Patrick Seeling

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Department of Computer Science
College of Science and Engineering
Central Michigan University
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Publications (p. 2) — Instruction (p. 18) — Service (p. 27)

APPOINTMENTS

Central Michigan University **Jul. 2011–present**
Department of Computer Science
Mount Pleasant, MI 48859, USA

- Associated Department Chair, Graduate Program Director — Aug. 2025–present
- Professor — Aug. 2018–present
- Associate Professor (tenured) — Aug. 2015–Jul. 2018
- Assistant Professor (tenure track) — Jul. 2011–Jul. 2015

University of Wisconsin-Stevens Point **Jan. 2007–Jun. 2011**
Department of Computing and New Media Technologies
Stevens Point, WI 54481, USA

- Assistant Professor (tenure track)

Arizona State University **Aug. 2005–Dec. 2006**
Department of Electrical Engineering
Tempe, AZ 85287, USA

- Faculty Research Associate and Associated Faculty

EDUCATION

Arizona State University, Tempe, AZ, USA **2005**

- Ph.D. in Electrical Engineering
- Advisor: Dr. Martin Reisslein

Technische Universität Berlin, Berlin, Germany. **2002**

- Dipl-Ing. in Industrial Engineering and Management
- Advisor: Dr. Marian Scherz

RESEARCH PROFILE

ResearchGate

- **95-percentile or higher of all members in my research areas**
- 93-percentile of all members
- 85-percentile of all members publishing since 2002

Research Identifiers

- Google Scholar
  http://scholar.google.com/citations?user=BUe1aRgAAAAJ&hl=en
- Orcid ID 0000-0003-2770-0675
  https://orcid.org/0000-0003-2770-0675
- ResearchGate
  https://www.researchgate.net/profile/Patrick-Seeling
- ReseacherID M-3697-2013
  http://www.researcherid.com/rid/M-3697-2013

PUBLICATIONS

JOURNAL ARTICLES

62. J. Schulz, P. Seeling, M. Reisslein, and F. H. P. Fitzek. No Further Delay: Making Time an Ally of Edge Computation of AI Workloads, *IEEE Internet of Things Magazine*, *in print*, 2026.
61. J. Hofer, N. Hofe, P. Seeling, M. Reisslein, G. T. Nguyen, and F. H. P. Fitzek. Research Agenda for Reducing Feature Descriptor Sizes in Networked Visual-SLAM, *IEEE Journal on Selected Areas in Communications (JSAC Special Issue on Intelligent Communications for Real-Time Computer Vision)*, *in print*, 2026.
60. O. Lhamo, T. V. Doan, E. Tasdemir, M. Attawna, G. T. Nguyen, P. Seeling, M. Reisslein, and F. H. P. Fitzek. FlexNC + RecNet: Flexible Network (Re)Coding in Cloud-Native 5G: Design and Testbed Measurements, *IEEE Transactions on Network and Service Management*, 22(6):5756–5774, December 2025.
59. R. Zheng, P. Hofmann, P. Zhou, J. A. Cabrera, P. Seeling, M. Reisslein, and F. H. P. Fitzek. ANIS: Anti-Noise ISI-Suppression Filter for Molecular Communication via Diffusion, *IEEE Transactions on Molecular, Biological, and Multi-Scale Communications*, 11(4):572–587, December 2025.
58. S. Rezwan, H. Wu, J. A. Cabrera, P. Seeling, M. Reisslein, and F. H. P. Fitzek. MLcXR+: Multilevel Semantic Compression for 3D Immersion Over 5G Networks, *IEEE Access*, 13:164771–164786, September 2025.
57. S. L. Birhanu, M. Ghadimi, Y. Hai, P. Seeling, R. Bassoli, and F. H. P. Fitzek. A Survey of Continuous Variable Quantum Key Distribution in Quantum Communication, *IEEE Access*, 13:166027–166061, September 2025 .
56. J. Schulz, C. Dubslaff, P. Seeling, S.-C. Li, S. Speidel, and F. H. P. Fitzek. Negative Latency in the Tactile Internet as Enabler for Global Metaverse Immersion, *IEEE Network*, 38(5): 167–173, September 2024.

Student co-authors are underlined.

55. S. Senk, M. Ulbricht, I. Tsokalo, J. Rischke, S.-C. Li, S. Speidel, G. T. Nguyen, P. Seeling, and F. H. P. Fitzek. Healing hands: The tactile internet in future tele-healthcare, *Sensors*, 22(4), Febuary 2022.

54. J. Eickholt, M. R. Johnson, and P. Seeling. Practical active learning stations to transform existing learning environments into flexible, active learning classrooms. *IEEE Transactions on Education*, 64(2):95–102, May 2021.

53. P. Seeling, M. Reisslein, and F. H. P. Fitzek. Real-time compression for tactile internet data streams, *Sensors*, 21(5), March 2021.

52. Z. Xiang, P. Seeling, and F. H. P. Fitzek. You only look once, but compute twice: Service function chaining for low-latency object detection in softwarized networks, *Applied Sciences*, 11(5), February 2021.

51. Z. Xiang, S. Pandi, J. Cabrera, F. Granelli, P. Seeling, and F. H. P. Fitzek. An open source testbed for virtualized communication networks, *IEEE Communications Magazine*, 59(2):77–83, February 2021.

50. M. Johnson, J. Eickholt, and P. Seeling. Exploring Differences in Students' Perceptions of Traditional and Economy Active Learning Classrooms in an Undergraduate Computer Science Course, *Journal on Excellence in College Teaching*, accepted, December 2019.

49. D. Kelly and P. Seeling. Introducing underrepresented high school students to software engineering: Using the micro:bit microcontroller to program connected autonomous cars, *Computer Applications in Engineering Education*, 28:737–747, April 2020.

48. P. Seeling. Dataset for WWW Landing Pages Webobject Retrieval Performance Evaluation, *Data in Brief*, pp. 105429, March 2020.

47. P. Seeling. WWW Retrieval Handling Optimization w_{ρ}^{3}: A Metric for Web Page Performance Evaluation and Comparison, *Future Generation Computer Systems*, November 2019.

46. B. Bauman and P. Seeling. Spherical Image QoE Approximations for Vision Augmentation Scenarios, *Multimedia Tools and Applications*, 78:18113–18135, January 2019.

45. J. Eickholt, V. Jogiparthi, P. Seeling, Q. Hinton, and M. Johnson. Supporting Project-Based Learning through Economical and Flexible Learning Spaces, *Education Sciences* 9(3):212, December 2018.

44. J. Eickholt, P. Seeling, L. Gandy, Q. Cole, and M. Johnson. Creating a culture and environment for active learning success (extended abstract), *Journal of Computing Sciences in Colleges* 34(3):20–21, December 2018.

43. J. Eickholt, P. Seeling, L. Gandy, Q. Cole, and M. Johnson. Confronting barriers to active learning in computer science through technology, community and culture: tutorial presentation (extended abstract), *Journal of Computing Sciences in Colleges* 34(2):125–127, December 2018.

42. A. K. Karembai, J. Thompson, and P. Seeling. Towards Prediction of Immersive Virtual Reality Image Quality of Experience and Quality of Service, *Future Internet* 10(7): 63, July 2018.

41. P. Seeling. Augmented Reality Device Operator Cognitive Strain Determination and Prediction, *AIMS Electronic and Electrical Engineering* 1(1): 74-84, December 2017.
40. J. Eickholt, P. Seeling, and M. Johnson. Supporting active learning in computer science through technology and community, *J. Comput. Sci. Coll.* , 33(1):39–40, October 2017.
39. P. Seeling. Image Quality in Augmented Binocular Vision: QoE Approximations with QoS and EEG, *Periodica Polytechnica Electrical Engineering and Computer Science*, 61(4):327–336, September 2017.
38. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Prediction of RoHCv1 and RoHCv2 Compressor Utilities for VoIP, *Acta Cybernetica*, 23(2):737–756, 2017.
37. B. Bauman and P. Seeling. Visual Interface Evaluation for Wearables Datasets: Predicting the Subjective Augmented Vision Image QoE and QoS, *Future Internet* 9(3):40, July 2017.
36. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Performance Evaluation and Implementation of IP and Robust Header Compression Schemes for TCP and UDP Traffic in Static and Dynamic Wireless Contexts, *Computer Science and Information Systems*, 14(2): 283–308, June 2017.
35. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Performance Evaluation of Network Header Compression Schemes for UDP, RTP and TCP, *Periodica Polytechnica Electrical Engineering and Computer Science*, 60(3): 151–162, August 2016.
34. T. A. Johnson and P. Seeling. Landing on the Mobile Web: From Browsing to Long–Term Modeling, *IEEE Communications Magazine*, 54(2):146–151, February, 2016.
33. P. Seeling. Towards Quality of Experience Determination for Video in Augmented Binocular Vision Scenarios, *EURASIP Signal Processing: Image Communication (Elsevier)*, 33(0):41–50, April 2015.
32. J. A. Pulcifer–Stump, P. Seeling, J. L. Koch, S. Kettler, and T. Kaya. From Pit to Long Lie: A Fall-detection Algorithm for Smart Phones, *International Journal of Engineering Research & Innovation (IJERI)*, 15(2):23–30, March 2015.
31. J. Lee and P. Seeling. Capacity Level Modeling of Mobile Device Bandwidth Requirements Employing High Utilization Mobile Applications, *Computer Communications (Elsevier)*, 57(0):64–72, February 2015.
30. P. Seeling and M. Reisslein. I. Want. Pixels. (Entering the Age of 4k), *IEEE Potentials*, 33(6):27–30, November 2014.
29. T. A. Johnson and P. Seeling. Desktop and Mobile Web Page Comparison: Characteristics, Trends, and Implications, *IEEE Communications Magazine*, 52(9):144–151, September 2014.
28. P. Seeling. An Overview of Energy Savings through Forwarding Server on Mobile Devices, *International Journal of Ad Hoc and Ubiquitous Computing*, 16(4):260–267, September 2014.
27. M. Katz, D. E. Lucani, F. H. P. Fitzek, and P. Seeling. Sharing Resources Locally and Widely: Mobile Clouds as the Building Blocks of the Shareconomy, *IEEE Vehicular Technology Magazine*, 9(3):63–71, September 2014.

26. 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 Scientfic World Journal*, Vol. 2014 (2014), Article ID 189481, pp. 1–16, 2014.
25. R. J. Haddad, M. P. McGarry, and P. Seeling. Video Frame Size Forecasting, *IEEE Communications Surveys & Tutorials*, 15(4): 1803–1818, 4th Quarter 2013.
24. A. Pulipaka, P. Seeling, M. Reisslein, and L. J. Karam. Traffic and Statistical Multiplexing Characterization of 3D Video Representation Formats, *IEEE Transactions on Broadcasting*, 59(2):382–389, April 2013.
23. 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.
22. P. Seeling and M. Reisslein. Video Transport Evaluation With H.264 Video Traces, *IEEE Communications Surveys & Tutorials*, 14(4):1142–1165, Fourth Quarter 2012.
21. P. Seeling. Web Conferencing Traffic—An Analysis using DimDim as Example, *International Journal of Computer Networks & Communications (IJCNC)*, 2(6): 1–11, November 2010.
20. P. Seeling. Labs @ Home, *ACM inroads – The SIGCSE Bulletin*, 40(4), December 2008.
19. 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.
18. 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.
17. M. Scheutzow, P. Seeling, M. Maier, and M. Reisslein. Multicasting in WDM Upgraded Resilient Packet Ring (RPR), *Journal of Optical Networking (JON)*, 6(5): 415–421, May 2007.
16. 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 (JSAC)*, 25(4):55–67, April 2007.
15. 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.
14. J. Reisslein, M. Reisslein and P. Seeling. 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.
13. P. Seeling, M. Reisslein and F. H. P. Fitzek. Offset Trace-Based Video Quality Evaluation after Network Transport, *Journal of Multimedia (JMM)*, 1(2):1–13, May 2006.

12. P. Seeling, M. Reisslein, T. 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.
11. J. Reisslein, R. K. Atkinson, P. Seeling and M. Reisslein. Encountering the Expertise Reversal Effect with a Computer-based Environment on Electrical Circuit Analysis, *Learning and Instruction*, 16(2): 92–103, April 2006.
10. 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.
9. P. Seeling and M. Reisslein. Evaluating Multimedia Networking Mechanisms Using Video Traces, *IEEE Potentials*, 24(4):21–25, October/November 2005.
8. J. Reisslein, P. Seeling, R. Atkinson 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.
7. 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.
6. J. Reisslein, P. Seeling and M. Reisslein. Integrating Emerging Topics and Distance Learners through Online Team Design in a Communication Networks Course, *The Internet and Higher Education*,8(2):145–160, Second Quarter 2005.
5. 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, May 2005.
4. 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.
3. 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.
2. F. H. P. Fitzek, S. Rein, P. Seeling and M. Reisslein. RObust Header Compressions (ROHC) Performance for Multimedia Transmission over 3G/4G Wireless Networks, *Wireless Personal Communications (Kluwer/Springer)*, 32(1):23–41, January 2005.
1. 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.

PUBLICATIONS
INTERNATIONAL CONFERENCE PROCEEDINGS REFEREED PAPERS

95. M. P. McGarry and P. Seeling. WIP: Lessons Learned Using Genuine Projects to Motivate Students, *Proc. of 55th IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Nashville, TN, November 2025.

Student co-authors are underlined.

94. J. Gollmann, V. Hoffmann, S. Glevitzky, L. Küssel, P. Seeling, R. Bassoli, H. Boche, and F. H. P. Fitzek. WIP: Teaching Quantum Communication in High School: Pilot Implementation and Evaluation of a 90-Minute Module, *Proc. 55th IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Nashville, TN, November 2025.

93. P. Seeling and M. P. McGarry. WIP: The Competency Tilt—Towards Competency Self-Evaluations for Differentiated Learning Experiences, *Proc. 55th IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Nashville, TN, November 2025.

92. J. Acevedo, Frank H. P. Fitzek, P. Seeling. Hardware Acceleration for Massive-MIMO Hybrid Beamforming on RISC-V Vector DSPs, *Proc. of 2025 IEEE Military Communications Conference (MILCOM)*, pages 144–149, Los Angeles, CA, USA, October 2025.

91. J. Acevedo, Frank H. P. Fitzek, P. Seeling. 5G Channel Estimation Kernels on RISC-V Vector Digital Signal Processors, *Proc. of IEEE International Conference on Microelectronics (ICM)*, pages: 1–8, Doha, Qatar, December 2024.

90. J. Schulz, S. Hu, S. Speidel, P. Seeling, F. H.P. Fitzek. Negative Latency in Computer Vision: A Key to Efficient Edge Offloading, *Proc. of IEEE Global Communications Conference (GLOBECOM)*, pages: 3110–3115, Cape Town, South Africa, December 2024.

89. M. P. McGarry and P. Seeling. WIP: From Passive to Passionate: Using Genuine Projects to Motivate Students, *Proc. of 54th IEEE Frontiers in Education Conference (FIE)*, pages: 1–5, Washington, DC, October 2024.

88. P. Seeling and M. P. McGarry. WIP: Evolution of a Networking Course—Attitude Changes a Decade and a Pandemic Later, *Proc. of 54th IEEE Frontiers in Education Conference (FIE)*, pages: 1–5, Washington, DC, October 2024.

87. P. Seeling and M. P. McGarry. WIP: (Almost) Anywhere Virtual Computing Learning Environment: Student Technology Acceptance *Proc. of 54th IEEE Frontiers in Education Conference (FIE)*, pages: 1–5, Washington, DC, October 2024.

86. S. Mudriievskyi, F. H. P. Fitzek, and P. Seeling, CHEAP 5G: DECT NR+ for Tactile Internet With Human In The Loop Application, *Proc. of 29th European Wireless Conference*, pages 31–34, Brno, Czech Republic, September 2024.

85. P. Seeling, M. P. McGarry, M. R. Johnson. WIP: Reveal Online Learning Clickstream Data to Provide Actionable Intelligence, *Proc. of 53rd IEEE Frontiers in Education Conference (FIE)*, pages: 1–5, College Station, TX, October 2023.

84. J. Schulz, F. H.P. Fitzek, G. T. Nguyen, V. Nguyen, and P. Seeling. Anticipatory Hand Glove: Understanding Human Actions for Enhanced Interaction, *Adjunct Proceedings of the 2023 ACM International Joint Conference on Pervasive and Ubiquitous Computing & the 2023 ACM International Symposium on Wearable Computing (UbiComp/ISWC Adjunct)*, pages 170–174, Cancun, Mexico, October 2023.

83. P. Seeling, S. Roberts, and J. Weible. Towards Education 5.0: Instruction with Learners in the Loop, *Proc. of 23rd Annual Conference on Information Technology Education (SIGITE)*, pages: 92–93, Chicago, IL, September 2022.

82. P. Seeling. Enabling Open Source, Open Data for Closed Source, Closed Data Learning Management Systems, *Proc. of 23rd Annual Conference on Information Technology Education (SIGITE)*, pages: 124–126, Chicago, IL, September 2022.
81. S. Senk, M. Ulbricht, J. Acevedo, G. T. Nguyen, P. Seeling, and F. H. P. Fitzek. Flexible Measurement Testbed for Evaluating Time-Sensitive Networking in Industrial Automation Applications, *Proc. IEEE International Conference on Network Softwarization (NetSoft)*, pages 402–410, Milan, Italy, June 2022.
80. F. H. P. Fitzek, S.-C. Li, S. Speidel, T. Strufe, and P. Seeling. Frontiers of Transdisciplinary Research in Tactile Internet with Human-in-the-Loop, *Proc. of International Symposium on Wireless Communication Systems (ISWCS)*, pages 1–6, Berlin, Germany, September 2021.
79. P. Seeling and F. H. P. Fitzek. Anticipatory Networking: Negative Latency for Ubiquitous Computing, *Consumer Communications and Networking Conference (CCNC)*, pages 1–4, Las Vegas, NV, USA, January 2021.
78. P. Seeling and F. H. P. Fitzek. Binary Indicated Numbers with Bit-Level Integrated Scalability Support (BINBLISS), *Proc. of IEEE Global Communications Conference (GLOBECOM)*, pages 1–6, Taipei, Taiwan, December 2020.
77. P. Seeling. Switching to Stay Home Instruction: Impacts of the Coronavirus Pandemic on Learner Performance for an Introductory Computer Science Course, *Proc. of ACM Annual Conference on Information Technology Education (SIGITE)*, page 294, Virtual Event, October 2020.
76. P. Seeling. Outreach, Inreach, and The Age of Reason: Technology Education for a New Age of Learning', *Proc. of ACM Annual Conference on Information Technology Education (SIGITE)*, page 213, Virtual Event, October 2020.
75. D. Drohan, E. deLeastar, and P. Seeling. Online Education and the "New Normal", *Proc. of ACM Annual Conference on Information Technology Education (SIGITE)*, page 301, Virtual Event, October 2020.
74. D. Drohan and P. Seeling. Student Feedback for Globally Distributed Team Application Development, *Proc. of IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Uppsala, Sweden, October 2020.
73. J. Eickholt and P. Seeling. Pedagogy and Classroom: How Can I Do This in That Space or Does it Even Matter?, *Proc. of ACM Technical Symposium on Computer Science Education (SIGCSE)*, page 1399, Portland, OR, February 2020.
72. P. Seeling and F. H. P. Fitzek. Delay Impacts on EEG-Based Determination of the Human Visual Interface QoE for Virtual and Augmented Realities, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 1–6, Las Vegas, NV, January 2020.
71. P. Seeling, J. Eickholt, Q. Hinton, and M. Johnson. Low-Cost Active Learning Benefits for Introductory Computer Science Courses, *Proc. of IEEE Frontiers in Education Conference (FIE)*, pages 1–4, Cincinnatti, OH, September 2019.

70. J. Eickholt, L. Gandy, P. Seeling, and M. Johnson. Advancing Adoption of Active Learning Pedagogy via New Avenues of Research and Training, *Proc. of IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Cincinnatti, OH, September 2019.
69. J. Thompson, A. K. Karembai, and P. Seeling. Immersive Image QoE in Mobile Consumer Virtual Reality Settings, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 1–4, Las Vegas, NV, January 2019.
68. M. J. Bailey and P. Seeling. Forward Caching Hints to Reduce WASTE, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 1–4, Las Vegas, NV, January 2019.
67. B. Bauman and P. Seeling. Evaluation of EEG-Based Predictions of Image QoE in Augmented Reality Scenarios, *Proc. of IEEE 88th Vehicular Technology Conference (VTC-Fall)*, pages 1–5, Chicago, IL, August 2018.
66. P. Seeling and J. Eickholt. Levels of Active Learning in Programming Skill Acquisition: From Lecture to Active Learning Rooms, *Proc. of 47th ASEE/IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Indianapolis, IN, October 2017.
65. J. Eickholt, J. Roush, P. Seeling, T. Vedantham, and M. Johnson. Supporting Active Learning through Commodity and Open Source Solutions, *Proc. of 47th ASEE/IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Indianapolis, IN, October 2017.
64. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Robust Header Compression Version 2 Power Consumption on Android Devices via Tunnelling, *Proc. of IEEE International Conference on Communications (ICC) Workshops*, pages 418–423,, Paris, France, May 2017.
63. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Applying Robust Header Compression version 2 for UDP and RTP Broadcasting with Field Constraints, *Proc. of IEEE Vehicular Technology Conference (VTC-Spring)*, pages 1–5, Sydney, Australia.
62. A. Knox and P. Seeling. Mobile Web Page Characteristics: Delivery and Stability Considerations, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 37–40, Las Vegas, NV, January 2017.
61. H. Salman and P. Seeling. Resource Utilization for Access to Web-Based Services: Browser versus Mobile Application, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 389–394, Las Vegas, NV, January 2017.
60. B. Bauman and P. Seeling. Towards Still Image Experience Predictions in Augmented Vision Settings, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 1038–1043, Las Vegas, NV, January 2017.
59. M. Tömösköz, P. Seeling, P. Ekler, and F. H.P. Fitzek. Regression Model Building and Efficiency Prediction of RoHCv2 Compressor Implementations for VoIP, *Proc. of IEEE Global Communications Conference (GLOBECOM)*, pages 1–6, Washington, D.C., December 2016.
58. P. Seeling. Evolving an Introductory Programming Course: Impacts of Student Self-Empowerment, Guided Hands-On Times, and Self-Directed Training, *Proc. of 46th ASEE/IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Eerie, PA, October 2016.

57. P. Seeling. Switching to Blend-Ed: Effects of Replacing the Textbook with the Browser in an Introductory Computer Programming Course, *Proc. of 46th ASEE/IEEE Frontiers in Education Conference (FIE)*, pages 1–5, Eerie, PA, October 2016.

56. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Efficiency Gain for RoHC Compressor Implementations with Dynamic Configuration, *Proc. of IEEE 84th Vehicular Technology Conference (VTC-Fall) Workshop on Cellular Internet of Things - Emerging Trends and Enabling Technologies*, pages 1–5, Montreal, Quebec, Canada, September 2016.

55. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Performance Prediction of Robust Header Compression version 2 for RTP Audio Streaming Using Linear Regression, *Proc. of European Wireless Conference (EW)*, pages 61–66, Oulu, Finland, May 2016.

54. T. A. Johnson and P. Seeling. CacheConnect: On-device Proxy and Web Cache for Performance Increases, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 268-–269, Las Vegas, NV, January 2016.

53. S. Mead, N. Veeramachaneni, and P. Seeling. An Overview of Mobile Device Network Activities: Characteristics of Heterogeneous Network Interfaces (Poster), *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 312–313, Las Vegas, NV, January 2016.

52. P. Seeling. Visual User Experience Difference: Image Compression Impacts on the Quality of Experience in Augmented Binocular Vision, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 924–929, Las Vegas, NV, January 2016.

51. M. P. McGarry and P. Seeling. Lecture, Narrated Slides, or First Person View? Impact of Presentation on Learning Outcomes, *Proc. of 45th ASEE/IEEE Frontiers in Education Conference (FIE)*, pages 1–4, El Paso, TX, October 2015.

50. P. Seeling. Assessing Student Views of Traditional, Free, and Interactive Modifications for an Introductory Networking Course, *Proc. of 45th ASEE/IEEE Frontiers in Education Conference (FIE)*, pages 1–4, El Paso, TX, October 2015.

49. P. Seeling. Augmented Lectures: A Liquid Feedback System for the Traditional and Blended Classroom, *Proc. of 16th ACM Annual Conference on Information Technology Education (SIGITE)*, page 123, Chicago, IL, September 2015.

48. M. Tömösköz, P. Seeling, P. Ekler, and F. H. P. Fitzek. Performance Evaluation and Implementation of IP and Robust Header Compression Schemes for TCP and UDP Traffic in the Wireless Context, *Proc. of Eastern European Regional Conference on the Engineering of Computer Based Systems (ECBS-EERC)*, pages 45–50, Brno, Czech Republic, August 2015.

47. P. Seeling. Assessing the Quality of Experience in Augmented Vision: Towards a Unified Evaluation Framework, *Proc. of IEEE ICC Workshop on Quality of Experience-based Management for Future Internet Applications and Services (QoE-FI)*, London, UK, June 2015.

46. T. Johnson and P. Seeling. Browsing the Mobile Web: Device, Small Cell, and Distributed Mobile Caches, *Proc. of IEEE ICC Workshop on Cooperative and Cognitive Networks (CoCoNet)*, pages 1735–1740, London, UK, June 2015.

45. T. Johnson and P. Seeling. Landing Page Characteristics Model for Mobile Web Performance Evaluations on Object and Page Levels, *Proc. of IEEE International Conference on Communications (ICC)*, pages 3616–3621, London, UK, June 2015.

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35. P. Seeling. Caching Proxying for Mobile Users, *Proc. of IEEE Vehicular Technology Conference (VTC-Spring)*, pages 1–5, Dresden, Germany, June 2013.

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32. C. Sulisz and P. Seeling. An off-the-shelf Wearable HUD System for Support in Indoor Environments, *Proc. of International Conference on Mobile and Ubiquitous Multimedia (MUM)*, pages 1–4, Ulm, Germany, December 2012.

31. A. Pulipaka, P. Seeling, and M. Reisslein. Traffic Models for H.264 Video Using Hierarchical Prediction Structures, *Proc. of IEEE Global Communications Conference (GLOBECOM)*, pages 2107–2112, Anaheim, CA, December 2012.

30. M. Oner, J. Pulcifer-Stump, P. Seeling, and T. Kaya. Towards the Run and Walk Activity Classification through Fall Detection—An Android Application, *Proc. of the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, pages 1980–1983, San Diego, CA, August 2012.

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26. P. Seeling. Power Consumption Evaluation for Cooperative Localization Services, *Proc. of International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE)*, Online, December 2011.

25. A. Ellertson and P. Seeling. Work in Progress—Using Mobile & Social Game Technology with Location-based Services for Building Learning Communities, *Proc. of ASEE/IEEE Frontiers in Education Conference (FIE)*, pages S4H-1–S4H-3, Rapid City, SD, October 2011.

24. P. Seeling. Network Performance Evaluation of Microsoft Office Communications Server 2007, *Proc. of IEEE International Conference on Electro/Information Technology (EIT)*, pages 1–6, Mankato, MN, May 2011.

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22. A. Sharma and P. Seeling. Store-and-Forward in High Traffic Sensor Networks, *Proc. of the Computer Science On-line Conference 2011*, January 2011.

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20. P. Seeling. Work In Progress—Portable Student Labs Implementation, *Proc. of ASEE/IEEE Frontiers in Education Conference (FIE)*, pages F2F-1–F2F-3, Washington, D.C., October 2010.

19. 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, *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages 1–5, Las Vegas, NV, January 2010.

18. M. Hoppe and P. Seeling. Security of Virtualized Applications: Microsoft App-V and VMware ThinApp, *Proc. of Int. Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE)*, pages 291–295, Online, December 2009.

17. P. Seeling and J. B. Starren. Ad-Hoc Association of Pre-Determined ZigBee Devices, *Proc. of 6th Annual International Mobile and Ubiquitous Systems: Networking & Services (MobiQuitous)*, pages 1–6, Toronto, Canada, July 2009.

16. P. Seeling. Scene Change Detection for Uncompressed Video, *Proc. of International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE)*, pages 11–14, Online, December 2008.

15. 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, *Proc. of ASEE/IEEE Frontiers in Education Conference (FIE)*, Milwaukee, WI, October 2007.

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1. F. H.P. Fitzek, L. Badia, P. Seeling, J. G. Schulte, and T. Henderson. Mobility and Stability Evaluation in Wireless Multi-Hop Networks Using Multiplayer Games, *Proc. of NetGames 2003*, pages 77–87, Redwood City, CA, May 2003.

PUBLICATIONS
BOOKS AUTHORED AND EDITED

3. F. H. P. Fitzek, H. Boche, W. Kellerer, P. Seeling (Eds.). *6G-life: Unveiling the Future of Technological Sovereignty, Sustainability, and Trustworthiness*, 500 pages. Academic Press (Elsevier), Cambridge, MA, 2026. Paperback ISBN: 978-0443274107, eBook ISBN: 978-0443274114.
2. F. H.P. Fitzek, F. Granelli, and P. Seeling (Eds.). *Computing in Communication Networks — From Theory to Practice*, 484 pages. Academic Press (Elsevier), Cambridge, MA, 2020. Paperback ISBN: 978-0128204887, eBook ISBN: 978-0128209042.
1. P. Seeling, Frank H.P. Fitzek, and M. Reisslein. *Video Traces for Network Performance Evaluation*, 282 pages. Springer, November 2006. Paperback ISBN: 978-1402055652, eBook ISBN: 978-1402055669.

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13. F. H. P. Fitzek, H. Boche, W. Kellerer, P. Seeling, P. Schwenteck, G. T. Nguyen, F. Benken, and J. A. Cabrera. The Promise of 6G, Chapter 1, pages 3–16. In *6G-life: Unveiling the Future of Technological Sovereignty, Sustainability, and Trustworthiness*, F. H.P. Fitzek, H. Boche, W. Kellerer, and P. Seeling (Eds.), Academic Press, Elsevier, 2026.
12. F. H.P. Fitzek, P. Schwenteck, H. Boche, W. Kellerer, G. T. Nguyen, and P. Seeling. 6G Perspective of Mobile Network Operators, Manufacturers, and Verticals, Chapter 2, pages 17–29. In *6G-life: Unveiling the Future of Technological Sovereignty, Sustainability, and Trustworthiness*, F. H.P. Fitzek, H. Boche, W. Kellerer, and P. Seeling (Eds.), Academic Press, Elsevier, 2026.
11. 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.
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9. F. H. P. Fitzek, P. Seeling, T. Höschele, and B. Jacobfeuerborn. On the Need of Computing in Future Communication Networks, Chapter 1, pages 3–45. In *Computing in Communication Networks — From Theory to Practice*, F. H.P. Fitzek, F. Granelli, and P. Seeling (Eds.), Academic Press, Elsevier, 2020.
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6. Z. Xiang, J. A. Cabrera, S. Pandi, P. Seeling, and F. H. P. Fitzek. ComNetsEmu: A Lightweight Emulator, Chapter 13, pages 245–258. In *Computing in Communication Networks — From Theory to Practice*, F. H.P. Fitzek, F. Granelli, and P. Seeling (Eds.), Academic Press, Elsevier, 2020.
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4. P. Seeling, F. H. P. Fitzek, D. E. Lucani, M. D. Katz, and M. V. Pedersen. Mobile Clouds: Technology and Services for Future Communication Platforms, Chapter 5, pages 125–147. In *Fundamentals of 5G Mobile Networks*, J. Rodriguez (Ed.), Wiley, 2015.

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OTHER

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6. T. A. Johnson and P. Seeling. cacheConnect: On-Device Proxy and Web Cache for Performance Increases (Demo). In *Proc. of IEEE Consumer Communications and Networking Conference (CCNC)*, pages , Las Vegas, NV, USA, pp. 275–276, January 2016.
5. M. Katz, D. E. Lucani, F. H.P. Fitzek, and P. Seeling. Sharing Resources Locally and Widely: Mobile Clouds as the Building Blocks of Shareconomy. In *Proceedings of Wireless World Research Forum 32 (WWRF)*, Vol. 1, Marrakesh, Morocco, May 2014.
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3. F. H.P. Fitzek, P. Seeling and M. Reisslein. Link Level Design Issues for IP based Multi-hop Communication Systems. In *Proceedings of the Wireless World Research Forum 7 (WWRF)*, Vol. 1, Eindhoven, NL, December 2002.
2. F. H.P. Fitzek, P. Seeling and M. Reisslein. Authentication and Security in IP Based Multi-hop Networks. In *Proceedings of Wireless World Research Forum 7 (WWRF)*, Vol. 1, Eindhoven, NL, December 2002.
1. F. H.P. Fitzek, P. Seeling and M. Reisslein. Reference Models and Related Business Cases for ad-hoc Networks. In *Proceedings of the Wireless World Research Forum 6 (WWRF)*, London, UK, June 2002.

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1. F. H.P. Fitzek, T. Madsen and P. Seeling. IP Header Compression Enabling High Quality Consumer-Oriented Communications Diversity. *IEEE Communication Society Tutorials*. Available at http://www.comsoc.org/livepubs/tutorials/Seeling/index.html

Published Software Tools

2. F. H.P. Fitzek, P. Seeling, M. Reisslein and M. Zorzi. ViTAN -Visualisation Tool for Ad-hoc Networks. *IEEE Network*, 17(4):9, July 2003.
1. P. Seeling, F. H.P. Fitzek and M. Reisslein. Videometer. *IEEE Network*, 17(1):5, January 2003.

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2. R. Kohvakka, T. Johnson and P. Seeling. An Inexpensive Testbed For Mobile Device Power Measurement. In *IEEE Online Conference on Green Networking (OnlineGreenCom)*, Online, October 2013.
1. S. Mead and P. Seeling. NTraX: A Network Traffic Capturing and Remote Profiling Framework for Crowd-Sourcing Mobile User Data. In *IEEE Online Conference on Green Networking (OnlineGreenCom)*, Online, October 2013.

Invited Contributions and Presentations

3. P. Seeling. REVEL educator study assesses quiz, exam, and final course grades at Central Michigan University. Pearson Educator Study, Online, May 2016.
2. P. Seeling. Wireless and Multimedia Research and Development at UW–Stevens Point. *Second Annual Wisconsin Science & Technology Symposium*, La–Crosse, WI, July 2009.
1. P. Seeling. Busy Bee – An Introduction to ZigBee and Its Potential for Home Monitoring. *Marshfield Clinic Research Foundation*, Marshfield, WI, April 2008.

DISCLOSURES

PATENTS AND INVENTIONS

6. Y. Alghamdi and P. Seeling. Activity-Based Cloud Push Notifications using Subscription Channels for Mobile User Device Multiplicity. Submitted to the Office of Research and Sponsored Programs at Central Michigan University, September 2014.
5. T. Johnson and P. Seeling. Decentralized User-Centric Content Prefetching and Modification. Submitted to the Office of Research and Sponsored Programs at Central Michigan University, July 2014.
4. P. Seeling. Continuous Vision Therapy through Transparent Vision Systems. Submitted to the Office of Research and Sponsored Programs at Central Michigan University, November 2012.
3. P. Seeling and J. Starren. Ad-Hoc Association of Pre-Determined ZigBee devices. *WiSys Reference No. R09001US*. September, 2008.
2. P. Seeling. Entropy-based Scene Change Detection. *WiSys Reference No. T08030US*, June, 2008.
1. P. Seeling and M. Reisslein. Video Coding with Multiple Descriptors and Spatial Scalability for Device Diversity. *ASU Case No. M5-013*.

TEACHING OVERVIEW

Teaching at Central Michigan University (CMU) encompasses a default 9-credit (3-course) load per semester without additional help from teaching assistants or graders. Overall teaching effectiveness is indicated through comparative student opinion score (SOS) values of instructor effectiveness, as measured for courses offered at CMU and the University of Wisconsin-Stevens Point (UWSP). Values were converted to the 5-point Likert-type scale ranging from 5.00 (highest, strongly agree) to 1.00 (lowest, strongly disagree) currently in place at CMU. For courses before Fall 2023, the results are presented for responses to the survey question "Please rate the overall effectiveness of your instructor," and for courses starting Fall 2023, a Mean-of-Means for selective questions from the survey is used according to university policies: (i.) "The instructor effectively communicated expectations, procedures, and policies on the syllabus and throughout the course"; (ii.) "The instructor provided experiences and materials that helped me learn (such as lectures, discussions, readings, homework, assignments, in-class activities, projects)"; (iii.) "The instructor had high expectations of my learning in this course"; (iv.) "The instructor provided me with useful feedback"; and (v.) "When I requested additional assistance or resources, the instructor provided them."

- Overall Instruction Student Opinion Scores:
  - Students instructed: 1757
  - SOS average: 4.2 / 5.0
- CMU instruction: 1433 students, SOS 4.19 / 5.0
- UWSP instruction: 324 students, SOS 4.21 / 5.0

THESES ADVISOR AND COMMITTEE MEMBER

- Ph.D. Degree
  - Christian Vielhaus: *Evaluating Congestion Control Algorithms and Predictive Quality of Service*, Dresden University of Technology, 2025
  - Simon Wunderlich: *Network Coding Strategies for Multi-Core Architectures*, Dresden University of Technology, 2021
  - Frank James: *Vector Sensors and User Based Link Layer QoS for 5G Wireless Communication Applications*, Arizona State University, 2019
  - Akhilesh Thyagaturu: *Software Defined Applications in Cellular and Optical Networks*, Arizona State University, 2017
  - Nicholas Green: *Example-Based Pedagogical Strategies in a Computer Science Intelligent Tutoring System*, DePaul University, 2017
  - Adolph Seema: *Flexi–WVSNP–DASH: A Wireless Video Sensor Network Platform for the Internet of Things*, Arizona State University, 2017
  - Yousef Dashti: *Effcient Routing and Resource Sharing Mechanisms for Hybrid Optical-Wireless Access Networks*, Arizona State University, 2017
  - Po–Yen Chen: *Design and Performance Analysis of Fiber-Wireless Networks*, Arizona State University, 2015
  - Venkata Sai Akshay Pulipaka: *Traffic Characterization and Modeling of H.264 Scalable and Multiview Encoded Video*, Arizona State University, 2012
- M.S. Degree

- John Roush: *A General-Purpose Structured Data Format*, Spring 2017
- Hesham Salman:*Mobile Application Usage Pattern Analysis*, Spring 2016
- Troy A. Johnson:*Modeling Mobile Web Characteristics for Energy-Optimized Delivery*, Fall 2015
- Yousef Alghamdi: *Activity-Based Cloud Sending and Push Notifications*, Summer 2015
- Junghyo Lee: *Mobile Application Usage Patterns of Android Mobile Users*, Spring 2014
- Hari Sundararaman[2]: *Error-Resilient H.264/SVC Video Transmission over Wireless Networks*, Spring 2011
- Sushmith Hiremath[2]: *H.264 CGS HD Video Characteristics*, Fall 2010
- Rohan Gupta[2]: *Trace-Based Traffic and Quality Evaluation of H.264/MPEG-4 Part-10 Scalable Video Coding (SVC) Extended Medium Grain Scalable (MGS) Video Streams*, Fall 2009
- Venkata Sai Akshay Pulipaka[2]:*Traffic and Quality Characterization of Coarse-Grain Quality Scalable (CGS) H.264 SVC Encoded Video*, Fall 2009
- Shyamprasad Chikkerur[2]: *Traffic and Objective Video Quality Characteristics of H.264 SVC Single-Layer Encoded High-Definition Videos*, Fall 2009
- Michael Hoppe (Dipl.-Ing.)[1]: *Process and Analysis of Application Virtualization Distribution*, Spring 2009

▸ B.S. Degree

- Steffen Haase[1]: *Cooperation of Wireless Networks*, Fall 2009

PROJECTS M.S. CAPSTONES

▸ R. N. Talluri: *Analysis/Predictor of Student Performance based on Class Reports*, Summer 2022

▸ D. Maddukuri, C. Seethala: *SCORM-Based User Tracking*, Spring 2022

▸ S. H. Gouuru: *A Machine Learning Web Application for Time Esti- mation for Pre-Trained Models*, Spring 2022

▸ P. Botti: *Segmented Image Transmission with WebRTC*, Fall 2016

▸ K. Kariya: *Image/Video Augmented Reality Player*, Fall 2016

PROJECTS HONORS, CAPSTONE, STUDIES

2025/26
- C. Bangert: *Labs at Home*, Honors, Fall 2025
- J. M. Hammock: *Beyond The Prompt: Understanding Student Engagement with Generative AI in Higher Education*, Honors, Fall 2025

2024/25
- A. Burton: *Learner Experience Tracking and Analytics in Blackboard*, Honors, Fall 2024

2022/23
- S. St. John: *Reveal my Plyr Media*, Honors, Fall 2022

[1]Based on a dual degree program between the Department of Computing and New Media Technologies, University of Wisconsin-Stevens Point and the Department of Computer Science, Otto-von-Guericke University Magdeburg, Germany.

[2]Based on a consulting agreement with the Department of Electrical Engineering, Arizona State University, Tempe, Arizona.

2021/22
- L. Strong: *Utilizing Unity for Player Analysis and AI Testing*, Honors, Spring 2022

2020/21
- J. Swiontek: *Evaluation of a Tool Chain from Python to FPGA via C*, CPS 497, Spring 2021

2019/20
- B. Clark, R. Walls: *IT Certification Independent Study*, CPS 497, Summer 2020
- H. Seccia: *API-based Mobile App Development*, CPS 497, Spring 2020
- K. Zeien: *Grain Dry Monitor*, CPS 497, Spring 2020
- B. Woods: *IT Certification Independent Study*, CPS 497, Spring 2020

2018/19
- D. Kelly: *Utilizing the micro:bit Controller for Introducing CS to High School Seniors*, CPS 497, Summer 2019
- J. Little, J. Thompson: *Blockchain-Driven IOT Data Dissemination*, CPS 497, Spring 2019
- Z. Haywarth: *Internet Tracking based on Fingerprinting*, CPS 497, Fall 2018
- T. Seiffert: *3d Video Evaluation*, CPS 497, Fall 2018

2015/16
- E. Reno, T. Ross: *Network+/Security+ Certification*, CPS 497, Spring 2016
- R. Bielecki: *Healthcare Networking*, CPS 497, Fall 2015
- T. Johnson: *Web Cache Lifetime Evaluation*, CPS 697, Fall 2015
- H. Salman: *Mobile Resource Utilization Framework*, CPS 697, Fall 2015
- N. Veeramachaneni: *Mobile Device Network Utilization*, CPS 697, Fall 2015

2014/15
- D. Hoyle: *Network+/Security+ Certification*, CPS 497, Spring 2015
- H. Salman: *Mobile Resource Utilization Framework*, CPS 597, Spring 2015
- R. Barnum, N. Pionk: *Network+/Security+ Certification*, CPS 497, Fall 2014

2013/14
- Y. Alghamdi: *Cloud Push Notifications*, CPS 597, Summer 2014
- R. Subramaniam: *VANET Routing*, CPS597, Summer 2014
- J. Brandt: *Embedded Device Administration*, CPS 497, Spring 2014
- J. Whaley: *Video Quality in Augmented Reality Settings*, CPS 497, Spring 2014
- S. Mead: *Mobile Network Monitoring Application*, CPS 497, Spring 2014
- R. Groulx, M .Hewitt, D. Hoyle: *Network+/Security+ Certification*, CPS 497, Spring 2014
- J. Sage: *Interactive Public Displays*, CPS 497, Fall 2013

2012/13
- E. Byrne: *Event Calendaring System*, CPS 497, Summer 2013
- N. Miu: *Android ADK*, CPS 497, Summer 2013
- C. Jacobs: *Exploration of Mobile Development*, CPS 497, Spring 2013
- M. Norton: *Internet Traffic Generator w/GUI*, CPS 497, Spring 2013
- J. Scott: *Remote Booting and OS Management*, CPS 497, Spring 2013 Platform, CPS 497, Spring 2013
- R. Kohvakka: *Continuous Power Measurement Framework*, CPS 597, Spring 2013
- P. Cortright: *Video Streaming*, CPS 497, Fall 2012

2011/12
- T. Johnson: *Cooperative Localization using Bluetooth*, CPS 497, Summer 2012
- R. Kohvakka: *Mobile Device Power Measurement Instrumentation*, CPS 497, Summer 2012

- R. Kohvakka: *Pandaboard RAW Socket Interface*, CPS 497, Summer 2012
- T. Johnson: *Localization using Bluetooth Device Names*, CPS 497, Spring 2012
- S. Rangos: *NFC-based communication*, CPS 497, Spring 2012
- J. Gumm: *Mobile User Localization Traces*, CPS 497, Spring 2012
- E. Price: *Multi-player Strategy Game Development*, CPS 497, Fall 2011

2010/11
- D. Geisendorfer: *Server Virtualization*, CIS 499, Spring 2011
- M. Ryskiewicz: *Mobile Phones and Lego Mindstorms*, CIS 499, Spring 2011
- M. Burdick: *Mobile Phones and Lego Mindstorms*, CIS 499, Spring 2011
- A. Sharma: *GPU Based Packet Compression*, CIS 499, Spring 2011
- A. Quaschnick: *WWSP Mobile Media Streaming*, CIS 499, Spring 2011
- A. Sharma: *Intelligent Network Selection usign User Trends*, CIS 499, Fall 2010
- B. Schreiber, C. Redmond: *Evaluation of Private Ubuntu Enterprise Clouds for Virtual Laboratories*, CIS 480, Fall 2010

2009/10
- W. Gao, R. Korth, J. Yuan:*DimDim Web Conferencing Traffic Analysis*, CIS 480, Spring 2010
- A. Sharma: *Sun SPOT Heavy Data Streaming*, CIS 399, Fall 2009
- J. Nugent, F. Passineau: *Bootable Virtual Environments with Server Connectivity*, CIS 480, Fall 2009

2008/09
- D. Briske: *Bluetooth Media Streaming*, CIS 499, Spring 2009
- R. Stieber: *Connectivity for Windows Server 2008*, CIS 499, Fall 2008

COURSES INSTRUCTED

CMU: 16 Undergraduate and 4 Graduate Courses; 2011–present

- CPS 101: A First Byte of Computer Science (CS0)
  Introductory course for transfer students.
  Fall 2021
- CPS 165: Modern Website Design
  Required course in the Information Technology program.
  Fall 2014
- CPS 180: Principles of Computer Programming (CS1)
  Required course in the Computer Science, Cybersecurity, and Information Technology programs.
  Spring 2012, Fall 2014, Spring 2015, Fall 2015, Fall 2016, Fall 2019
- CPS 181: Introduction to Data Structures (CS2)
  Required course in the Computer Science, Cybersecurity, and Information Technology programs.
  Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020
- CPS 282: Introduction to Multimedia Design
  Required course in the Information Technology program.
  Fall 2011
- CPS 296C: A First Byte of Computer Science
  Special topics undergraduate elective course.

Spring 2021

- CPS 360: Computer Design & Architecture
  Required course in the Computer Science and Cybersecurity programs.
  Spring 2020
- CPS 396F: Mobile Application Development
  Special topics undergraduate elective course.
  Fall 2019
- CPS 396M: Mobile Computing:Android
  Special topics undergraduate elective course.
  Spring 2012, Fall 2013, Spring 2015
- CPS 420: Web Application Development: Web Services SOA
  Required course in the Information Technology program's web development track.
  Spring 2025, Spring 2026
- CPS 470: Introduction to Operating Systems
  Required course in the Computer Science and Cybersecurity programs.
  Spring 2021, Fall 2021, Spring 2022, Spring 2023, Fall 2023, Spring 2024
- CPS 496A: Android Programming
  Special topics undergraduate elective course.
  Fall 2017
- CPS 498: Senior Design II
  Required course in the Computer Science program.
  Spring 2023
- ITC 265: Basics of Data Communications & Computer Networks
  Required course in Information Technology and Cybersecurity programs.
  Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Fall 2016, Spring 2017, Fall 2017, Spring 2018, Spring 2020, Spring 2022, Spring 2023, Spring 2024, Spring 2025
- ITC 320: Web Application Development: Client-Side Scripting
  Required course in the Information Technology program's web development track.
  Fall 2023
- ITC 466: System Administration and Automation
  Required course in the Information Technology program's system administration track.
  Spring 2018
- CPS 596A: Android Programming
  Special topics graduate level course.
  Fall 2016
- CPS 596M: Mobile Computing
  Special topics graduate level course.
  Spring 2014

- ITC 530: Mobile Computing
  Elective graduate level course.
  Summer 2015, Fall 2015, Spring 2016, Summer 2016, Spring 2017, Fall 2020, Fall 2022, Spring 2023, Spring 2025
- ITC 630: Cloud Computing
  Elective graduate level course.
  Fall 2021, Fall 2022, Summer 2023, Fall 2023, Fall 2025

UWSP: 8 Undergraduate Courses; 2008–2011

- CIS 225: Data Communications and Networking:
  Fall 2010, Spring 2011
- CIS 330: Computer and Network Architecture:
  Winterim 2008, Spring 2008, Fall 2008
- CIS 346: Wireless Networks and Devices:
  Winterim 2009, Spring 2009, Spring 2011
- CIS 360: Data Communication and Networks:
  Spring 2008, Spring 2009, Fall 2009, Spring 2010
- CIS 361: Information and Network Security:
  Fall 2008, Fall 2009, Fall 2010
- CIS 460: Advanced Topics in Networking:
  Spring 2010, Spring 2011
- CIS 462: Secure Server Administration:
  Spring 2009, Fall 2009, Fall 2010
- CIS 463: Web Server Administration:
  Fall 2008
- CIS 464: Wireless Networks and Devices:
  Spring 2010

Central Michigan University Evaluation of Instruction

Note: SOS Scoring was nonuniform throughout tenure at CMU with a switch from 4.0 to 5.0 as maximum in 2018; department (college) average provided for comparison.

Year and Term	Course Number	Title and Section	Students	Avg. Course, Dept. (Coll.)
2025 Fall	ITC 630	Cloud Computing	16	4.75, 4.05 (4.08)
2025 Spring	CPS 420[3]	Web Application Development—Web Serv SOA	14	4.21, 4.23 (4.1)
	ITC 265	Basics of Data Comm. & Comp. Netw.	34	4.08, 4.23 (4.1)
2024 Fall		Sabbatical Leave at TU Dresden		
2024 Spring	CPS 470[3]	Introduction to Operating Systems	30	3.7, 4.34 (4.08)
	ITC 265	Basics of Data Comm. & Comp. Netw.	25	4.56, 4.34 (4.08)
2023 Fall	CPS 470	Introduction to Operating Systems	19	4.36, 4.33 (4.03)
	ITC 320	Web App Development—Client-Side Script	20	4.28, 4.33 (4.03)
	ITC 630	Cloud Computing	47	4.54, 4.33 (4.03)
2023 Summer	ITC 630	Cloud Computing	24	4.95, 4.8 (4.46)
2023 Spring	CPS 470	Introduction to Operating Systems	17	3.77, 4.54 (4.29)
	CPS 498[2]	Senior Design II	23	3.4, 4.54 (4.29)
	ITC 265	Basics of Data Comm. & Comp. Netw.	32	4.84, 4.54 (4.29)
	ITC 530	Mobile Computing	17	4.97, 4.54 (4.29)
2022 Fall	ITC 530	Mobile Computing	14	5.0, 4.31 (4.13)
	ITC 530	Mobile Computing	2	—
	ITC 630	Cloud Computing	22	4.92, 4.31 (4.13)
2022 Spring	CPS 470[3]	Introduction to Operating Systems	30	3.56, 4.34 (4.25)
	CPS 470[3]	Introduction to Operating Systems	15	3.1, 4.34 (4.25)
	ITC 265	Basics of Data Comm. & Comp. Netw.	13	4.0, 4.34 (4.25)
2021 Fall	CPS 470	Introduction to Operating Systems	28	4.18, 4.29 (4.18)
	CPS 101[1]	A First Byte of Computer Science	8	4.33, 4.29 (4.18)
	ITC 630	Cloud Computing	30	4.86, 4.29 (4.18)
2021 Spring	CPS 470[2]	Introduction to Operating Systems	12	4.43, 4.44 (4.24)
	CPS 296C[1]	A First Byte of Computer Science	3	—
2020 Fall	ITC 530	Mobile Computing	5	4.6, 4.25 (4.19)
	CPS 181	Introduction to Data Structures	21	4.38, 4.25 (4.19)
2020 Spring	ITC 265	Basics of Data Comm. & Comp. Netw.	11	4.4, –
	CPS 360[2]	Comp. Design and Architecture	25	4.1, –
	CPS 181	Introduction to Data Structures	23	4.0, –
2019 Fall	CPS 396F[1]	Mobile Application Development	23	4.8,–
	CPS 180	Principles of Computer Programming	20	3.7, –
	CPS 181	Introduction to Data Structures	26	4.2, –
2019 Spring	CPS 181-1[3]	Introduction to Data Structures	20	4.2, 3.09
	CPS 181-2[3]	Introduction to Data Structures	21	4.7, 3.09
2018 Fall	CPS 181-1[3]	Introduction to Data Structures	22	3.9, 3.09
	CPS 181-2[3]	Introduction to Data Structures	39	3.5, 3.09
2018 Spring	CPS 181[3]	Introduction to Data Structures	21	3.8, 3.11
	ITC 265	Basics of Data Comm. & Comp. Netw.	13	4.1, 3.18
	ITC 466[1]	System Administration and Automation	10	4.2, 3.02
2017 Fall	ITC 265[3]	Basics of Data Comm. & Comp. Netw.	23	3.07, 3.18
	CPS 496A[1]	Android Development	13	3.55, 3.02
2017 Spring	ITC 265[3]	Basics of Data Comm. & Comp. Netw.	11	3.33, 3.23
	ITC 530	Mobile Computing	1	4, 3.51

Year and Term	Course Number	Title and Section	Students	Avg. Course, Dept. (Coll.)
2016 Fall	CPS 180[3]	Principles of Computer Programming	21	2.83, 2.86
	ITC 265	Basics of Data Comm. & Comp. Netw.	21	3.38, 3.23
	CPS 596A[1]	Android Programming	20	3.92, 3.51
2016 Summer	ITC 530	Mobile Computing	11	3.75, 3.34
2016 Spring	ITC 530	Mobile Computing	48	3.3, 3.34
2015 Fall	CPS 180	Principles of Computer Programming	42	3.02, 2.83
	ITC 630[1]	Cloud Computing	27	4.0, 3.82
2015 Summer	ITC 530[1]	Mobile Computing	5	4.0, 3.6
2015 Spring	CPS 180	Principles of Computer Programming	69	2.93, 2.86
	CPS 180	Principles of Computer Programming	18	3.5, 2.86
	CPS 396M	Mobile Computing: Android	17	3.25, 3.06
2014 Fall	ITC 265	Basics of Data Comm. & Comp. Netw.	27	3.18, 3.04
	CPS 180[1]	Principles of Computer Programming	73	2.95, 2.86
	CPS 180[1]	Principles of Computer Programming	25	2.75, 2.86
	CPS 165[2]	Modern Website Design (partial semester)		
2014 Spring	ITC 265	Basics of Data Comm. & Comp. Netw.	28	2.88, 2.96
	CPS596M[1]	Mobile Computing	12	3.5, 2.78
2013 Fall	ITC 265	Basics of Data Comm. & Comp. Netw.	21	2.81, 2.96
	CPS 396M	Mobile Computing: Android	15	3.75, 2.9
2013 Spring	ITC 265	Basics of Data Comm. & Comp. Netw.	24	3.33, 3.09
2012 Fall	ITC 265[1]	Basics of Data Comm. & Comp. Netw. &	25	2.45, 3.09
2012 Spring	CPS 181[1]	Introduction to Data Structures	9	3.8, 3.09
	CPS 396M[1]	Mobile Computing: Android	26	3.13, 3.32
2011 Fall	CPS 282[1]	Introduction to Multimedia Design	6	3.8, 2.98

[1] Initial course offering (or new preparation).
[2] Partial course offering starting in the middle of the semester.
[3] Educational research conducted during the semester.

University of Wisconsin-Stevens Point Evaluation of Instruction

All student evaluations are on a 5 point Likert scale ranging from 1.00 (highest, strongly agree) to 5.00 (lowest, strongly disagree). The provided evaluation results are for the course and department median in student answers for the question 'Overall, the instructor taught this course effectively'.

Year and Term	Course Number	Title and Section	Students	Median, Dept. Comp.
2011 Spring	CIS225	Data Communication and Networks	18	2.0, 1.5
	CIS460	Advanced Topics in Networking	7	1.1, 1.5
	CIS464	Wireless Networking and Devices	3	1.0, 1.5
2010 Fall	CIS225	Data Communication and Networks	14	2.3, 1.5
	CIS361	Information and Network Security	5	1.3, 1.5
	CIS462	Secure Server Administration	9	2.5, 1.5
2010 Spring	CIS360	Data Communication and Networks	5	1.0, 1.5
	CIS460	Advanced Topics in Networking	13	1.2, 1.5
	CIS464	Wireless Networking and Devices	9	1.4, 1.5
2009 Fall	CIS360	Data Communication and Networks	16	1.5, 1.5
	CIS361	Information and Network Security	10	1.2, 1.5
	CIS462	Secure Server Administration	11	1.4, 1.5
2009 Spring	CIS346	Wireless Networks and Devices	14	1.1, 1.6
	CIS360	Data Communication and Networks	24	1.4, 1.6
	CIS462	Secure Server Administration	6	1.3, 1.6
2009 Winterim	CIS346	Wireless Networks and Devices	11	1.1, 1.4
2008 Fall	CIS330	Computer and Network Architecture		
		Section 1	13	1.3, 1.6
		Section 2	14	1.1, 1.6
		Section 3	9	1.6, 1.6
	CIS361	Information and Network Security	11	1.0, 1.6
	CIS462	Web Server Administration	8	1.0, 1.6
2008 Spring	CIS330	Computer and Network Architecture		
		Section 1	15	1.5, 1.7
		Section 2	15	1.1, 1.7
		Section 3	15	1.4, 1.7
		Section 4	13	1.2, 1.7
	CIS360	Data Communication and Networks	18	1.3, 1.7
2008 Winterim	CIS330	Computer and Network Architecture	18	1.8, 2.1

SERVICE
PROFESSIONAL

Scientific and Professional Society Memberships

- Association for Computing Machinery (ACM)
  Senior Member, 2011–present, student member since 2003
- Institute of Electrical and Electronics Engineers (IEEE)
  Senior Member, 2011–present, student member since 2003
- American Society for Engineering Education (ASEE)
  Member, 2025–present

Scientific and Professional Society Leadership

- IEEE Southeastern Michigan Chapter 3: Aerospace & Electronic Systems Society / Communications Society
  Chapter Chair, 2018–2024
- IEEE Communication Society Technical Committee on Computer Communications (IEEE TCCC)
  Web Coordinator, 2010–2023

Journal Editing

- Computer Communications (Elsevier)
  Associate Editor, 2025–present
- Transactions on Engineering Educations (IEEE)
  Associate Editor, 2022–present
- Journal of Communications and Networks, Internet and Multimedia Networking (KICS)
  Editorial Board Member, 2019–present
- Sensors (MDPI)
  Editorial Board Member, 2019–present
- Networks (MDPI)
  Editorial Board Member, 2019–present
- Wireless Communications and Mobile Computing (Hindawi/Wiley)
  Academic Editor, 2016–2024
- Advances in Multimedia (Hindawi/Wiley)
  Academic Editor, 2016–2021
- International Journal on Trust Management in Computing and Communications (Inderscience) Associated Editor, 2011–2017

Special Issues

- *Network Slicing*, Electronics / Networks (MDPI)
  Guest Editor, 2022

- *Media Quality in Mixed Realities*, Journal of Imaging (MDPI)
  Guest Editor, 2019
- *Mobile and Wireless Networks*, Journal of Sensor and Actuator Networks (MDPI)
  Guest Editor, 2018

Conference Service, Chairing, and Co-Chairing

- IEEE ICC Workshop "Networked Collaborative Robotics in the Era of 6G Communication"
  Workshop Co-Chair 2026
- IEEE Consumer Communications and Networking Conference (CCNC)
  Session Chair 2019, 2021
- IEEE International Conference on Electro/Information Technology (EIT)
  Session Chair 2012
- ASEE/IEEE Frontiers in Education Conference (FIE)
  Session Chair 2011
- International Conference on the Applications of Digital Information and Web Technologies (ICADIWT)
  Program Co-Chair 2011
- International Conference on Advances in Computing and Communications (AICC)
  Tutorial Co-Chair 2011

Other Professional or Public Service

- National Science Foundation Panel Member, 2025
- Promotion package reviewer, Department of Computer Science, Purdue University FW, 2025
- Promotion package reviewer, Department of Computer Science, Swenson College of Science and Engineering, University of Minnesota Duluth, 2025
- National Science Foundation Panel Member, 2024
- Advanced Placement Program Computer Science A National Advisory Board invited Meeting Member, 2023
- Promotion package reviewer, Department of Information Technology, Georgia Southern University, 2022
- Promotion package reviewer, College of Innovation and Design, Boise State University, 2020
- Promotion and tenure package reviewer, Department of Mathematics and Computer Science at Duquesne University, 2020

- Promotion and tenure package reviewer, Department of Computer Science at Purdue University Fort Wayne, 2019
- Promotion package reviewer, Department of Technology Systems at East Carolina University, 2019
- Reviewer, Congressional App Challenge, 2019
- NSF CAREER Proposal Previewer, The University of Texas at El Paso, 2015
- Tenure Packet Reviewer, The University of Texas at El Paso, 2015

SERVICE
UNIVERSITY

Central Michigan University Service

Note: Major service contributions only. Individual event contributions, such as participation in open houses or student tours, are excluded for brevity.

Department of Computer Science

- Associate Department Chair and Graduate Program Director
  Scheduling for the department; Admission of graduate students and creating a Graduate Team; Re-evaluation of the graduate program's assessment plan; Design of a sample exit exam for trialing and design of a novel 2-track assessment plan for the graduate program; and Curricular mapping for the graduate program. Member of the department's statewide transfer program.
- Department ABET/Assessment Committee, Member
  Redesign of the ITC program and assessment plan. Curricular mapping for the ITC program.
- Department By-Laws Committee, Member
  Updated requirements for tenure/promotion and minor changes throughout.
- Department Hardware/Software/Lab Committee, Member
  Finalized BYOD policy as voluntary but recommended with detailed lower bound and recommended specs.
- Department Undergraduate Student Advising, Co-Advisor
- Department Graduate Student Advising, Co-Advisor
- Department Hiring Committee, Member

2024/25 On Sabbatical Leave

2022/23 › Department By-Laws Committee, Chair
Significant overhaul of by-laws, esp. for department structure as well as promotion and tenure sections.

› Department Curriculum Committee, Member
Developed and co-developed:
- Certificate in Cloud Computing
- Certificate in Database Development
- Certificate in Mobile Computing
- Certificate in Network Administration
- Certificate in Web Development
- Interactive Media Certificate

› Department Hardware/Software/Lab Committee, Chair
- Planning to manage department IT resources under budget constraints
- BYOD planning

› Department Personnel Committee, Member
› Department Undergraduate Student Advisor, Students A–E
› Department College Communications representative

2021/22 › Department Hardware/Software/Lab Committee, Member
› Department College Communications representative
› Department Personnel Committee, Member
› Department Undergraduate Student Advisor, Students A–E

2020/21 › Department ABET/Assessment Committee, Co-Chair for ITC
› Department College Communications representative
› Department Hardware/Software/Lab Committee, Member
› Department Personnel Committee, Member

2019/20 › Department ABET/Assessment Committee, Co-Chair for ITC
› Department By-Laws Committee, Chair
› Department Curriculum Committee, Chair
› Department College Communications representative
› Department Hardware/Software/Lab Committee, Member
› Department Internationalization Committee, Member
› Department Personnel Committee, Member
› Department Undergraduate Student Advisor, Students U–Z

2018/19 › Department ABET/Assessment Committee, Co-Chair for ITC
Developed the ITC assessment plan and curricular alignment with ACM/IEEE standards.
› Department By-Laws Committee, Chair
› Department College Communications representative
› Department Curriculum Committee, Member
› Department Hardware/Software/Lab Committee, Member
› Department Internationalization Committee, Member
› Department Personnel Committee, Member
› Department Undergraduate Student Advisor, Students U–Z

2017/18 › Department ABET/Assessment Committee, Member

- Department Hardware/Software/Lab Committee, Member
- Department Internationalization Committee, Member
- Department Personnel Committee, Member
- Department Undergraduate Student Advisor, Students U–Z

2016/17
- Department By-Laws Committee, Member
- Department Undergraduate Student Advisor, Students U–Z
- Department Hardware/Software/Lab Committee, Member

2015/16
- Department By-Laws Committee, Member
- Department Undergraduate Student Advisor, Students U–Z
- Department Hardware/Software/Lab Committee, Member

2014/15
- Department Undergraduate Student Advisor, Students U–Z
- Department Hardware/Software/Lab Committee, Member
- Department Faculty Release Time Committee, Chair

2013/14
- Member Department Chair Election Committee, Spring 2014
- Department Undergraduate Student Advisor, Students U–Z
- Department Hardware/Software/Lab Committee, Member

2012/13
- Department Hiring Committee (3 positions in ITC track), Member
- Department Hardware/Software/Lab Committee, Member

College of Science and Engineering

- CSE InSciTE Program Council, Member, 2022 - present
- CSE Neithercut Advisory Board, Member, 2022 - present
- CSE Strategic Planning Committee, Member
- CSE InSciTE Program Committee/Working Group, Member, 2021 - 2022
- CSE Communications Committee, Member, 2019–2023
- CSE review for EMU proposal for a BA in CS, Dec. 2018
- Member ORSP Internal Grant Review Committee for CST proposals, Spring 2014
- Member CST Alumni Advisory Board, Spring 2014 – 2017
- Member MS-NAS Committee, Spring 2012 – 2015
- Member CST Strategic Planning Committee, Fall 2012
- Member College of Science and Technology Associate Dean Search Committee, Fall 2011

University Level

- Academic Senator for the Department 2024–present
- University Undergraduate Curriculum Committee Member, 2025–present

- CMU ADVANCE grant advisory board member, 2020–2021
- CMU Budget Priorities Committee, Member, 2019–2023
- CMU Off-Campus Academic Council, Member, 2018–2020
- Great Explorations in Math and Science (GEMS) Advisory Board Member, 2013–2017
- Degrees, Admissions, Standards, and Honors (DASH) Committee Member, 2012–2016

University of Wisconsin-Stevens Point Service

Department of Computing and New Media Technologies

- Student Exchange Coordinator with the Otto-von-Guericke University, Magdeburg, Germany
  2009–2011
- Department Curriculum Committee
  Member, 2009–2011
- Marketing Committee for the Department
  Member, 2008–2010
- Computer Information Systems Curriculum Committee
  Chair, 2008–2009
- Faculty Search and Screen Committee
  Member, 2008–2009
- Skyward Scholarship Review Committee
  Member, 2008

College of Letters and Sciences

- Dean's Advisory Committee of the College of Letters & Science
  Member, 2008–2009
- Review Committee for Justus & Barbara Paul Sabbatical Grant
  Member, 2009

University Level

- University Affairs Committee
  Member, 2009–2011
- Review Committee for the Interim Dean of the College of Letters and Science
  Member, 2008