

Martin Reisslein

School of Electrical, Computer, and Energy Engineering
Ira A. Fulton Schools of Engineering
Arizona State University
P.O. Box 875706, Tempe, AZ 85287-5706
Phone: (480)965-8593, Fax: (480)965-8325
reisslein@asu.edu, <http://mre.faculty.asu.edu>

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

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

- Characterization and Network Transport of Multimedia Traffic
- Optical-Wireless Access and Metropolitan Area Networks
- Software Defined Networking
- Engineering and Distance Education

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

PUBLICATIONS

Refereed Archival Journal Papers

Citation Metrics as of October 2015

- Google Scholar: Citation metrics computed with *Harzing's Publish or Perish* program freely available from <http://www.harzing.com/pop.htm> based on Google Scholar data:
 - Total citations = **6450**
 - *h*-index = **40**
 - *g*-index = **74**
- ISI Web of Science:
 - Total citations = **1800**
 - *h*-index = **24**

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. Saporilla*, 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 Metro 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 $FT^A - FR^A$ 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 Education (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. Scheutzwow, 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 Sciences (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.
108. A.M. Johnson, J. Reisslein, and M. Reisslein. Representation Sequencing in Computer-based Engineering Education. *Computers & Education*, 72:249–261, March 2014.
109. P. Seeling and M. Reisslein. Video Traffic Characteristics of Modern Encoding Standards: H.264/AVC with SVC and MVC Extensions and H.265/HEVC. *The Scientific World Journal*, Vol. 2014, Article ID 189481, pp. 1–16, 2014.
110. M.D. DiDonato, A.M. Johnson, and M. Reisslein. A Gender-Specific, Brochure-Based Intervention for Improving Boys’ and Girls’ Engineering Stereotypes and Academic Self-Perceptions. *Global Journal of Engineering Education*, 16(1):34–42, First Quarter 2014.
111. A. Mercian*, M.P. McGarry, and M. Reisslein. Impact of Report Message Scheduling (RMS) in 1G/10G EPON and GPON. *Optical Switching and Networking*, 12:1–13, April 2014.
112. Y. Dashti* and M. Reisslein. CluLoR: Clustered Localized Routing for FiWi Networks. *Journal of Networks (Academy Publisher)*, 9(4):828–839, April 2014.
113. M. Reisslein, B. Rinner, and A.K. Roy Chowdhury. Smart Camera Networks [Guest Editors’ Introduction]. *IEEE Computer*, 47(5):23–25, May 2014.
114. X. Wei*, F. Aurzada, M.P. McGarry, and M. Reisslein. DyCaPPON: Dynamic circuit and packet passive optical network. *Optical Switching and Networking*, 13:135–147, July 2014.

115. F. Aurzada, M. Levesque*, M. Maier, and M. Reisslein. FiWi Access Networks Based on Next-Generation PON and Gigabit-Class WLAN Technologies: A Capacity and Delay Analysis. *IEEE/ACM Transactions on Networking*, 22(4):1176-1189, August 2014.
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118. P. Seeling and M. Reisslein. I. Want. Pixels. (Entering the Age of 4k). *IEEE Potentials*, 33(6):27-30, November/December 2014.
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120. J. Reisslein, A.M. Johnson, and M. Reisslein. Color Coding of Circuit Quantities in Introductory Circuit Analysis Instruction. *IEEE Transactions on Education*, 58(1):7-14, February 2015.
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122. A.M. Johnson, G. Ozogul, and M. Reisslein. Supporting Multimedia Learning with Visual Signalling and Animated Pedagogical Agent: Moderating Effects of Prior Knowledge, *Journal of Computer Assisted Learning*, 31(2):97-115, April 2015.
123. R.R. Tyagi*, F. Aurzada, K.-D. Lee, S. Kim, and M. Reisslein. Impact of Retransmission Limit on Preamble Contention in LTE-Advanced Network, *IEEE Systems Journal*, 9(3):752-765, September 2014.
124. A. Seema*, L. Schwoebel*, T. Shah*, J. Morgan**, and M. Reisslein. WVSNP-DASH: Name-Based Segmented Video Streaming, *IEEE Transactions on Broadcasting*, 61(3):346-355, September 2015.
125. M. Tausif, N.R. Kidwai, E. Khan, and M. Reisslein. FrWF-Based LMBTC: Memory-Efficient Image Coding for Visual Sensors, *IEEE Sensors Journal*, 15(11):6218-6228, November 2015.
126. R.R. Tyagi*, F. Aurzada, K.-D. Lee, and M. Reisslein. Connection Establishment in LTE-A Networks: Justification of Poisson Process Modeling, *IEEE Systems Journal*, in print, 2015.
127. A.A. Khan, M.H. Rehmani, and M. Reisslein. Cognitive Radio for Smart Grids: Survey of Architectures, Spectrum Sensing Mechanisms, and Networking Protocols, *IEEE Communications Surveys and Tutorials*, in print, 2015.
128. A. Blenk*, A. Basta*, M. Reisslein, and W. Kellerer. Survey on Network Virtualization Hypervisors for Software Defined Networking, *Communications Surveys and Tutorials*, in print, ():-, 2015.

PUBLICATIONS

National Conference Proceedings Refereed Papers

Complete Listing of Published Conference Proceedings Refereed Papers

Graduate student co-authors are marked with*.

1. M. Reisslein and K. W. Ross. Prefetching Protocols for VBR Video on Demand. In *Proceedings of Fourth IEEE International Workshop on Community Networking*, pages 37–43, Atlanta, GA, September 1997.
2. M. Reisslein and K. W. Ross. A Join-the-Shortest-Queue Prefetching Protocol for VBR Video on Demand. In *Proceedings of IEEE International Conference on Network Protocols (ICNP)*, pages 63–72, Atlanta, GA, October 1997 (accepted 32 out of 81 submission).
3. S. Rajagopal, M. Reisslein, and K. W. Ross. Packet Multiplexers with Adversarial Regulated Traffic. In *Proceedings of IEEE Infocom*, pages 347–355, San Francisco, CA, April 1998 (accepted 172 out of 800 submissions).
4. M. Reisslein, K. W. Ross, and V. Verillotte*. A Decentralized Prefetching Protocol for VBR Video on Demand. In D. Hutchison and R. Schäfer, editors, *Multimedia Applications, Services and Techniques — Proceedings of Third European Conference on Multimedia Applications, Services, and Techniques (ECMAST '98)*, (Lecture Notes in Computer Science, Vol. 1425), pages 388–401, Berlin, Germany, May 1998. Springer Verlag.
5. M. Reisslein, K. W. Ross, and S. Rajagopal. Guaranteeing Statistical QoS to Regulated Traffic: The Multiple Node Case. In *Proceedings of 37th IEEE Conference on Decision and Control (CDC)*, pages 531–538, Tampa, FL, December 1998.
6. M. Reisslein, K. W. Ross, and S. Rajagopal. Guaranteeing Statistical QoS to Regulated Traffic: The Single Node Case. In *Proceedings of IEEE Infocom*, pages 1061–1072, New York, NY, March 1999 (accepted 184 out of 600 submissions).
7. D. Saporilla*, K. W. Ross, and M. Reisslein. Periodic Broadcasting with VBR-Encoded Video. In *Proceedings of IEEE Infocom*, pages 464–471, New York, NY, March 1999 (accepted 184 out of 600 submissions).
8. M. Reisslein, K. W. Ross, and S. Shresta*. Striping for Interactive Video: Is it worth it? In *Proceedings of IEEE International Conference on Multimedia Computing and Systems (ICMCS)*, pages 635–640, Florence, Italy, June 1999.
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10. M. Reisslein. Measurement-Based Admission Control: A Large Deviations Approach for Bufferless Multiplexers. In *Proceedings of IEEE International Symposium on Computers and Communications (ISCC)*, pages 462–467, Antibes, France, July 2000.
11. M. Maier*, M. Reisslein, and A. Wolisz. High-Performance Switchless WDM Network Using Multiple Free Spectral Ranges of an Arrayed-Waveguide Grating. In *Proceedings of SPIE Vol. 4213, Terabit Optical Networking: Architecture, Control, and Management*

- Issues*, pages 101–112, Boston, MA, November 2000. Paper won the **Best Paper Award** of the conference.
12. J. Kangasharju*, F. Hartanto, M. Reisslein, and K. W. Ross. Distributing Layered Encoded Video through Caches. In *Proceedings of IEEE Infocom*, pages 1791–1800, Anchorage, Alaska, April 2001 (accepted 192 out of 830 submissions).
 13. 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. In *Proceedings of IEEE International Conference on Third Generation Wireless and Beyond (3Gwireless 2001)*, pages 344–349, San Francisco, CA, May 2001.
 14. F. Fitzek* and M. Reisslein. A Prefetching Protocol for Streaming Prerecorded Continuous Media in Wireless Environments (invited paper). In *Proceedings of SPIE ITCOM 2001, Scalability and Traffic Control in IP Networks, Proceedings of SPIE Vol. 4526*, pages 121–129, Denver, CO, August 2001.
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 17. L. Gao*, L.J. Karam, M. Reisslein, and G.P. Abousleman. Error-resilient Image Coding and Transmission over Wireless Channels, In *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, vol. 5, pages 629–632, Scottsdale, AZ, May 2002.
 18. F. Fitzek*, R. Supatrio*, A. Wolisz, M. Krishnam*, and M. Reisslein. Capacity and QoS for Streaming Video Applications over TCP in CDMA based Networks. In *Proceedings of the 2002 International Conference on Third Generation Wireless and Beyond (3Gwireless 2002)*, pages 755–760, San Francisco, CA, May 2002.
 19. M. Maier*, M. Scheutzow, M. Reisslein, and A. Wolisz. Wavelength Reuse for Efficient Transport of Variable–Size Packets in a Metro WDM Network. In *Proceedings of IEEE Infocom*, pages 1432–1441, New York, NY, June 2002 (accepted 192 out of 932 submissions).
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 21. C. Fan*, M. Maier*, and M. Reisslein. The AWG||PSC Network: A Performance Enhanced Single-Hop WDM Network with Heterogeneous Protection. In *Proceedings of IEEE Infocom*, pages 2279–2289, San Francisco, CA, April 2003 (accepted 224 out of 1078 submissions).
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25. F. Fitzek, M. Zorzi, P. Seeling*, and M. Reisslein. Video and Audio Trace Files of Pre-encoded Video Content for Network Performance Measurements. In *Proceedings of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 245–250, Las Vegas, NV, January 2004.
26. C. Fan*, M. Reisslein, and S. Adams. The $FT^A - FR^A$ AWG Network: A Practical Single-Hop Metro WDM Network for Efficient Uni- and Multicasting. In *Proceedings of IEEE Infocom*, pages 502–513, Hong Kong, March 2004 (accepted 261 out of 1420 submissions).
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28. S. Methuku* and M. Reisslein. Error-resilient Image Transmission System using COTCQ and Space-Time Coded FS-OFDM. In *Proceedings of IEEE Vehicular Technology Conference (VTC)*, pages 2349–2353, Los Angeles, CA, September 2004.
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31. J. Reisslein*, R.K. Atkinson, and M. Reisslein. Investigating the Format and Presentation of Instructional Prompts in an Electrical Circuit Analysis Computer-Based Learning Environment. In *Proceedings of International Convention of Association of Educational Communications and Technology (AECT)*, paper 31-4D.b, 9 pages, Chicago, IL, October 2004.
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33. M. Scheutzow, M. Maier, P. Seeling*, and M. Reisslein. Multicast Capacity of Packet-Switched Ring WDM Networks. In *Proceedings of IEEE Infocom*, pages 706–717, Miami, FL, March 2005 (accepted 244 out of 1419 submissions).

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38. P. Seeling* and M. Reisslein. Video Offset Distortion Descriptors for Trace-Based Video Performance Evaluation. In *Proceedings of IEEE Int. Conference on Computer Communications and Networks (ICCCN'05)*, pages 375–380, San Diego, CA, October 2005.
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40. P. Seeling*, M. Reisslein, and F.H.P. Fitzek. Layered Video Coding Offset Distortion Traces for Trace-Based Evaluation of Video Quality after Network Transport. In *Proceedings of IEEE Int. Conference on Consumer Communications and Networking (CCNC'06)*, pages 292–296, Las Vegas, NV, January 2006. Paper won 2nd place **Best Paper Award** of the conference.
41. P. Seeling* and M. Reisslein. Video Pricing for Wireless Networks. In *Proceedings of IEEE Int. Conference on Consumer Communications and Networking (CCNC'06)*, pages 749–753, Las Vegas, NV, January 2006.
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43. G. Van der Auwera*, M. Reisslein, and L. Karam. Video Texture and Motion Based Modeling of Rate Variability-Distortion (VD) Curves of I, P, and B Frames. In *Proceedings of IEEE Int. Conference on Multimedia and Expo (ICME)*, pages 1405–1408, Toronto, Canada, July 2006.
44. R. Moreno, M. Reisslein, and G.M. Delgoda*. Toward a Fundamental Understanding of Worked Example Instruction: Impact of Means-Ends Practice, Backward/Forward Fading, and Adaptivity. In *Proceedings of IEEE Frontiers in Education Conference*, pages S3D-5–S3D-10, San Diego, CA, October 2006.
45. P. Seeling* and M. Reisslein. Semantically Coupled Header Compression. In *Proceedings of IEEE Workshop on Hot Topics in Web Systems and Technologies (HotWeb)*, pages 1–8, Boston, MA, November 2006.

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48. M. Reisslein, D. Tylavsky, B. Matar, P. Seeling, and J. Reisslein. Active and Cooperative Learning in a Freshman Digital Design Course: Impact on Persistence in Engineering and Student Motivational Orientation. In *Proceedings of ASEE/IEEE Frontiers in Education Conference (FIE)*, pages S4A-1–S4A-6, Milwaukee, WI, October 2007.
49. J. Ferguson*, M. McGarry, and M. Reisslein. When Are Online and Offline Excess Bandwidth Distribution Useful in EPONs? (Invited Paper), In *Proceedings of ICST Int. Conf. on Access Networks*, 10 pages, Las Vegas, NV, October 2008.
50. M. Maier, N. Ghazisaidi*, and M. Reisslein. The Audacity of Fiber-Wireless (FiWi) Networks, (Invited Paper), In *Proceedings of ICST Int. Conf. on Access Networks*, 20 pages, Las Vegas, NV, October 2008.
51. R. Moreno, M. Reisslein, and G. Ozogul. Pre-college Electrical Engineering Instruction: Do Abstract or Contextualized Representations Promote Better Learning?, In *Proceedings of IEEE/ASEE Frontier in Education Conference*, 6 pages, San Antonio, TX, October 2009.
52. A. Pulipaka*, P. Seeling, M. Reisslein, and L.J. Karam. Overview and Traffic Characterization of Coarse-Grain Quality Scalable (CGS) H.264 SVC Encoded Video. In *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, 5 pages, Las Vegas, NV, January 2010.
53. P. Seeling, F.H.P. Fitzek, G. Ertli, A. Pulipaka, and M. Reisslein. Video Network Traffic and Quality Comparison of VP8 and H.264 SVC. *Proc. of ACM Workshop on Mobile Video Delivery (MoViD)*, pages 33-37, October 2010.
54. G. Ozogul, M. Reisslein, and A.M. Johnson. Effects of Visual Signaling on Pre-College Students' Engineering Learning Performance and Attitudes: Peer Versus Adult Pedagogical Agents Versus Arrow Signaling. In *Proc. of ASEE Annual Conference*, pages 1–11, Vancouver, BC, June 2011.
55. M. Veeraraghavan, J. Li*, and M. Reisslein. A strawman proposal for future diverse internets. In *Proc. of IEEE Symposium on Computers and Communications (ISCC)*, pages 792–795, Corfu, Greece, June/July 2011.
56. M.P. McGarry, M. Reisslein, F. Aurzada, and M. Scheutzow. Impact of EPON DBA Components on Performance. In *Proc. of IEEE Int. Conf. on Computer Communication Networks (ICCCN)*, pages 1–5, Maui, HI, July/August 2011.
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58. M.S. Kiaei*, K. Fouli, M. Scheutzow, M. Maier, M. Reisslein, and C. Assi. Delay Analysis for Ethernet Long-Reach Passive Optical Networks. *Proceedings of IEEE Int. Conference on Communications (ICC)*, Ottawa, Canada, June 2012.

59. A.M. Johnson, G. Ozogul, K. Butcher, and M. Reisslein. Representation Guidance with Abstract and Contextualized Representation: Effects on Engineering Learning Performance in Technological Literacy Education. In *Proc. of ASEE Annual Conference*, June 2012.
60. R.R. Tyagi*, F. Aurzada, K.-D. Lee, S. Kim, and M. Reisslein. Efficient Delivery of Frequent Small Data for U-Healthcare Applications over LTE-Advanced Networks. In *Proc. of ACM MobileHealth*, pages 27-32, June 2012.
61. G. Ozogul, A.M. Johnson, R. Moreno, and M. Reisslein. Animated Engineering Tutors: Middle School Students' Preferences and Rationales on Multiple Dimensions. In *Proc. of IEEE Frontiers in Education*, October 2012.
62. A. Pulipaka*, P. Seeling, and M. Reisslein. Traffic Models for H.264 Video Using Hierarchical Prediction Structures. In *Proc. of IEEE Globecom*, December 2012.
63. K.-D. Lee, M. Reisslein, K. Ryu, and S. Kim. Handling Randomness of Multi-Class Random Access Loads in LTE-Advanced Network Supporting Small Data Applications. In *Proc. of IEEE Globecom Workshop HeterWMN*, December 2012.
64. M. Levesque, M. Maier, F. Aurzada, and M. Reisslein. Analytical Framework for the Capacity and Delay Evaluation of Next-Generation FiWi Network Routing Algorithms, In *Proc. of IEEE Wireless Communications and Networking Conference (WCNC)*, pages 1–6, Shanghai, China, April 2013.

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.

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.

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.

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**

<u>Sponsor</u>	<u>Title</u>	<u>Investigators</u>	<u>Dates</u>	<u>Amount</u>
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

<u>Sponsor</u>	<u>Title</u>	<u>Investigators</u>	<u>Dates</u>	<u>Amount</u>
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%

TOTALS

Funding for projects involved in as PI or Co-PI: **\$3,510,322**

Funding for projects led as PI: **\$3,439,528**

Personal share: **\$2,247,187**

Sponsored Research — Internal Grants

<u>Sponsor</u>	<u>Title</u>	<u>Investigators</u>	<u>Dates</u>	<u>Amount</u>
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**

	<u>Student</u>	<u>Degree</u>	<u>Project</u>	<u>Year</u>
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

	<u>Student</u>	<u>Degree</u>	<u>Project</u>	<u>Year</u>
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 LRPN	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

	<u>Student</u>	<u>Degree</u>	<u>Project</u>	<u>Year</u>
25.	Tejas Shah	M.S.	A Cross-Layer Power Analysis and Profiling of Wireless Video Sensor Node Platform (WVSNP)	2014

Doctoral Dissertations Awarded

	<u>Student</u>	<u>Degree</u>	<u>Project</u>	<u>Year</u>
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

	<u>Student</u>	<u>Degree</u>	<u>Project</u>	<u>Year</u>
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

Current Graduate Projects in Progress

	<u>Student</u>	<u>Degree</u>	<u>Project</u>	<u>Exp. Grad. Date</u>
1.	Adolph Seema	Ph.D.	Wireless Video Sensor Networks	2015
2.	Yousif Dashti	Ph.D.	FiWi Networking	2016
3.	Anu Mercian	Ph.D.	PON Analysis	2015
4.	Po-Yen Chen	Ph.D.	FiWi Analysis	2015
5.	Frank L. James	Ph.D.	Multi-modal Comm.	2016
6.	Akhilesh Thyagaturu	Ph.D.	SDN LTE Backhaul	2016
7.	Ziyad Alharbi	Ph.D.	Access Nets	2017
8.	Kaustubh Vasant Kagalkar	M.S.	WVSNP	2015

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 – present.
- 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 – present.

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–present.
 - 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.
- *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.
- *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–present.
- *Computer Networks (Elsevier)*, Associate Editor, 2009–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 in 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–present
 - * Assisting EiC in maintenance of web-based manuscript management system
 - * Managing editorial board in collaboration with EiC
- *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–present.
- *Journal of Communications and Networks (JCN)*, Associate Editor, 2012–2014.
- *Int. Journal of Vehicular Technology (Hindawi)*, Associate Editor, 2007–present.
- *Multimedia Tools and Applications (Springer)*, Associate Editor, 2009–present.
- *Optical Switching and Networking (Elsevier)*, Associate Editor, 2014–present.

ARIZONA STATE UNIVERSITY COMMITTEE SERVICE

University

Career Services Advisory Committee, 2007/2008.

Child and Family Services Advisory Board, 2007–present.

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.

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

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

School of Electrical, Computer, and Energy Eng.

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

EVALUATION OF INSTRUCTION

Student Evaluations

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.

<u>Year and Term</u>	<u>Course #</u>	<u>Title</u>	<u># of Students</u>	<u>M, SD</u>
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

Student Evaluations

<u>Year and Term</u>	<u>Course #</u>	<u>Title</u>	<u># of Students</u>	<u>M, SD</u>
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

Student Evaluations

<u>Year and Term</u>	<u>Course #</u>	<u>Title</u>	<u># of Students</u>	<u>M, SD</u>
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 Fall	CSE/EEE 120	Digital Design Fundamentals	70	
2015 Fall	EEE 459/591	Communication Networks	100	

EVALUATION OF INSTRUCTION

New Courses and Course Material Developed

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 (FURIG), 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.