and M. Reisslein. Ethernet PONs: A Survey of Dynamic Bandwidth Allocation (DBA) Algorithms. *IEEE Communications Magazine*, 42(8):S8–S15, August 2004.

23. C. Piglione⋆, M. Reisslein, and F. Neri. Fair Transmission of Unicast and Multicast Traffic in a Ring Metro WDM Networks. *OSA Journal of Optical Networking*, 3(8):601–622, August 2004.

24. H.-S. Yang*, M. Herzog*, M. Maier, and M. Reisslein. Metropolitan Area WDM Networks: Comparison of Slotted Ring and AWG Star Networks. *IEEE Journal on Selected Areas in Communications*, 22(8):1460–1473, October 2004.

25. P. Seeling*, M. Reisslein, and B. Kulapala*. Network Performance Evaluation with Frame Size and Quality Traces of Single-Layer and Two-Layer Video: A Tutorial. *IEEE Communications Surveys and Tutorials*, 6(3):58–78, Third Quarter 2004.

26. M. Maier and M. Reisslein. AWG Based Meto WDM Networking. *IEEE Communications Magazine*, 42(11):S19–S26, November 2004.

27. M. Krishnam* and M. Reisslein. A Generalized Analytical Framework for SMPT in a Wireless Multicode CDMA System. *Wireless Personal Communications (Kluwer/Springer)*, 31(3-4):201–220, December 2004.

28. F. Fitzek, S. Rein*, P. Seeling*, and M. Reisslein. RObust Header Compression (ROHC) Performance for Multimedia Transmission over 3G/4G Wireless Networks. *Wireless Personal Communications (Kluwer/Springer)*, 32(1):23–41, January 2005.

29. S. Rein*, F. Fitzek, and M. Reisslein. Voice Quality Evaluation for Wireless Packet Voice: A Tutorial and Performance Results for ROHC. *IEEE Wireless Communications*, 12(1):60–67, February 2005.

30. C. Fan*, S. Adams, M. Reisslein. The $FT^\Lambda - FR^\Lambda$ AWG Network: A Practical Single-Hop Metro WDM Network for Efficient Uni- and Multicasting. *IEEE/OSA Journal of Lightwave Technology*, 23(3):937–954, March 2005.

31. J. Reisslein*, P. Seeling*, and M. Reisslein. Video in Distance Education: ITFS vs. Web-Streaming—Evaluation of Student Attitudes. *The Internet and Higher Education (Elsevier)*, 8(1):25–44, First Quarter 2005.

32. P. Seeling*, P. de Cuetos*, and M. Reisslein. Fine Granularity Scalable (FGS) Video: Implications for Streaming and a Trace-Based Evaluation Methodology. *IEEE Communications Magazine*, 43(4):138–142, April 2005.

33. P. de Cuetos*, P. Seeling*, M. Reisslein, and K.W. Ross. Comparing the Streaming of FGS-Encoded Video at Different Aggregation Levels: Frame, GoP, and Scene. *International Journal of Communication Systems (Wiley)*, 18(5):449–464, June 2005.

34. S. Oh*, Y. Huh*, G. Konjevod, A. Richa, and M. Reisslein. A Modular Algorithm-Theoretic Framework for the Fair and Efficient Collaborative Prefetching of Continuous Media. *IEEE Transactions on Broadcasting*, 51(2):200–215, June 2005.

35. J. Reisslein*, P. Seeling*, and M. Reisslein. Integrating Emerging Topics through Online Team Design in a Hybrid Communication Networks Course: Interaction Patterns and Impact of Prior Knowledge. *The Internet and Higher Eduation (Elsevier)*, 8(2):145–165, Second Quarter 2005.

36. J. Reisslein*, P. Seeling*, and M. Reisslein. Computer-Based Instruction on Multimedia Networking Fundamentals: Equational vs. Graphical Representation. *IEEE Transactions on Education*, 48(3):438–447, August 2005.

37. J. Reisslein*, R.K. Atkinson, P. Seeling*, and M. Reisslein. Investigating the Presentation and Format of Instructional Prompts in an Electrical Circuit Analysis Computer-Based Learning Environment. *IEEE Transactions on Education*, 48(3):531–539, August 2005.

38. M. Maier, M. Herzog*, M. Scheutzow, and M. Reisslein. PROTECTORATION: A Fast and Efficient Multiple-Failure Recovery Technique for Resilient Packet Ring (RPR) Using Dark Fiber. *IEEE/OSA Journal of Lightwave Technology*, 23(10):2816–2838, October 2005.

39. P. Seeling* and M. Reisslein. Evaluating Multimedia Networking Mechanisms Using Video Traces. *IEEE Potentials*, 24(4):21–25, October/November 2005.

40. P. Seeling* and M. Reisslein. The Rate Variability-Distortion (VD) Curve of Encoded Video and its Impact on Statistical Multiplexing. *IEEE Transactions on Broadcasting*, 51(4):473–492, December 2005.

41. M. Maier and M. Reisslein. Ring in the New for WDM Resilient Packet Ring. *IEEE Potentials*, 25(1):22–26, January/February 2006.

42. M. McGarry*, M. Maier and M. Reisslein. WDM Ethernet Passive Optical Networks (EPONs). *IEEE Communications Magazine*, 44(2):S18–S25, February 2006.

43. J. Reisslein*, P. Seeling*, R. Atkinson, and M. Reisslein. Encountering the Expertise Reversal Effect with a Computer-Based Learning Environment on Electrical Circuit Analysis. *Learning and Instruction, Special Issue on Recent Worked Examples Research: Decreasing Extraneous and Increasing Germane Cognitive Load to Foster Learning and Transfer (Elsevier)*, 16(2):92–103, April 2006.

44. P. Seeling*, M. Reisslein, and F.H.P. Fitzek. Offset Trace-Based Video Quality Evaluation after Network Transport. *Journal of Multimedia (Academy Publisher)*, 1(2):1–13, May 2006.

45. L. Ritchie*, H.-S. Yang*, A. Richa, and M. Reisslein. Cluster Overlay Broadcast (COB): MANET Routing with Complexity Polynomial in Source-Destination Distance. *IEEE Transactions on Mobile Computing*, 5(6):653–667, June 2006.

46. S. Rein* and M. Reisslein. Identifying the Classical Music Composition of an Unknown Performance with Wavelet Dispersion Vector and Neural Nets. *Information Scienes (Elsevier)*, 176(12):1629–1655, June 2006.

47. O. Lotfallah*, M. Reisslein, and S. Panchanathan. A Framework for Advanced Video Traces: Evaluating Visual Quality for Video Transmission Over Lossy Networks. *EURASIP Journal on Applied Signal Processing*, Volume 2006, Article ID 42083, pages 1–21, 2006.

48. J. Reisslein*, P. Seeling*, and M. Reisslein. Comparing Static Fading with Adaptive Fading to Independent Problem Solving: The Impact on the Achievement and Attitudes of High School Students Learning Electrical Circuit Analysis, *ASEE Journal of Engineering Education*, 95(3):217–226, July 2006.

49. M. Scheutzow, P. Seeling*, M. Maier, and M. Reisslein. Shortest Path Routing in Optical WDM Ring Networks Under Multicast Traffic. *IEEE Communications Letters*, 10(7):564–566, July 2006.

50. P. Seeling⋆, M. Reisslein, T. K. Madsen, and F. H.P. Fitzek. Performance Analysis of Header Compression Schemes in Heterogeneous Wireless Multi–Hop Networks. *Wireless Personal Communications (Springer)*, 38(2):203–232, July 2006.

51. O. Lotfallah⋆, M. Reisslein, and S. Panchanathan. Adaptive Video Transmission Schemes Using MPEG-7 Motion Intensity Descriptor. *IEEE Transactions on Circuits and Systems for Video Technology*, 16(8):929–946, August 2006.

52. M. McGarry⋆, M. Reisslein, M. Maier and A. Keha. Bandwidth Management for WDM EPONs. *OSA Journal of Optical Networks*, 5(9):637–654, September 2006.

53. M. Maier, M. Scheutzow, M. Herzog⋆, and M. Reisslein. Multicasting in IEEE 802.17 Resilient Packet Ring. *OSA Journal of Optical Networking*, 5(11):841–857, November 2006.

54. F. Hartanto, J. Kangasharju⋆, M. Reisslein, and K.W. Ross. Caching Video Objects: Layers vs. Versions. *Multimedia Tools & Applications (Springer)*, 31(2):221–245, November 2006.

55. J. Reisslein⋆, H. Sullivan, and M. Reisslein. Learner Achievement and Attitudes under Different Paces of Transitioning to Independent Problem Solving. *ASEE Journal of Engineering Education*, 96(1):45–55, January 2007.

56. M. Scheutzow, P. Seeling⋆, M. Maier, and M. Reisslein. WDM Star Subnetwork Upgrade of Optical Ring Networks for Maximum Spatial Reuse under Multicast Traffic. *IEEE Journal on Selected Areas in Communications*, 25(3, Supplement on Optical Communications & Networking):55–67, April 2007.

57. H. Zähle, M. Scheutzow, M. Reisslein, and M. Maier. On the Multicast Capacity of Unidirectional and Bidirectional Packet-Switched WDM Ring Networks. *IEEE Journal on Selected Areas in Communications*, 25(3, Supplement on Optical Communications & Networking):105–119, April 2007.

58. M. Maier, M. Herzog, and M. Reisslein. STARGATE: The Next Evolutionary Step toward Unleashing the Potential of WDM EPONs. *IEEE Communications Magazine*, 45(5):50–56, May 2007.

59. M. Scheutzow, P. Seeling⋆, M. Maier, and M. Reisslein. Multicasting in a WDM-upgraded Resilient Packet Ring. *OSA Journal of Optical Networking*, 6(5):415–421, May 2007.

60. M. an der Heiden, M. Sortais, M. Scheutzow, M. Reisslein, P. Seeling⋆, M. Herzog, and M. Maier. Multicast Capacity of Optical Packet Ring for Hotspot Traffic. *IEEE/OSA Journal of Lightwave Technology*, 25(9):2638–2652, September 2007.

61. G. Van der Auwera⋆, M. Reisslein, and L. Karam. Video Texture and Motion Based Modeling of Rate Variability-Distortion (VD) Curves. *IEEE Transactions on Broadcasting*, 53(3):637–648, September 2007.

62. H.-S. Yang⋆, L. Ritchie⋆, A. Richa, and M. Reisslein. MANET Routing with Provably Low Complexity Through Constant Density Clustering and Route Request Broadcast. *Wireless Personal Communications (Springer)*, 43(2):605–621, October 2007.

63. O. Lotfallah, G. Van der Auwera⋆, and M. Reisslein. Adaptive Bitstream Switching of Scalable Video. *Signal Processing: Image Communications (Elsevier)*, 22(10):809–832, November 2007.

64. F. Aurzada, M. Scheutzow, M. Herzog, M. Maier, and M. Reisslein. Delay Analysis of Ethernet Passive Optical Networks with Gated Service. *OSA Journal of Optical Networking*, 7(1):25–41, January 2008.

65. M. Scheutzow, M. Reisslein, M. Maier, and P. Seeling⋆. Multicast Capacity of Packet-Switched Ring WDM Networks. *IEEE Transactions on Information Theory*, 54(2):623–644, February 2008.

66. S. Oh⋆, B. Kulapala⋆, A. Richa, and M. Reisslein. Continuous-Time Collaborative Prefetching of Continuous Media. *IEEE Transactions on Broadcasting*, 54(1):36–52, March 2008.

67. M. McGarry⋆, M. Reisslein, C.J. Colbourn, M. Maier, F. Aurzada, and M. Scheutzow. Just-in-Time Scheduling for Multichannel EPONs. *IEEE/OSA Journal of Lightwave Technology*, 26(10):1204–1216, May 15, 2008.

68. G. Van der Auwera⋆, P.T. David⋆, and M. Reisslein. Traffic and Quality Characterization of Single-Layer Video Streams Encoded with the H.264/MPEG-4 Advanced Video Coding Standard and Scalable Video Coding Extension. *IEEE Transactions on Broadcasting*, 54(3):698–718, September 2008.

69. M. McGarry⋆, M. Reisslein, and M. Maier. Ethernet Passive Optical Networks Architectures and Dynamic Bandwidth Allocation Algorithms. *IEEE Communications Surveys and Tutorials*, 10(3):46–60, Third Quarter 2008. **Paper won 2008 IEEE Communication Society Best Tutorial Paper Award**

70. G. Van der Auwera⋆, P.T. David⋆, M. Reisslein and L. Karam. Traffic and Quality Characterization of Scalable Video Streams Encoded with the H.264/AVC Scalable Video Coding Extension. *Advances in Multimedia (Hindawi)*, Vol. 2008, Article ID 164027, 27 pages, 2008.

71. G. Van der Auwera⋆, P.T. David⋆, and M. Reisslein. Traffic Characteristics of H.264/AVC Variable Bit Rate Video. *IEEE Communications Magazine*, 46(11):164–174, November 2008.

72. M. Maier and M. Reisslein. Trends in Optical Switching Techniques: A Short Survey. *IEEE Network*, 22(6):42–47, November/December 2008.

73. S. Misra⋆, M. Reisslein, and G. Xue. A Survey of Multimedia Streaming in Wireless Sensor Networks. *IEEE Communications Surveys and Tutorials*, 10(4):18–39, Fourth Quarter 2008.

74. R. Moreno, M. Reisslein, and G. Ozogul. Optimizing Worked-Example Instruction in Electrical Engineering: The Role of Fading and Feedback during Problem-Solving Practice. *ASEE Journal of Engineering Education*, 98(1):83–92, January 2009.

75. Y. Li⋆, M. Reisslein, and C. Chakrabarti. Energy-efficient Video Transmission over a Wireless Link. *IEEE Transactions on Vehicular Technology*, 58(3):1229–1244, March 2009.

76. J.R. Ferguson⋆, M. Reisslein, and M.P. McGarry. Online Excess Bandwidth Distribution for Ethernet Passive Optical Networks. *OSA Journal of Optical Networking*, 8(4):358–369, April 2009.

77. S. Deval*, L. Ritchie*, A. Richa, and M. Reisslein. Evaluation of Physical Carrier Sense Based Spanner Maintenance in Mobile Ad Hoc Networks. *International Journal of Vehicular Technology*, Article ID 958056, 13 pages, 2009.

78. G. Van der Auwera and M. Reisslein. Implications of Smoothing on Statistical Multiplexing of H.264/AVC and SVC Video Streams. *IEEE Transactions on Broadcasting*, 55(3):541–558, September 2009.

79. L. Ritchie*, S. Deval*, M. Reisslein, and A. Richa. Evaluation of Physical Carrier Sense Based Backbone Construction and Maintenance as well as Broadcast and Convergecast in MANETs. *Ad Hoc Networks (Elsevier)*, 7(7):1347–1369, September 2009.

80. F. Aurzada, M. Scheutzow, M. Reisslein, and M. Maier. Toward a Fundamental Understanding of the Stability and Delay of Offline WDM EPONs. *IEEE/OSA Journal of Optical Communications and Networking*, 2(1):51–66, January 2010.

81. M. Reisslein, R. Moreno, and G. Ozogul. Pre-college Electrical Engineering Instruction: The Impact of Abstract vs. Contextualized Representation and Practice on Learning. *ASEE Journal of Engineering Education*, 99(3):225–235, July 2010.

82. M.P. McGarry, M. Reisslein, F. Aurzada, and M. Scheutzow. Shortest Propagation Delay (SPD) First Scheduling for EPONs with Heterogeneous Propagation Delays. *IEEE Journal on Selected Areas in Communications*, 28(6):849–862, August 2010.

83. R. Moreno, M. Reisslein, and G. Ozogul. Using Virtual Peers to Guide Visual Attention During Learning: A Test of the Persona Hypothesis. *Journal of Media Psychology: Theories, Methods, and Applications (JMP)*, 22(2):52–60, 2010.

84. S.K. Srinivasan*, J. Vahabzadeh**, and M. Reisslein. The Effects of Priority Levels and Buffering on the Statistical Multiplexing of Single-Layer H.264/AVC and SVC Encoded Video Streams. *IEEE Transactions on Broadcasting*, 56(3):281–287, September 2010.

85. R. Moreno, G. Ozogul, and M. Reisslein. Teaching with Concrete and Abstract Visual Representations: Effects on Students' Problem Solving, Problem Representations, and Learning Perceptions. *APA Journal of Educational Psychology*, 103(1):32–47, February 2011.

86. F. Aurzada, M. Scheutzow, M. Reisslein, N. Ghazisaidi*, and M. Maier. Capacity and Delay Analysis of Next-Generation Passive Optical Networks (NG-PONs). *IEEE/ACM Transactions on Communications*, 59(5):1378–1388, May 2011.

87. S. Chikkerrur*, V. Sundaram*, M. Reisslein, and L.J. Karam. Objective Video Quality Assessment Methods: A Classification, Review, and Performance Comparison. *IEEE Transactions on Broadcasting*, 57(2):165-182, June 2011.

88. S. Rein and M. Reisslein. Performance Evaluation of the Fractional Wavelet Filter: A Low-Memory Image Wavelet Transform for Multimedia Sensor Networks. *Ad Hoc Networks (Elsevier)*, 9(4):482–496, June 2011.

89. S. Rein and M. Reisslein. Low-Memory Wavelet Transforms for Wireless Sensor Networks: A Tutorial. *IEEE Communications Surveys and Tutorials*, 13(2):291–307, Second Quarter 2011.

90. A. Seema* and M. Reisslein. Towards Efficient Wireless Video Sensor Networks: A Survey of Existing Node Architectures and Proposal for A Flexi-WVSNP Design. *IEEE Communications Surveys and Tutorials*, 13(3):462–486, Third Quarter 2011.

91. M. an der Heiden, M. Sortais, M. Scheutzow, M. Reisslein, and M. Maier. Multicast Capacity of Optical Ring Network with Hotspot Traffic: The Bi-directional WDM Packet Ring. *Optical Switching and Networking (Elsevier)*, 9(1):61–80, January 2012.

92. M.P. McGarry and M. Reisslein. Investigation of the DBA Algorithm Design Space for EPONs, *IEEE/OSA Journal of Lightwave Technology*, 30(14):2271–2280, July 2012.

93. R. Gupta*, A. Pulipaka*, P. Seeling, L.J. Karam, and M. Reisslein. H.264 Coarse Grain Scalable (CGS) and Medium Grain Scalable (MGS) Encoded Video: A Trace Based Traffic and Quality Evaluation. *IEEE Transactions on Broadcasting*, 58(3):428–439, September 2012.

94. N. Ghazisaidi*, M. Maier, and M. Reisslein. VMP: A MAC Protocol for EPON-based Video-dominated FiWi Access Networks. *IEEE Transactions on Broadcasting*, 58(3):440–453, September 2012.

95. G. Ozogul, A.M. Johnson, R. Moreno, M. Reisslein. Technological Literacy Learning with Cumulative and Stepwise Integration of Equations into Electrical Circuit Diagrams *IEEE Transactions on Education*, 55(4):480–487, November 2012.

96. P. Seeling and M. Reisslein. Video Transport Evaluation with H.264 Video Traces. *IEEE Communications Surveys and Tutorials*, 14(4):1142–1165, Fourth Quarter 2012.

97. T. Innes, A.M. Johnson, K.L. Bishop**, J. Harvey**, and M. Reisslein. The Arizona Science Lab (ASL): Fieldtrip based STEM outreach with a full engineering design, build and test cycle. *Global Journal of Engineering Education*, 14(3):225–232, Fourth Quarter 2012.

98. X. Wei*, F. Aurzada, M.P. McGarry and M. Reisslein. EIBT: Exclusive Intervals for Bulk Transfers on EPONs. *IEEE/OSA Journal of Lightwave Technology*, 31(1):99–110, January 2013.

99. A.M. Johnson, G. Ozogul, R. Moreno, and M. Reisslein. Pedagogical Agent Signaling of Multiple Visual Engineering Representations: The Case of the Young Female Agent. *ASEE Journal of Engineering Education*, 102(2):319–337, April 2013.

100. A. Pulipaka*, P. Seeling, M. Reisslein, and L.J. Karam. Traffic and Statistical Multiplexing Characterization of 3-D Video Representation Formats. *IEEE Transactions on Broadcasting*, 59(2):382–389, June 2013.

101. A. Mercian*, M.P. McGarry, and M. Reisslein. Offline and Online Multi-Thread Polling in Long-Reach PONs: A Critical Evaluation. *IEEE/OSA Journal of Lightwave Technology*, 31(12):2018–2028, June 2013.

102. M.S. Kiaei, K. Fouli, M. Scheutzow, M. Maier, M. Reisslein, and C. Assi. Low-latency Polling Schemes for Long-Reach Passive Optical Networks, *IEEE Transaction on Communications*, 61(7):2936–2945, July 2013.

103. A.M. Johnson, M.D. DiDonato, and M. Reisslein. Animated agents in K-12 engineering outreach: Preferred agent characteristics across age levels. *Computers in Human Behavior*, 29(4):1807–1815, July 2013.

104. J. Reisslein, A.M. Johnson, K.L. Bishop**, J. Harvey**, and M. Reisslein. Circuits Kit K–12 Outreach: Impact of Circuit Element Representation and Student Gender. *IEEE Transactions on Education*, 56(3):316-321, August 2013.

105. G. Ozogul, A.M. Johnson, R. K. Atkinson, and M. Reisslein. Investigating the Impact of Pedagogical Agent Gender Matching and Learner Choice on Learning Outcomes and Perceptions. *Computers & Education*, 67:36-50, September 2013.

106. A.M. Johnson, G. Ozogul, M.D. DiDonato, and M. Reisslein. Engineering Perceptions of Female and Male K-12 Students: Effects of a Multimedia Overview on Elementary, Middle-, and High-school Students. *European Journal of Engineering Education*, 38(5):519–531, 2013.

107. A.M. Johnson, K.R. Butcher, G. Ozogul, and M. Reisslein. Learning from abstract and contextualized representations: The effect of verbal guidance. *Computers in Human Behavior*, 29(6):2239-2247, November 2013.

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74. S. Chhajer, A.S. Thyagaturu, A. Yatavelli, P. Lalwaney, M. Reisslein, K.G. Raja. Hardware Accelerations for Container Engine to Assist Container Migration on Client Devices, *Proceedings of IEEE Int. Symp. on Local and Metropolitan Area Networks*, pages 1–6, July 2020.

75. V. Balasubramanian, M. Aloqaily, M. Reisslein. FedCo: A Federated Learning Controller for Content Management in Multi-party Edge Systems, *Proc. IEEE Int. Conf. on Computer Communications and Networks (ICCCN)*, pages 1–9, July 2021.

76. S. Senk, S.A.W. Itting, J. Gabriel, C. Lehmann, T. Höschele, F.H.P. Fitzek, and M. Reisslein. 5G NSA and SA Campus Network Testbeds for Evaluating Industrial Automation, *Proc. IEEE European Wireless*, pages 69–76, Verona, Italy, November 2021.

77. V. Balasubramanian, M. Aloqaily, and M. Reisslein. Mutes: Multi-Tenant Switching for 5G Network Slice Revenue Maximization, *Proc. IEEE Int. Wireless Communications and Mobile Computing (IWCMC)*, pages 590–595, Dubrovnik, Croatia, May-June 2022.

78. P. Hofmann, R. Bassoli, F.H.P. Fitzek, and M. Reisslein. MC NFV: Molecular Communication NFV in 6G Networks, *Proc. IEEE 21st Mediterranean Electrotechnical Conference (MELECON)*, pages 1205–1210, Palermo, Italy, June 2022.

79. T. Höschele, F. Kaltenberger, A.I. Grohmann, E. Tasdemir, M. Reisslein, F.H.P. Fitzek. 5G InterOPERAbility of Open RAN Components in Large Testbed Ecosystem: Towards 6G Flexibility, *Proc European Wireless (EW)*, pages 1-6, Dresden, Germany, September 2022.

80. A.I. Grohmann, M. Seidel, C. Lehmann, T. Höschele, M. Reisslein, F.H.P. Fitzek. 5G on the Cheap: Configurable Low-Cost Cellular Industrial Communication, *Proc. of the IEEE Int. Conf. on Electrical, Computer, Communications and Mechatronics Engineering (ICECCME)*, pages 1–6, Maldives, November 2022.

81. P. Sossalla, J. Hofer, J. Rischke, J. Busch, G.T. Nguyen, M. Reisslein, and F.H..P. Fitzek. Optimizing Edge SLAM: Judicious Parameter Settings and Parallelized Map Updates, *Proceedings IEEE Globecom*, pages 1–6, Rio de Janeiro, Brazil, December 2022.

82. J. Hofer, P. Sossalla, J. Rischke, C. L. Vielhaus, M. Reisslein, and F.H.P. Fitzek. Circular Frame Buffer to Enhance Map Synchronization in Edge Assisted SLAM, *Proc. IEEE International Conference on Communications (ICC)*, pages 210–215, Rome, Italy, 28 May–01 June 2023.

83. S. Zimmermann, P. Schwenteck, W. Meißner, C. Vielhaus, J. A. Cabrera, F.H.P. Fitzek, and M. Reisslein. Information Flow Graph for Distributed Caching without Newcomers over a Broadcast Medium, *Proc. IEEE 24th Int. Symp. on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, pages 30–35, Boston, MA, June 2023.

84. V. Balasubramanian, S. Vedantham, N. McDonnell, A. Arulambalam, and Martin Reisslein. SOLT: A Software-Defined Load Balancing Algorithm for Time Sensitive Networks, *Proc. IEEE Globecom*, pages 1–6, Kuala Lumpur, Malaysia, December 2023.

85. V. Balasubramanian, M. Aloqaily, S. Vedantham, and M. Reisslein. SOLT+: A Software-Defined Load Balancing Framework for High Frequency Trading Networks, *Proc. IEEE International Conference on Communications (ICC)*, Montreal, QC, Canada, pages 2803-2808, 2025.

PUBLICATIONS

Book Publishing (Books Authored, Books Edited, Book Chapters, Monographs)

1. M. Reisslein and B. Mukherjee. Foreword to M. Maier*. *Metro WDM Networking: An AWG–Based Approach*. Kluwer Academic Publishers, 2003.

2. F. Fitzek, S. Hendrata, P. Seeling*, and M. Reisslein. Header Compression Schemes for Wireless Internet Access. Chapter 10, pages 10.1–10.24, In *Mobile Internet: Enabling Technologies and Services*, A. Salkintzis (Ed.), CRC Press, 2004.

3. F. Fitzek, P. Seeling*, and M. Reisslein. Video Streaming in Wireless Internet. Chapter 11, pages 11.1–11.41, In *Mobile Internet: Enabling Technologies and Services*, A.K. Salkintzis (Ed.), CRC Press, 2004.

4. P. Seeling*, F.H.P. Fitzek, and M. Reisslein. *Video Traces for Network Performance Evaluation—A Comprehensive Overview and Guide on Video Traces and Their Utilization in Networking Research*. Springer Verlag, 272 pages, ISBN 978-1-4020-5565-2, 2007.

5. M. McGarry* and M. Reisslein. Multichannel EPONs. In *Broadband Access Networks: Technologies and Deployments*, A. Shami, M. Maier, and C. Assi (Eds.), Springer Verlag, 2008.

6. F.H.P. Fitzek, S.C. Li, S. Speidel, T. Strufe, M. Simsek, and M. Reisslein (Eds.). *Tactile Internet With Human-in-the-Loop*, 508 pages, ISBN 978-0128213438, Academic Press, Elsevier, 2021.

7. P. Seeling, M. Reisslein, and F.H.P. Fitzek. Traces for the Tactile Internet: Architecture, Concepts, and Evaluations. Chapter 14, pages 321–349, In *Tactile Internet: With Human-in-the-Loop*, F. Fitzek, S.-C. Li, S. Speidel, T. Strufe, M. Simsek, and M. Reisslein (Eds.), Academic Press, Elsevier, 2021.

8. F.H.P. Fitzek, S.C. Li, S. Speidel, T. Strufe, T. Mahmoodi, and M. Reisslein (Eds.). *Humans, Robots, and Virtual Worlds in the Tactile Internet*, 456 pages, Paperback ISBN: 9780443300448, eBook ISBN: 9780443300455, Academic Press, Elsevier, 2026.

9. F.H.P. Fitzek, S. Speidel, S.-C. Li, T. Strufe, J.A. Cabrera, H. Boche, T. Mahmoodi, M. Reisslein, P. Seeling, and F. Benken. Tactile Internet with Human-in-the-Loop. Chapter 1, pages 3–14, In *Humans, Robots, and Virtual Worlds in the Tactile Internet*, F.H.P. Fitzek, S.C. Li, S. Speidel, T. Strufe, T. Mahmoodi, and M. Reisslein (Eds.), Academic Press, Elsevier, 2026.

PUBLICATIONS

Other Publications

Software Tools

1. P. Seeling*, F.H.P. Fitzek, and M. Reisslein. VideoMeter tool for YUV bistreams, October 2002.
   Download from the VideoMeter pages:
   `http://www.acticom.de/videometer.html`
   `http://www.eas.asu.edu/~mre/videometer`
   Summary appeared in Software Tools for Networking column of *IEEE Network*, 17(1)5, January/February 2003.
2. F.H.P. Fitzek, P. Seeling*, M. Reisslein, and M. Zorzi. ViTAN — Visualisation Tool for Ad hoc Networks. November 2002.
   Download from the ViTAN pages:
   `http://www.acticom.de/en/products/vitan`,
   `http://www.eas.asu.edu/~mre/vitan`
   Summary appears in Software Tools for Networking column of *IEEE Network*, 17(4)9, July/August 2003.

Research Database: Video Trace Library

1. Created extensive library of traces of video frame sizes, which are essential for quantitative studies of network protocols and mechanisms for video transport over the Internet. Our video trace library, which is the **largest video traffic database worldwide**, is publicly available from our server at `http://trace.eas.asu.edu` and is widely used by networking researchers. The trace library generates over **77,600** results on Google as of November 2012.

Contributed to the following National Science Foundation Reports:

1. *Modeling and Simulation of Ultra-Large Networks: Challenges and New Research Directions*, Tucson, AZ, November 2001.
2. *Optical Networking: Progress and Challenges*, Reston, VA, January 2003.
3. *Fundamental Research in Networking*, Airlie House, VA, April 2003.
   `http://www.cs.virginia.edu/~jorg/workshop1/NSF-NetWorkshop-2003.pdf`
   This report is on the current state and the vision of far-reaching fundamental research in networking. The report follows up and updates the research agenda formulated in the *Report from 1994 NSF Workshop on Research Priorities in Networking and Communications*, Airlie House, VA, May 1994.
4. *NSF Wireless Networks PI Meeting 2007*, IIT, Chicago, IL, July 2007.
   This meeting examines the current state of wireless networking research and formulates future research directions and priorities.

Filed Patent Disclosures

1. C. Fan*, M. Maier, and M. Reisslein. A Performance Enhanced Single-Hop WDM Network with Heterogeneous Protection, ASU Case M3–050.
2. C. Fan*, M. Maier, and M. Reisslein. A Single-Hop WDM Network for Efficient Uni- and Multicasting, ASU Case M3–051.
3. S. Rein*, M. Reisslein, F.H.P. Fitzek, and T. Sikora. Audio Content Description with Wavelets and Neural Nets, ASU Case M4–045.
4. M. Maier, and M. Reisslein. PROTECTORATION: A Fast and Efficient Multiple-Failure Recovery Technique for Resilient Packet Ring (RPR) Using Dark Fiber, ASU Case M5–054.
5. O. Lotfallah*, M. Reisslein, and S. Panchanathan. Adaptive Video Transmission Schemes Using MPEG-7 Motion Intensity Descriptors, ASU Case M5–061.
6. O. Lotfallah*, M. Reisslein, and S. Panchanathan. Content-Dependent Encoding Rate Selection and Packet Drop Policies for Uni- and Multicast Streaming of Pre-Encoded PFGS Video, ASU Case M5–114.
7. M. Maier, M. Reisslein, and M. Herzog. STARGATE: The Next Evolutionary Step Toward Unleashing the Potential of WDM EPONs, ASU Case M7–016.
8. F. James and M. Reisslein. Multi-nodal Wireless Communication Systems and Methods, US Application Number 14/852,461, filed September 2015.
9. Akhilesh Thyagaturu and Martin Reisslein. Systems and Methods for a Smart Gateway SDN-based Backhaul Architecture for Small Cells, M16-118P, Provisional Patent filed in April 2016.
10. Akhilesh Thyagaturu and Martin Reisslein. Systems and Methods for a Layered SDN-based Backhaul Architecture for Small Cells, M16-091P, M16-110P, Patent filed in Dec. 2016.

Granted Patents

1. Martin Reisslein, Martin Maier, Martin Herzog. Optical network architectures and optical communication schemes. US Patent 8,090,256, Granted January 3, 2012.
2. Martin Reisslein and Frank James. Systems and methods for name-based segmented media acquisition and distribution framework on a network, US 9,717,088 B2, July 2017.
3. Adolph Seema and Martin Reisslein. Systems and methods for name-based segmented media acquisition and distribution framework on a network, US 9,838,760 B2, December 2017.
4. Martin Reisslein and Akhilesh Thyagaturu. Systems and methods for a smart gateway SDN-based backhaul architecture for small cells. US 10,306,670 B2, May 28, 2019.
5. Martin Reisslein and Akhilesh Thyagaturu. Systems and methods for a layered SDN-based backhaul architecture for small cells. US 10,805,859, October 13, 2020.

6. Martin Reisslein and Akhilesh Thyagaturu. Systems and methods for a layered SDN-based backhaul architecture for small cells. US 11,671,896 B2, June 6, 2023. (based on divisional patent application that resulted in US 10,805,859 B2).

International Exchanges

International Scholars Hosted at ASU

1. Dipl.-Ing. Frank Fitzek from the Department of Electrical Engineering, Technical University Berlin, Germany, November/December 2000 and March 2002. Collaboration on wireless video streaming and creation of video trace library.

2. Dipl.-Ing. Martin Maier from the Department of Electrical Engineering, Technical University Berlin, Germany, February/March 2001 and June/July 2002. Collaboration on WDM metro networking and network modeling.

3. Philippe DeCuetos, graduate student, from Institute Eurecom, Sophia-Antipolis, France, January–April 2002. Collaborative research on fine granular scalable (FGS) video streaming.

4. Stephan Rein, graduate student, from Institute of Communication Systems (Chair Prof. Thomas Sikora), Technical University Berlin, Germany, February–October 2003. Collaborative research on voice quality for wireless transmission with robust header compression and audio content characterization for next-generation Internet search and retrieval.

5. Dr. Dipl-Math., Dipl-Phy. Stefan Adams from the Department of Mathematics, Technical University Berlin, Germany and the Dublin Institute of Advanced Studies, School of Theoretical Physics, September/October 2003. Collaborative research on the stochastic modeling of uni- and multicasting in WDM networks, and the wireless transmission of compressed video.

6. Chiara Piglione, graduate student, from Telecommunications Network Group (TNG), Chair of Prof. Fabio Neri, Politecnico di Torino, Italy, February 2003–April 2004. Collaborative research on fairness control mechanisms for packet-switched metro WDM networks and network modelling.

7. Prof. Dr. Dipl. Math. Michael Scheutzow, Chaired Professor of Stochastics in Department of Mathematics at Technical University Berlin, Germany, June/July 2004. Collaborative research on stochastic network modeling.

8. Dr. Dipl. Ing. Martin Maier, Researcher-Professor in Department of Energy, Materials and Telecommunications (EMT), Institut National de la Recherche Scientifique (INRS)—University of Quebec, Montreal, Canada, March 2005. Collaborative research on the design of novel high-speed and highly resilient packet-switched access networks.

9. Prof. Dr. Dipl. Math. Michael Scheutzow, Chaired Professor of Stochastics in Department of Mathematics at Technical University Berlin, Germany, March 2005. Collaborative research on capacity analysis of packet-switched access networks.

10. Dr. Dipl. Math. Frank Aurzada, from the Department of Stochastics of the Institute of Mathematics at Technical University Berlin, Germany, January 2007. Collaborative research on delay and capacity analysis of packet-switched access and metro networks.

11. Dr. Dipl. Math. Frank Aurzada, from the Department of Stochastics of the Institute of Mathematics at Technical University Berlin, Germany, March/April 2008. Collaborative research on delay and capacity analysis of packet-switched access and metro networks.

12. Dr. Estela Sousa Vieira, from the University of Vigo, Spain, March/April 2009. Collaborative research on modeling H.264 video traffic.

13. Dipl-Ing. Lukas Schwoebel, from the University of Bamberg, Germany, Sept. 2013–March 2014. Collaborative research on wireless multimedia sensor networks.

14. Dr. Yu Liu from Beijing University of Posts and Telecommunications (BUPT), China, March 2016–March 2017. Collaborative research on multimedia networking.

15. Dr. Xing Shao from Dept. of Internet of Things Engineering, Yancheng Institute of Technology, China. December 2017–December 2018. Collaborative research on Internet of Things and time-sensitive networking.

16. M.E. Cuixiang Wang from Dept. of Internet of Things Engineering, Yancheng Institute of Technology, China. January 2018–December 2018.

17. Mu Wang from BUPT, China. Sept. 2018–Aug. 2019, supported by China Scholarship Council.

ASU Students Sent Abroad

1. Manjunath Krishnam, Ph.D. student, to Department of Electrical Engineering, Technical University Berlin, Germany, June–November 2002. Collaborative research on wireless medium access control.

RESEARCH GRANTS

Sponsored Research — External Grants

Sponsor	Title	Investigators	Dates	Amount
1. Consortium for Embedded and Internetw. Tech.	Packet Processing in a QoS Constrained Environment	PI: A. Sen Co–PIs: A. Richa, M. Reisslein	05/16/01 – 05/15/02	$70,794 share: 33%
2. NSF — CAREER	Streaming Prerecorded Continuous Media in Wireless Environments	PI: M. Reisslein	07/15/02 – 06/30/08	$359,477
3. NSF	Video Traces: Create, Disseminate, Analyze	PI: M. Reisslein Co–PI: S. Panch	09/15/02 – 12/31/06	$733,038 share 50%
4. Sun Microsys. Matching Grant	Sun Fire V880 Server for Video Trace project	M. Reisslein	10/02	$30,100
5. Sun Microsys. Matching Grant	Sun StorEdge L8 autoloader for Video Trace project	M. Reisslein	04/03	$5,280
6. NSF EEP	Empirically-based Instructional Tools for Fostering Engineering Problem Solving and Cognitive Flexibility in Pre-college Students	PI: M. Reisslein Co–PI: R. Moreno	03/01/07 – 02/28/11	$1,249,634 share: $632,150
7. NSF CRI	CRD: VIDEO TRACES II Designing, Creating and Disseminating Video Traces for Networking Research	PI: M. Reisslein Co–PI: L. Karam	04/01/08 – 03/31/14	$629,999 share: 65%
8. NSF	REU Supplement to CRD: VIDEO TRACES II	PI: M. Reisslein Co–PI: L. Karam	05/15/09 – 04/30/10	$16,000 share: 65%
9. NSF EEC	IEECI: Instructional Sequences in Pre-college Engineering Education	PI: M. Reisslein	10/15/10 – 10/14/14	$400,000 share: 100%

RESEARCH GRANTS

Sponsored Research — External Grants

Sponsor	Title	Investigators	Dates	Amount
10. NSF	REU Supplement to CRD: VIDEO TRACES II	PI: M. Reisslein Co-PI: L. Karam	05/15/10 – 04/30/11	$16,000 share: 65%
11. NSF	Equity in Engineering: Understanding and Promoting All Elementary School Children's Knowledge of and Motivation to Engage in Engineering	PI: C.F. Miller Co-PIs: M. Reisslein Co-PIs: L. Wheeler	09/01/16 – 08/31/20	$919,465 share: 33%
12. Futurewei	Huawei-ASU Collaboration: IEEE 802.1 Time Sensitive Networks for Ultra Low Latency Applications	PI: M. Reisslein	10/31/17 – 10/31/19	$106,444 share: 100%
13. Futurewei	Huawei-ASU Collaboration: IEEE 802.1 Next Generation Industrial Network	PI: M. Reisslein	9/6/18 – 9/5/19	$150,000 share: 100%
14. NSF	NeTS: Small: LayBack: Layered SDN-Based Backhaul Architecture and Optimization Framework for Small Cells and Beyond	PI: M. Reisslein Co-PI: A. Scaglione	10/01/17 – 09/30/21	$500,000 share: 50%
15. Intel Corp.	System Considerations for Disaggregated Distributed Next Generation and Beyond 5G Networks	PI: M. Reisslein	10/31/23 – 10/30/26	$350,000 share: 100%

Sponsored Research — Internal Grants

Sponsor	Title	Investigators	Dates	Amount
1. CRESMET FEIGIA	Innovative Teaching of Optical Networking	PI: M. Reisslein	02/01/01 – 06/30/01	$10,000
2. IT 301 Comp. Techn.	UA/ASU Collaboration on Wireless Video Transmission	PI: M. Reisslein Co-PI: M. Krunz	04/15/2002– 12/31/2004	$73,000 share: $57,000

STUDENT THESES AND DISSERTATIONS ADVISED

Master Theses Awarded

	Student	Degree	Project	Year
1.	Chun Fan (ASU)	M.S.	The AWG‖PSC Network: A Performance Enhanced Single-Hop WDM Network with Heterogeneous Protection	2002
2.	Jeremy Lassetter (ASU)	M.S.	Traffic and Quality Characterization of MPEG-4 Encoded Video: A Large-Scale Trace-based Study	2003
3.	Sampath Ratnam (ASU)	M.S.	Traffic and Quality Characterization of Spatial Scalable Encoded Video	2003
4.	Beshan Kulapala (ASU)	M.S.	Traffic and Quality Characterization of Wavelet Encoded Video	2003
5.	Sudheer Methuku (ASU)	M.S.	Error-resilient Image Transmission Using COTCQ and Space-Time Coded FS-OFDM	2004
6.	Sandeep Padmanabhan (ASU)	M.S.	High-performance state-saving architectures for power-mode switching (co-chaired with Prof. Karamvir Chatha)	2004
7.	Michael McGarry (ASU)	M.S.	Extensions to EPONs	2004
8.	Luke Ritchie (ASU)	M.S.	Clustering and Routing in MANETs	2004
9.	Amit Aneja (ASU)	M.S.	An Online Approach to Excess Bandwidth Distribution for Ethernet Passive Optical Networks (EPONs)	2007
10.	Prasanth T. David (ASU)	M.S.	Traffic and Quality Analysis of H.264 and SVC	2007
11.	Sapna Deval (ASU)	M.S.	Resilience of Physical Carrier Sense based MANET Backbones	2008
12.	Jason R. Ferguson (ASU)	M.S.	Excess Bandwidth Distribution in Ethernet Passive Optical Networks	2008

Master Theses Awarded

	Student	Degree	Project	Year
13.	Ravi Seshachala (ASU)	M.S.	Multicast Capacity of Optical WDM Packet Ring for Hotspot Traffic	2009
14.	Adolph Seema (ASU)	M.S.	A Wireless Video Sensor Network Blueprint	2009
15.	Rohan Gupta (ASU)	M.S.	Trace Based Traffic and Quality Evaluation of H.264/MPEG-4 Part-10 Scalable Video Coding (SVC) Extended Medium Grain Scalable (MGS) Video Streams	2009
16.	Venkata Sai Akshay Pulipaka (ASU)	M.S.	Traffic and Quality Characterization of Coarse-Grain Quality Scalable (CGS) H.264 SVC Encoded Video	2009
17.	Sudhir Srinivasan (Comp. Science, ASU)	M.S.	Statistical Multiplexing and Scalability of H.264 AVC and SVC Encoded Video	2010
18.	Shyamprasad Chikkerur (ASU)	M.S.	Traffic and Objective Video Quality Characteristics of H.264 SVC Single-Layer Encoded High-Definition Videos	2010
19.	Arvindnarayanan Ravi (ASU)	M.S.	An Analytical Framework with Bounded Deflection Adaptive Routing for Network-on-Chip (co-chaired with Prof. A. Sen)	2010
20.	Hari Sundararaman	M.S.	H.264 Video Error-resilience	2011
21.	Sushmith Hiremath	M.S.	H.264 CGS HD Video Characteristics (co-advised with Prof. L. Karam)	2011
22.	Anu Mercian	M.S.	Analytical Approach to Dynamic Bandwidth Allocation Algorithms used in LRPON	2012
23.	Vinayak K. T. Veetil	M.S.	Voice over LTE Study and Test Strategy Definition	2014
24.	Frank L. James	M.S.	New Multi-Nodal Wireless Communication System Method	2014

Master Theses Awarded

	Student	Degree	Project	Year
25.	Tejas Shah	M.S.	A Cross-Layer Power Analysis and Profiling of Wireless Video Sensor Node Platform (WVSNP)	2014
26.	Zarah Khan	M.S.	Localized Application for Video Capture for a Multimedia Sensor Node with Name-Based Segment Streaming	2018
27.	Sang-Hee Lee	M.S.	Fault-tolerance in Time Sensitive Network with Machine Learning Model	2022
28.	Eric Everret	M.S.	Development and Validation of a 2D Nodal-Based FEM Solver for Axisymmetric RF Cavities (as Co-Chair, with Prof. Sami Tantawi)	2022

Doctoral Dissertations Awarded

	Student	Degree	Project	Year
1.	Frank Fitzek (TU Berlin)	Ph.D.	Simultaneous MAC Packet Transmission for QoS Support in Wireless CDMA Systems (co-advised with Prof. A. Wolisz) Associate Professor (tenured) University of Aalborg, Denmark	2002
2.	Ronald Carl Jost (ASU)	Ph.D.	Design and Analysis of Satellite Networks (co-chaired with A. Sen, co-advised with J. Capone) Motorola, Schaumburg, IL	2002
3.	Martin Maier (TU Berlin)	Ph.D.	Metro WDM Networks: An AWG based Approach (co-advised with Prof. A. Wolisz) Associate Professor (tenured) EMT, INRS—University of Quebec, Canada	2003
4.	Chun Fan (ASU)	Ph.D.	Packet-Switching Metro WDM Networks: Architectures and MAC Protocols Entrepreneur, self-employed	2004
5.	Manjunath Krishnam (ASU)	Ph.D.	QoS Support for Streaming Media in Wireless Environments Senior Scientist, Intellon, Ocala, FL	2004
6.	Hyo–Sik Yang (ASU)	Ph.D.	Packet–Switching Metro WDM Networks: Performance Trade–offs and Optimization Assistant Professor, Department of Computer Eng., Sejong University, Seoul, Korea	2005
7.	Patrick Seeling (ASU)	Ph.D.	The Rate Variability-Distortion (VD) Curve of Compressed Video Assistant Professor (tenure-track), Mathematics and Computing Dept., University of Wisconsin—Stevens Point	2005

Doctoral Dissertations Awarded

	Student	Degree	Project	Year
8.	Michael McGarry (ASU)	Ph.D.	Multi-Channel Ethernet Passive Optical Networks Initially Senior Scientist with ADTRAN—The Network Access Company Now Assistant Professor (tenure-track), Dept. of Electrical and Computer Eng., The University of Texas at El Paso	2007
9.	Luke Ritchie (ASU)	Ph.D.	Physical Carrier Sensing based Mechanisms for Efficient Broadcast and Convergecast in Wireless Ad Hoc Networks Scientist with DataSoft Corporation, Scottsdale, AZ	2007
10.	Geert Van der Auwera (ASU)	Ph.D.	Traffic Study of H.264/AVC and SVC Video Streams Senior Scientist, Samsung Labs, Irvine, CA	2007
11.	Beshan Kulapala (ASU)	Ph.D.	Discrete and Continuous-Time Collaborative Prefetching of Continuous Media Systems Engineer, Senior, Intel Corp., Chandler, AZ	2008
12.	Akshay Pulipaka (ASU)	Ph.D.	Traffic Characterization and Modeling of H.264 Scalable and Multi-View Encoded Video Systems Engineer, Senior, Modern Video, Mountain View, CA	2012
13.	Xing Wei (ASU)	Ph.D.	Object-Based PON Access and Tandem Networking	2014
14.	Revak Tyagi (ASU)	Ph.D.	Performance Models for LTE-Advanced Random Access	2014

Doctoral Dissertations Awarded

	Student	Degree	Project	Year
15.	Anu Mercian (ASU)	Ph.D.	MAC-Layer Algorithm Designs for Long-Range Hybrid Access Network Supporting SDN Principles Research Scientist with Hewlett-Packard Inc.	2015
16.	Po-Yen Chen (ASU)	Ph.D.	Design and Performance Analysis of Fiber Wireless Networks	2015
17.	Yousef Dashti (ASU)	Ph.D.	Efficient Routing and Resource Sharing Mechanisms for Hybrid Optical-Wireless Access Networks Faculty with Electronics Engineering Technology Dept., College of Technological Studies, Public Authority for Applied Education and Training (PAAET), Kuwait	2016
18.	Adolph Seema (ASU)	Ph.D.	Flexi-WVSNP-DASH: A Wireless Video Sensor Network Platform for the Internet of Things Scientist with NXP Semiconductor, AZ	2016
19.	Akhilesh Thyagaturu (ASU)	Ph.D.	Software Defined Applications in Cellular and Optical Networks Research Scientist, Intel Corp., San Diego, CA	2017
20.	Ziyad Alharbi (ASU)	Ph.D.	Design and Performance Analysis of Functional Split in Virtualized Access Networks Research Scientist, King Abdulaziz City for Science and Technology, Riyadh, Saudi Arabia	2019
21.	Frank James (ASU)	Ph.D.	Vector Sensors and User Based Link Layer QoS for 5G Wireless Communication Applications Research Scientist, Hughes, FL	2019

Doctoral Dissertations Awarded

	Student	Degree	Project	Year
22.	Nathan Johnson (ASU)	Ph.D.	Understanding Social Media Influence, Semantic Network Analysis, and Thematic Campaign Classification Using Machine Learning Research Scientist in Australian industry	2022
23.	Ahmed Nasrallah (ASU)	Ph.D.	Time Sensitive Networking in Multimedia and Industrial Control Applications Faculty with Kuwait University	2022
24.	Prateek Shantharama (ASU)	Ph.D.	SDN based Layered Backhaul Optimization and Hardware Acceleration Sr. Engineer with Qualcomm Research Center, San Diego, CA	2022
25.	Venkatraman Balasubramanian (ASU)	Ph.D.	Building Intelligent Network Control Plane Scientist with Intel Corp.	2022
26.	Vignesh Sundaravarathan (ASU)	Ph.D.	Shared Memory Based Cross-Domain Solution (CDS) for 5G Applications	2025
27.	Vinayak Thotton Veettil (ASU)	Ph.D.	Emergency Calls, Studying Metrics Definition for Call Type and Mode Selection Scientist with Charter Communications,	2025
28.	Kiju Kim (ASU)	Ph.D.	Securing Network Domains: Towards In-Memory Packet Processing	2025

Current Graduate Projects in Progress

	Student	Degree	Project	Exp. Grad. Date
1.	Husain Alqalaf	Ph.D.	TBD	2026
2.	Junghyun Choi	Ph.D.	Netw. Resilience	2026
3.	Ankita Saverdekar	Ph.D.	TBD	2027
4.	Joshua Schwartz	Ph.D.	TBD	2027

Post-Doctoral Researchers Supervised

1. Dr. Patrick Seeling, June 2005 – October 2005. Research on traffic and quality characteristics of temporal and spatial scalable MPEG-4 encoded video. Design and development of video trace library for scalable encoded video.

2. Dr. Geert Van der Auwera, August 2007 – May 2008. Research on traffic and quality characteristics as well as statistical multiplexing properties of H.264 and SVC encoded video. Design and development of video trace library for H.264 and SVC encoded video.

3. Dr. Gamze Ozogul, June 2007 – 2012. Research on instructional strategies for pre-college engineering education. Design and development of computer-based engineering education modules. Clinical experiments to identify effective instructional design strategies for middle- and high school engineering education.

PROFESSIONAL AND SCIENTIFIC SERVICE

Local Professional Committee

- Founding Chair of Phoenix Chapter of IEEE Education Society, 2005–2019.
- Member of NSF appointed National Visiting Committee (NVC) for the Maricopa Advanced Technology Education Center (MATEC) Networks project. Membership involves annual 2-day on-site evaluation and preparation of the NVC annual project report to NSF. 2006–2009.

Scientific and Professional Society Memberships

- Association for Computing Machinery (ACM), Member 1998–2008, Senior Member 2008–present
  - Special Interest Group in Computer Communication (SIGCOMM)
  - Special Interest Group in Computer Science Education (SIGCSE)
  - Special Interest Group in Mobile Communication and Computing (SIGMOBILE)
- American Society of Engineering Education (ASEE), 2003 – present
- Institute of Electrical and Electronics Engineers (IEEE), Member 1995–2002, Senior Member 2003–2013, Fellow 2014–present
  - Communication Society (COMSOC)
  - Computer Society (COMPSOC)
  - Education Society (EDSOC)
  - Internet Technical Committee (ITC)
  - Optical Networking Technical Committee (ONTC)
  - Technical Committee on Computer Communication (TCCC)
  - Technical Committee on Learning Technologies (TCLT)

Conference Activities

- *ACM Multimedia*, Member of Technical Program Committee, 2002, 2009.
- *IEEE Computer Communication Workshop (CCW)*, Session Organizer, 1999, 2001.
- *IEEE Infocom*,
  - Member of Technical Program Committee, 2001–2007, 2010–2018.
  - Hosted Technical Program Committee Meeting for *IEEE Infocom 2004* at ASU in October 2003. The meeting brought about 100 of the leading networking researchers and one NSF program director to the ASU campus.
  - Session Chair, 3rd Generation CDMA Networks session 2002, Routing in Optical Networks session 2003
- *IEEE International Conference on Communications (ICC)*,
  - Member of Technical Program Committee, 2006, 2009-present.
- *IEEE International Conference on Computer Communications and Networking (ICCCN)*,

  - Member of Technical Program Committee, 2006, 2007, 2008.
- *IEEE International Conference on Multimedia and Expo (ICME)*,
  - Technical Program Chair for Networking Track, 2002.
  - Member of Technical Program Committee, 2002, 2003.
- *IEEE International Symposium on Computers and Communications (ISCC)*, Member of Technical Program Committee, 2001, 2002, 2003.
- *IEEE Int. Workshop on Quality of Service (IWQoS)*
  Member of Technical Program Committee, 2010.
- *IEEE Global Internet*, Member of Technical Program Committee, 2005.
- *IEEE Globecom*, Member of Technical Program Committee, 2000, 2004, 2005, 2006, 2007, 2008, 2009, 2010-present.
- *IEEE Multimedia Services Access Networks (MSAN)*,
  - Member of Technical Program Committee, 2005.
- *IEEE Sensor and Ad Hoc Communications and Networks (SECON)*,
  - Member of Technical Program Committee, 2004, 2005, 2006, 2007.
- *IEEE Workshop on High Performance Switching and Routing (HPSR)*,
  - Member of Technical Program Committee, 2004, 2005.
- *IEEE/ACM Int. Workshop on Broadband Wireless Services and Applications (BroadWISE)*
  Member of Technical Program Committee, 2004.
- *IASTED Int. Conf. on Internet and Multimedia Systems and Applications (IMSA)*
  Session Chair, Multimedia Networking and Communications session 2003.
- *Int. Conf. on Access Networks*, Member of Technical Program Committee, 2008, 2009, 2010.
- *International Conference on Ad-hoc Networks and Wireless (AdHoc Now!)*
  Member of Technical Program Committee, 2005.
- *Packet Video (PV) Workshop*
  Member of Technical Program Committee, 2004.

Journal Editing

- *Ad Hoc Networks (Elsevier)*, Guest Editor, jointly with Tommaso Melodia, for Special Issue on Multimedia Ad Hoc and Sensor Networks, 2010.
- *Advances in Multimedia (Hindawi)*, Associate Editor, 2007–2019.
- *Computer Networks (Elsevier)*, Associate Editor, 2009–2025.
- *IEEE Access*,
  - Guest Editor, Special Section: "Smart Grids: A Hub of Interdisciplinary Research", 2015, 2016.
  - Associate Editor, 2017–2025.
  - Senior Editor, 2026–present.
- *IEEE/ACM Transactions on Networking*, Associate Editor, 2009–2013.
- *IEEE Communications Surveys and Tutorials*
  `http://www.comsoc.org/pubs/surveys`
  - Associate Editor, 2002.
    - Initiated and oversaw the transition of the manuscript management to the web-based ManuscriptCentral system.
    - Recruited experts in specific areas of communications and networking to editorial board.
  - Editor-in-Chief, January 2003 – February 2007.
    - Responsible for soliciting expert and generalist reviews for submitted manuscripts from editorial board and outside experts and for making editorial decisions based on reviews and own reading. Made 33 editorial decisions on 2003, 72 editorial decisions in 2004, 83 editorial decisions in 2005, and 86 editorial decisions in 2006, each decision involving on average 3.5 expert reviews and 1.5 generalist reviews.
    - Published 16 issues of the magazine with a total of 64 articles.
    - Responsible for overseeing production of accepted manuscripts.
    - Responsible for overseeing the editorial board which is composed of approximately 50 leading experts in communications and networking.
    - Responsible for articulating long-term vision of this relative young e-publication. Lobbied IEEE Communications Society leadership for inclusion in the IEEE ComSoc Digital Library, which was achieved in June 2004, and inclusion in IEEE Xplore digital library, which was achieved in May 2005.
  - Associate Editor-in-Chief, February 2007–2020.
    - Assisting EiC in maintenance of web-based manuscript management system
    - Managing editorial board in collaboration with EiC
  - Area Editor, Optical Communications, 2018–present.
    - Coordinating review of manuscripts in optical communications and networking by members of the editorial board
    - Aggregating editorial recommendations to form editorial decisions for manuscripts in the optical communications and networking area

- *IEEE Computer*, Guest Editor jointly with Amit K. Roy Chowdhury and Bernhard Rinner, 2013-14, Special issue on Smart Camera Networks.
- *IEEE Transactions on Education*, Associate Editor, 2013–2022.
- *IEEE Transactions on Mobile Computing*, Associate Editor, 2017–2022.
- *IEEE Transactions on Multimedia*, Chair of Steering Committee, 2017–2019.
- *IEEE Transactions on Network and Service Management*, Associate Editor, 2021–2025.
- *Int. Journal of Vehicular Technology (Hindawi)*, Associate Editor, 2007–2017.
- *Journal of Communications and Networks (JCN)*, Associate Editor, 2012–2024.
- *Multimedia Tools and Applications (Springer)*, Associate Editor, 2009–present.
- *Optical Switching and Networking (Elsevier)*,
  - Associate Editor, 2014–2017;
  - Co-Editor-in-Chief, 2018–present.
- *Wiley Encyclopedia of Electrical and Electronics Engineering*, Associate Editor for Networking, 2020–present;

ARIZONA STATE UNIVERSITY COMMITTEE SERVICE

University

Career Services Advisory Committee, 2007/2008.

ASU Family Resources Advisory Board, 2007–present.

ASU Health Services Advisory Committee, 2016–2019.

Ira A. Fulton Schools of Engineering

Master in Computer Engineering (MCE) Planning Committee, member, 2002, 2003, 2004, 2005, 2006.
Prepared planning authorization for joint EE and CSE masters program.

Hiring Committee for Engineering Education faculty position, member and AA/EO representative, 2005.

Computer Engineering Program Planning Committee, member, 2009, 2010, 2011.
Prepared planning authorization for joint Computer Engineering program. Initiated Computer Engineering program operations.

Academic Standards Committee, member, 2014–2017.

Computer Engineering, Graduate Program Committee, member, 2014–2017.

Computer Engineering, Program Chair, 2018–present.

School of Electrical, Computer, and Energy Eng.

EEE/CSE 120 Course Committee, member, 2001–present.

EVALUATION OF INSTRUCTION

Courses Taught
All courses starting with the Spring 2001 semester were taught at ASU. All student evaluations are on a 5-point scale ranging from 1.00 (lowest) to 5.00 (highest). Evaluation mean scores M are included for all regular semester courses taught at ASU. There is no evaluation for ASU summer courses. Standard deviations SD are provided for as far back as this detailed data is available.

Year and Term	Course #	Title	# of Students	M, SD
1999 Spring	500 level	Performance Evaluation of Communication Networks (TU Berlin)	45	excellent
2000 Spring	500 level	Performance Evaluation of Communication Networks (TU Berlin, co–taught with Prof. A. Wolisz)	55	excellent
2001 Spring	EEE 459	Communication Networks	65	4.31
2001 Fall	EEE 554	Random Signal Theory	100	3.95
2002 Spring	EEE 459	Communication Networks	60	3.94
2002 Fall	EEE 302	Electrical Networks II	14	3.07, 2.18
2002 Fall	EEE 554	Random Signal Theory	34	3.35, 1.82
2003 Spring	EEE 459	Communications Networks Part of pilot program of Fulton School CPD	36	4.29, 0.51
2003 Fall	EEE 598	Multimedia QoS Networking newly developed class	8	4.83, 0.17
2004 Spring	EEE 459	Communications Networks Hybrid course, 36 on-campus students and 4 distance learners through CPD	40	4.87, 0.14
2004 Summer	EEE 459/591	Communications Networks Summer offering through CPD	2	
2004 Fall	EEE 350	Random Signal Theory	18	4.69, 0.34
2004 Fall	EEE 598/CSE 591	Multimedia QoS Networking new in hybrid on-campus + distance ed. format	12	4.75, 0.19

Courses Taught

Year and Term	Course #	Title	# of Students	*M*, *SD*
2005 Spring	EEE 459/591	Communications Networks Hybrid course, 51 on-campus students and 3 distance learners through CPD	54	4.57, 0.58
2005 Summer	EEE 459/591	Communications Networks	12	
2005 Summer	EEE 598	Multimedia QoS Networking Distance learning offering through CPD	3	
2005 Fall	CSE/EEE 120 A	Digital Design Fundamentals	41	4.09, 0.97
2005 Fall	CSE/EEE 120 B	Digital Design Fundamentals	35	4.25, 0.62
2006 Spring	EEE 302	Electrical Networks II	37	4.57, 0.46
2006 Spring	EEE 459/591	Communication Networks	47	4.66, 0.30
2006 Summer	EEE 459/591	Communications Networks	11	
2006 Fall	CSE/EEE 120 A	Digital Design Fundamentals	52	4.11, 1.01
2006 Fall	CSE/EEE 120 B	Digital Design Fundamentals	31	4.44, 0.59
2007 Spring	CSE/EEE 120	Digital Design Fundamentals	39	4.46, 0.42
2007 Spring	EEE 459/591	Communication Networks	62	4.44, 0.66
2007 Summer	EEE 459/591	Communication Networks	8	
2007 Fall		Sabbatical, No Classes		
2008 Spring	CSE/EEE 120	Digital Design Fundamentals	50	4.32, 1.02
2008 Spring	EEE 459/591	Communication Networks	66	4.53, 0.62
2008 Summer	EEE 459/591	Communication Networks	13	
2008 Fall	CSE/EEE 120	Digital Design Fundamentals	34	4.57, 1.13
2008 Fall	EEE 598/CSE 591	Multimedia QoS Networking	16	4.60, 1.29
2009 Spring	CSE/EEE 120	Digital Design Fundamentals	33	4.18, 0.35
2009 Spring	EEE 459	Communication Networks	50	4.58, 0.67
2009 Summer	EEE 459/591	Communication Networks	8	
2009 Fall	CSE/EEE 120	Digital Design Fundamentals	22	4.22, 0.57
2009 Fall	EEE 598/CSE 591	Multimedia QoS Networking	3	4.67, 0.48

Courses Taught

Year and Term	Course #	Title	# of Students	*M*, *SD*
2010 Spring	CSE/EEE 120	Digital Design Fundamentals	57	4.56, 0.74
2010 Spring	EEE 459/591	Communication Networks	59	4.60, 0.
2010 Fall	CSE/EEE 120	Digital Design Fundamentals	30	4.23
2010 Fall	EEE 350	Random Signal Theory	41	4.75
2011 Spring	CSE/EEE 120	Digital Design Fundamentals	60	4.06
2011 Spring	EEE 459/591	Communication Networks	75	4.66
2011 Summer	EEE 459/591	Communication Networks	7	4.69
2011 Fall	CSE/EEE 120	Digital Design Fundamentals	66	4.27
2011 Fall	EEE 598	Multimedia QoS Networking	12	4.58
2012 Spring	CSE/EEE 120	Digital Design Fundamentals	51	4.22
2012 Spring	EEE 459/591	Communication Networks	64	4.58
2012 Summer	EEE 459/591	Communication Networks	6	4.86
2012 Fall	CSE/EEE 120	Digital Design Fundamentals	63	4.44
2012 Fall	CSE/EEE 120	Digital Design Fundamentals	72	4.08
2013 Spring	CSE/EEE 120	Digital Design Fundamentals	64	4.45
2013 Spring	EEE 459/591	Communication Networks	68	4.74
2013 Summer	EEE 459/591	Communication Networks	12	4.93
2013 Fall	CSE/EEE 120	Digital Design Fundamentals	67	4.37
2013 Fall	EEE 598	Multimedia QoS Networking	12	4.81
2014 Spring	CSE/EEE 120	Digital Design Fundamentals	68	4.07
2014 Spring	EEE 459/591	Communication Networks	68	4.56
2014 Summer	EEE 459/591	Communication Networks	10	
2014 Fall	CSE/EEE 120	Digital Design Fundamentals	70	
2014 Fall	EEE 459/591	Communication Networks	70	
2015 Summer	EEE 591	Communication Networks	6	
2015 Fall	CSE/EEE 120	Digital Design Fundamentals	70	
2015 Fall	EEE 459/591	Communication Networks	100	

Courses Taught

Year and Term	Course #	Title	# of Students
2016 Spring	CSE/EEE 120	Digital Design Fundamentals	65
2016 Spring	EEE 459/591	Communication Networks	115
2016 Summer	EEE 591	Communication Networks	8
2016 Fall	CSE/EEE 120	Digital Design Fundamentals	67
2016 Fall	CSE/EEE 120	Digital Design Fundamentals	68
2017 Spring	EEE 459/591	Communication Networks	110
2017 Summer	EEE 591	Communication Networks	5
2017 Fall	CSE/EEE 120	Digital Design Fundamentals	64
2017 Fall	EEE 459/591	Communication Networks	79
2018 Spring	EEE 459/591	Communication Networks Initial ASU Online offering	152
2018 Fall	EEE 459/591	Communication Networks	66
2018 Fall	EEE 459/591	Communication Networks	45
2019 Spring	EEE 459/591	Communication Networks (Onl.)	137
2019 Fall	CSE/EEE 120	Digital Design Fundamentals	71
2019 Fall	EEE 459/591	Communication Networks	70
2020 Spring	EEE 459/591	Communication Networks (Onl.)	153
2020 Fall	ASU 101-EEE	The ASU Experience (Onl., Session A)	54
2020 Fall	ASU 101-EEE	The ASU Experience (Onl., Session B)	24
2020 Fall	CSE/EEE 120	Digital Design Fund. (Onl., Session B)	99
2020 Fall	EEE 459/591	Communication Networks	68
2021 Spring	ASU 101-EEE	The ASU Experience (Onl., Session A)	39
2021 Spring	ASU 101-EEE	The ASU Experience (Onl., Session B)	24
2021 Spring	EEE 459/591	Communication Networks	147
2021 Summer	ASU 101-EEE	The ASU Experience (Onl., Session A)	23
2021 Summer	ASU 101-EEE	The ASU Experience (Onl., Session B)	10
2021 Fall	ASU 101-EEE	The ASU Experience (Onl., Session A)	50
2021 Fall	ASU 101-EEE	The ASU Experience (Onl., Session B)	30
2021 Fall	EEE 202	Electrical Circuits I (Onl., Session A)	69
2021 Fall	EEE 459/591	Communication Networks	71

Courses Taught

Year and Term	Course #	Title	# of Students
2022 Spring	ASU 101-EEE	The ASU Experience (Onl., Session A)	41
2022 Spring	ASU 101-EEE	The ASU Experience (Onl., Session B)	24
2022 Summer	ASU 101-EEE	The ASU Experience (Onl., Session A)	23
2022 Summer	ASU 101-EEE	The ASU Experience (Onl., Session B)	8
2022 Fall	ASU 101-EEE	The ASU Experience (Onl., Session A)	56
2022 Fall	ASU 101-EEE	The ASU Experience (Onl., Session B)	35
2022 Fall	CSE/EEE 120	Digital Design Fund. (Onl., Session B)	96
2022 Fall	EEE 459/591	Communication Networks	82
2023 Spring	ASU 101-EEE	The ASU Experience (Onl., Session A)	51
2023 Spring	ASU 101-EEE	The ASU Experience (Onl., Session B)	26
2023 Spring	EEE 459/591	Communication Networks	157
2023 Summer	ASU 101-EEE	The ASU Experience (Onl., Session A)	20
2023 Summer	ASU 101-EEE	The ASU Experience (Onl., Session B)	11
2023 Fall	ASU 101-EEE	The ASU Experience (Onl., Session A)	33
2023 Fall	ASU 101-EEE	The ASU Experience (Onl., Session B)	23
2023 Fall	CSE/EEE 120	Digital Design Fund. (Onl., Session B)	128
2023 Fall	EEE 459/591	Communication Networks	96
2024 Spring	ASU 101-EEE	The ASU Experience (Onl., Session A)	56
2024 Spring	ASU 101-EEE	The ASU Experience (Onl., Session B)	23
2024 Spring	EEE 459/591	Communication Networks	128
2024 Summer	ASU 101-EEE	The ASU Experience (Onl., Session A)	18
2024 Summer	ASU 101-EEE	The ASU Experience (Onl., Session B)	10
2024 Fall	ASU 101-EEE	The ASU Experience (Onl., Session A)	54
2024 Fall	ASU 101-EEE	The ASU Experience (Onl., Session B)	33
2024 Fall	CSE/EEE 120	Digital Design Fund. (Onl., Session B)	93
2024 Fall	EEE 459/591	Communication Networks	77
2025 Spring	ASU 101-EEE	The ASU Experience (Onl., Session A)	52
2025 Spring	ASU 101-EEE	The ASU Experience (Onl., Session B)	22
2025 Spring	EEE 459/591	Communication Networks	154
2025 Summer	ASU 101-EEE	The ASU Experience (Onl., Session A)	17
2025 Summer	ASU 101-EEE	The ASU Experience (Onl., Session B)	14

noindent**Courses Taught**

Year and Term	Course #	Title	# of Students
2025 Fall	ASU 101-EEE	The ASU Experience (Onl., Session A)	54
2025 Fall	ASU 101-EEE	The ASU Experience (Onl., Session B)	19
2025 Fall	CSE/EEE 120	Digital Design Fund. (Onl., Session B)	182
2025 Fall	EEE 459/591	Communication Networks	107
2026 Spring	ASU 101-EEE	The ASU Experience (Onl., Session A)	47
2026 Spring	ASU 101-EEE	The ASU Experience (Onl., Session B)	
2026 Spring	EEE 459/591	Communication Networks	

EVALUATION OF INSTRUCTION

New Courses and Course Material Developed

Online EEE 459/591 Communication Networks Course

Developed online EEE 459/591 Communication Networks course during Spring 2017 and Fall 2017. The online course will be delivered for the first time in Spring 2018.

Computer-based Instructional Module on Principles of Electrical Circuit Analysis for Middle and High School Students

Developed and assessed a computer-based instructional module that (*i*) introduces middle and high school students without any prior content specific knowledge to the principles of electrical circuit analysis, and (*ii*) has been quantitatively demonstrated to be effective in teaching the basic principles of circuit analysis and to increase motivation for further study in electrical engineering. Introduced over 80 middle and high school students in 2007, over 300 middle and high school students in 2008 and in 2009 to electrical circuit analysis with the module.

Web–based Teaching Aids for Communications Networks

Developed interactive Java applets that illustrate key networking concepts with students in my EEE 459 Communication Networks class. Three of the developed applets have been accepted for publication on the Addison-Wesley companion web site of the third edition of the standard networking text *Computer Networks—A Top–Down Approach Featuring the Internet* by J. Kurose and K. W. Ross (`http://wps.aw.com/aw_kurose_network_5`).

Multimedia QoS Networking Course

Developed new course on fundamentals and current trends in multimedia networking with quality of service support. The course was offered in the fall 2003 semester for the first time; this offering was exclusively for on-campus students. For the fall 2004 and future offerings, the course has been evolved into a novel hybrid format that accommodates both on-campus students and distance learners and combines web-streamed video lectures with on-line instructor moderated student activities.

Learning Community Building Team Design Project for EEE 459

Developed a novel team design project for EEE459/591 Communication Networks course that (*i*) fosters the forming of learning communities among on-campus students and distance learners, and (*ii*) employs authentic learning to introduce students to the topic of network security.

Computer-based Instructional Module on Principles of Multimedia Networking

Developed and assessed a computer-based instructional module that (*i*) introduces senior level college students to the principles of multimedia networking in the Internet, and (*ii*) has been quantitatively demonstrated to be effective in teaching the basic principles of multimedia networking and to increase the motivation for further study in multimedia networking.

EVALUATION OF INSTRUCTION

Undergraduate Projects Supervised

Alia Sanders, Jerome Damers, Felix Carroll, Zephyr Magezi. Video Trace Project, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2003/Spring 2004.

Tyler Barnett, Mike Hains, Kyle Williams, Laura Main. Video Trace Project 2, EEE 488/489 (Senior Design Project Semester 1 and 2), Fall 2003/Spring 2004.

Andrea Carpenter, Trang Nguyen, Josh Weber, Charles Whitlatch. Trace Basd Study of Traffic and Quality of Encoded Video, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2004/Spring 2005.

Ying Chen, Ye Qian, Courtney Roy, Mengying Xiao. Wireless Video Sensor I, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2008/Spring 2009.

Ebraheem Azhar, Ginga Katase, David Mitchell, Steve Mussi. Wireless Video Sensor II, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2008/Spring 2009.

Jonathan Vahabzadeh. Statistical Video Multiplexing with Passive Buffer Management, Fulton Undergraduate Resaearch Initiative (FURI), Spring 2009.

Hui Liu, Zi Tee, Siyan Ying, Di Shen. Wireless Video Sensor III, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2009/Spring 2010.

Omar Habib, Nawshin Syeda, Yuyin Xie, David Weidman. Wireless Video Sensor IV, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2009/Spring 2010.

Stephen Charnicki. Video Multiplexing in High-Speed Access Networks, Fulton Undergraduate Resaearch Initiative (FURI), Fall 2009/Spring 2010.

Jonathan Vahabzadeh. Statistical Video Multiplexing with Active Buffer Management, Fulton Undergraduate Resaearch Initiative (FURI), Fall 2009/Spring 2010.

Omar Habib. Fiber-Wireless Network Simulations, Fulton Undergraduate Resaearch Initiative (FURI), Spring 2010.

Elliot Drown, Sean Gatenby, Aaron Gubrud, Tonna McCabe, and Andrew Wilcox. Wireless Video Sensor I, CSE 423 (Capstone Project Semesters 1 and 2), Fall 2011/Spring 2012.

Hang Yan, Siqi Yang, Sai Zhang. Wireless Video Sensor II, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2011/Spring 2012.

Arash Emami, Hamed Shomal, Ali Obeid. Video Home Network, EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2011/Spring 2012.

Steven Hatch, Julius Eddards, Joel Mullarkey, Devorah Hayman. Wireless video sensor platform, CSE Capstone Project, Spring/Fall 2013.

Jake Page, Josh Mayhle, TJ Bucco, Ali Harb. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2013.

Michael Tanner, Jeff Miller, Elvis Ramirez, Sabit Shudanov. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2014.

William Bailey, Vitor Weber, Haibin Liang. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2014.

Adam Frankowski, Andrew Jimenez, Hao Zhang, Matthew Hartenbower, Sam Johnson. CSE Capstone Project on Video Node Acquisition, Bluetooth & Zigbee JSON transfer. Spring/Fall 2015.

Ahanuf Hossain, Daniel Houston, David Delisle, Elexus Rangel. CSE Capstone Project on Universal Video Node Acquisition App, with WiFi, Bluetooth & Zigbee. Spring/Fall 2016.

Adam Vallejo, CJ Sandoval, Carl Stevenson, Kevin Virgen, Rongyue Cui. CSE Capstone Project on Remote Solar Powered Video Node Acquisition with Zigbee remote nodes. Spring/Fall 2016.

Ambike Bhraguvanshi, Factors Affecting STEM Competency in K-5 Children, FURI, Fall 2018.

Kendalyn Grant. Peer Pressure in Early Education as it relates to STEM Interest, FURI, Fall 2018.

Jamie Handlos. Understanding children's engineering-related achievement beliefs: An examination of gender and age differences. Barrett, The Honors College, Honors Thesis, Spring 2019.

Jason Bishop, Jason Rohrbaugh, Brian Schultheis, and Edwin Short. HVAC Zoning. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2019.

John Buckner, Kory Chavez, Brian Thompson, and Aaron Webb. Red Light Detection System. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2020.

Abdulla Almheiri, Shafique Ahmed, Abdulrahman Kafood, and Nicole Rose. Pulse Width Modulation Control. EEE 488/489 (Senior Design Project Semesters 1 and 2), Fall 2020/Spring 2021.

Philip Burstein, James Hilborn, Joshua Kuntz, Aaron Sartain. GreenSense: Automated Irrigation and Nutrient delivery systems for in-ground gardening. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2022.

Anthony Liardo, Christopher Danner, Jonathan Cretti, and Saud Alshehhi. Mobile Power Station. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2023. Project won Electrical Engineering Certificate of Achievement (One given per FSE school)

Vincenzo Carelli, Deelan Kareem, Eric Kneisler, Kenneth May, and Kris Mesich. Hydrocart: Automated Soil Hydration System Regulated Using Sensor Technology. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2024. Project won Electrical Engineering Certificate of Achievement (One given per FSE school)

Jacob Benavides, Nursultan Maidan, Ximena Arroyo Flores, and Preston Crosby. ASIC-Driven AI: FPGA-driven Artificial Intelligence for Traffic Lights. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2025.

Gerald Hall, Caleb Koeller, Jared Raes, Eric Soto-Hall, and Suraj Velpula. Non-Invasive Blood-Iron Monitor. EEE 488/489 (Senior Design Project Semesters 1 and 2), Spring/Fall 2025.