CURRICULUM VITAE

ENDER AYANOGLU

SUMMER 2026

CURRENT POSITION

Professor, University of California, Irvine

ELECTRONIC MAIL

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ADDRESS, PHONE NUMBER, AND WEB SITE

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EDUCATION

Ph.D. 1986, Stanford University
M.S. 1982, Stanford University
B.S. 1980, Middle East Technical University

PROFESSIONAL INTERESTS

Communication Theory, Communication Systems, Communication Networks

ACADEMIC APPOINTMENTS

Director, UCI Graduate Program in Networked Systems, July 2025-Present
Co-Director, UCI Graduate Program in Networked Systems, July 2023-June 2025
Associate Chair, UCI Department of EECS, July 2020-June 2021
Director, UCI Graduate Program in Networked Systems, July 2017-June 2019
Associate Chair, UCI Department of EECS, November 2013-November 2016
Co-Director, UCI Graduate Program in Networked Systems, July 2012-June 2013
Director, UCI Center for Pervasive Communications and Computing, January 2003-April 2010
Conexant-Broadcom Endowed Chair, January 2003-April 2010
Interim Director, UCI Center for Pervasive Communications, September 2002-December 2002
Professor, UCI EECS, July 2002-Present
Visiting Professor, Bilkent University, November 1992-December 1992
Visiting Professor, Bilkent University, September 1990-June 1991
Teaching Fellow, Stanford University, April 1985-June 1985

AWARDS, HONORS, AND BIOGRAPHICAL LISTINGS

IEEE Communications Society Joseph LoCicero Award, 2023
IEEE Communications Society Distinguished Lecturer, 2022-2023, 2024-2025
IEEE Communications Society Comm. Theory Technical Committee Outstanding Service Award, 2014.
IEEE Fellow, 1998
IEEE Communications Society Best Tutorial Paper Award, 1997
IEEE Communications Society Stephen O. Price Best Original Paper Award, 1995
NATO Science Fellow (1981-1984)
Fulbright Scholar, 1980 (Declined)

PROFESSIONAL ASSOCIATION MEMBERSHIPS

IEEE Communications Society
IEEE Information Theory Society

PROFESSIONAL SERVICE AND ACTIVITIES

1. Chair, Search for the Steering Committee Chair, *IEEE Networking Letters*, June 2021.

2. Member, Steering Committee, *IEEE Networking Letters,* June 2021-Present.

3. Member, Steering Committee, *IEEE Transactions on Green Communications and Networking,* August 2020-Present.

4. Co-Chair, *IEEE Communications Society Technical Committee on Green Communications and Computing Seminar Series: AI for Green 6G,* Virtual Seminar, 2020.

5. Guest Editor, *IEEE Internet of Things Journal, Special Issue on IoT on the Move: Enabling Technologies and Driving Applications for Internet of Intelligent Vehicles (IoIV),* February 2019.

6. Technical Program Committee Co-Chair, *Signal Processing for Intelligent Vehicular Communications Symposium* and *Green Communications and Networking Symposium; IEEE Global Signal and Information Processing Conference (GlobalSIP),* Anaheim, CA, 2018.

7. Co-Editor, *Best Readings in Green Communications,* October 2018. [Online.] Available: http://www.comsoc.org/publications/best-readings/green-communications

8. Technical Program Committee Co-Chair, Communication Theory Symposium, *IEEE International Conference on Communications (ICC) 2017*, Paris, France.

9. Founding Editor-in-Chief, *IEEE Transactions on Green Communications and Networking*, June 2016-August 2020.

10. Editor-in-Chief, *IEEE Journal on Selected Areas in Communications – Series on Green Communications and Networking,* January 2015-December 2016.

11. Member, Best Paper Awards Committee, *IEEE ICC,* 2016.

12. Member, Best Paper Awards Committee, *International Conference on Computing, Networking, and Communications (ICNC),* 2015, 2016.

13. Panel Co-Organizer and Co-Moderator, *IEEE Communication Theory Workshop 2015*.

14. Reviewer, *CINECA Consortium,* Italy; Italian Evaluation of Research Quality (Reviewed 5 research activities in 2012-2013).

15. Reviewer for *Funded Research, AAAS Research Competitiveness Program* (2 times during 2009-2010 and 2 times during 2012-2013).

16. Senior Editor, *IEEE Transactions on Communications*, December 2012-Present.

17. Co-Chair, Technical Program Committee, *IEEE ICC 2006 Communication Theory Symposium.*

18. Member, Awards Committee, *IEEE Communications Society Communication Theory Technical Committee,* November 2005-2010.

19. Editor-in-Chief, *IEEE Transactions on Communications,* January 2004-December 2007.

20. Editor (Communication Theory and Coding Applications), *IEEE Transactions on Communications,* January 1993-November 2012.

21. Editor, *Elsevier Computer Networks Journal*, January 2000-December 2001.

22. Guest Editor, *IEEE Journal on Selected Areas in Communications, Special Issue on Multi-Media Network Radios,* May 1999.

23. Chair, *IEEE Communications Society Communication Theory Technical Committee,* January 1999-December 2001.

24. Vice Chair, *IEEE Communications Society Communication Theory Technical Committee,* January 1996-December 1998.

25. Secretary, *IEEE Communications Society Communication Theory Technical Committee,* January 1990-December 1995.

26. Chair, *IEEE ISTO (Industry Standards and Technology Organization) Broadband Wireless Internet Forum* (and its *VOFDM Technology Task Group*), August 2000-December 2001.

27. Member, Executive Committee, *IEEE INFOCOM 1994.*

28. Member, Technical Program Committee, *IEEE INFOCOM 1990-1998, IEEE ICUPC 1997, ICT 1996-1998, IEEE GLOBECOM 1989-1990, 1999, IEEE VTC 1999, IEEE VTC Fall 1999, IEEE GLOBECOM 2007 Wireless Communications Symposium, IEEE WCNC 2010 Physical Layer Track, IEEE PIMRC 2011 Wide Area Cellular Communications Track, IEEE ICC 2011 Next Generation Networking Infrastructure Symposium, ICT 2016, IEEE WCNC 2015, 2016, IEEE SustainCom 2016, IEEE GLOBECOM 2023 Special Areas in Communications - Machine Learning for Communications Symposium.*

29. Co-organizer, *Calit2 Irvine Division Workshop on Biological and Computing/Communication Systems, 2010.*

30. Session Chair, *IEEE INFOCOM 1994-1995, IEEE GLOBECOM 1995, IEEE ATM Workshop 1995, IEEE ICC 1996, IEEE GLOBECOM 2005, IEEE ICC 2010, ITA 2016, ITA 2024.*

31. Panelist, NSF Proposal, CAREER, IGERT Pre-Proposal Panels, Committee of Visitors, NSF CISE and Engineering Directorates (24 times during 1997, 2003-2025).

32. Panelist, NSF Workshop on Wireless and Mobile Communications and Networking, 1997.

33. Reviewer, UC MICRO Proposals (2003, 2007).

34. Reviewer for *IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Information Theory, IEEE Transactions on Signal Processing, IEEE/ACM Transactions on Networking* and other major journals and conferences in communications, information theory, signal processing, and networking.

PH.D. ADVISEES

GRADUATES

1. Gal Ben-Itzhak, *Design, Operation, and Optimization of Reconfigurable Intelligent Surfaces: Wave-Controlled Architectures and RIS-Based Over-the-Air Equalization, March* 2026.

2. Dogan Kutay Pekcan, *Linear-Time Algorithms for Optimal Beamforming in Discrete-Phase RISs: Uniform, Nonuniform, and Attenuated Models, September* 2025.

3. Yue Zhao, *Parameter Analysis on Variants of Kernel Regression over Graphs,* February 2023.

4. Sadjad Sedighi, *Bit-Interleaved Coded Multiple Beamforming in Millimeter-Wave Massive MIMO Systems,* June 2021.

5. Nader Beigiparast, *Effect of Spatial Correlation in Massive MIMO Transmission,* January 2020.

6. Cemil Can Coskun, *Energy and Spectral Efficiency in Wireless Heterogeneous Networks,* June 2017.

7. Kemal Davaslioglu, Energy *Efficiency and Load Balancing in Next-Generation Wireless Cellular Networks,* December 2015.

8. Serhat Nazim Avci, Optimal *Near-Hitless Network Failure Recovery Using Diversity Coding,* Ph.D. December 2013.

9. Boyu Li, *Full Diversity Full Multiplexing Beamforming Techniques for Multiple-Input Multiple-Output Wireless Communication Systems,* December 2012.

10. Hong Ju Park, *An Analysis of MIMO Channel Eigenvalues with Applications to Multiple Beamforming,* December 2009.

11. Luay Azzam, *Reduction of Decoding Complexity for MIMO Sphere Decoding, QOSTBC, and OSTBC Systems,* June 2008.

12. Feyza Keceli, *Fair and Efficient Access Provisioning in Wireless Local Area Networks,* June 2008.

13. Inanc Inan, *Quality-of-Service (QoS) Provisioning in Wireless Local Area Networks,* September 2007.

14. Ersin Sengul, Beamforming *Techniques for MIMO Wireless Systems,* June 2007.

15. Enis Akay, *Multi-Input Multi-Output Wireless Systems with Maximum Diversity and Spatial Multiplexing,* June 2006.

16. Nihat Cem Oguz, *Two-Level Forward Error Correction for Lost Cell Recovery in ATM Networks,* July 1995.

M.S. ADVISEES

GRADUATES

1. Zhan Shu, C*hannel Charting in Wireless Communications: A Comparative Study of Algorithms for Spatial Mapping Using Channel State Information,,* March 2025.

2. Yonghong Jiang, *A Comparative Analysis of Channel Charting Techniques in Cellular Wireless Communications,* March 2025.

3. Hongyi Liao, *Beamforming Optimization for RIS in Various Models*, Deeember 2024.

4. Gal Ben-Itzhak, *Optimizations for Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces,* June 2024.

5. Wenyu Zhu, *Performance Comparison of Three Channel Charting Algorithms with Three Dimensionality Reduction Techniques in Quadriga Channels,* June 2022.

6. Yue Zhao, *Performance of Reduced Rank Adaptive Estimation for Joint Spatial Division and Multiplexing,* March 2019.

7. Jyotica Yadav, *Traffic Offloading in HetNets Using Power Biasing Considering Different Path Loss Exponent,* January 2019.

8. Nader Beigiparast, *Millimeter Waves in Single-Carrier Massive MIMO Transmissions,* January 2017.

9. Sadjad Sedighi, *Channel Estimation Methods by Using Prebeamforming Technique in Massive MIMO,* January 2017.

10. Ecehan Uludag, *Constant-Envelope OFDM and Constant-Envelope SC-FDMA,* June 2016.

11. Nistha Tandiya, *Constant-Envelope Modulation Schemes with Turbo Coding,* June 2015.

12. Nannan Li, *User Equipment Throughput and Fairness Comparison for Frequency Division Duplex and Time Division Duplex LTE Networks,* December 2013.

13. Serhat Nazim Avci, *Coding Based Link Failure Recovery Applications,* December 2011.

14. Xiaoyu Sun, Loss *Recovery via Erasure Coding in Packet Networks,* June 2010.

15. Wenjun Zhao, Diversity and Error Path Analysis for Bit-Interleaved Coded Multiple Beamforming Systems, June 2009.

16. Kayla Nguyen, *Reduction of Computational Complexity for the Decoding of M x N Orthogonal and Quasi-Orthogonal Space-Time Block Codes,* June 2008.

17. Shraboni Jana, *Limited Feedback for MIMO Systems,* March 2007.

18. Konstantinos Aretos, *Low Density Parity Check Codes for OFDM-SVD-MIMO Systems,* December 2006.

19. Yuan-Ning Hsu, Low *Density Parity Check Codes for 802.11 Wireless LAN,* December 2004.

20. Ercan Engin Kuruoglu, *The Design of Finite-State Machines for Quantization Using Simulated Annealing,* August 1993.

CURRENT STUDENTS

1. Ji-Xuan Liu

REFEREED JOURNAL ARTICLES

j71. G. Ben-Itzhak, E. Ayanoglu, F. Capolino and A. L. Swindlehurst, "AI-Driven Optimization of Wave-Controlled RISs via Sample-and-Hold Detection," *IEEE Open Journal of the Communications Society,* vol. 7, pp. 885-901, 2027.

j70. G. Ben-Itzhak, M. Saavedra-Melo, E. Ayanoglu, F. Capolino and A. L. Swindlehurst, "AI-Driven Optimization of Wave-Controlled Reconfigurable Intelligent Surfaces," *IEEE Open Journal of the Communications Society,* vol. 6, pp. 6650-6665, 2026.

j69. G. Ben-Itzhak, M. Saavedra-Melo, B. Bradshaw, E. Ayanoglu, F. Capolino and A. L. Swindlehurst, "Design and Operation Principles of a Wave-Controlled Reconfigurable Intelligent Surface," *IEEE Open Journal of the Communications Society,* vol. 5, pp. 7730-7751, 2024.

j68. D. K. Pekcan, H. Liao, and E. Ayanoglu, "Received Power Maximization Using Nonuniform Discrete Phase Shifts for RISs With a Limited Phase Range," *IEEE Open Journal of the Communications Society,* vol. 5, pp. 7447-7466, 2024.

j67. D. K. Pekcan and E. Ayanoglu, "Achieving Optimum Received Power for Discrete-Phase RISs with Elementwise Updates in the Least Number of Steps," *IEEE Open Journal of the Communications Society,* vol. 5, pp. 2706-2722, 2024.

j66. A. Aly and E. Ayanoglu, "Model-Based Approaches to Channel Charting," *IEEE Transactions on Communications,* vol. 72, no. 2, pp. 1207-1222, Feb. 2024.

j65. K. Davaslioglu, S. Boztas, M. C. Ertem, Y. E. Sagduyu and E. Ayanoglu, "Self-Supervised RF Signal Representation Learning for NextG Signal Classification With Deep Learning," *IEEE Wireless Communications,* Letters, Vol. 12, pp. 65-69, January 2023.

j64. E. Ayanoglu, F. Capolino and A. L. Swindlehurst, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," *IEEE Wireless Communications,* Vol. 29, pp. 86-92, August 2022.

j63. Y. Zhao and E. Ayanoglu, "Gaussian Kernel Variance for an Adaptive Learning Method on Signals Over Graphs," *IEEE Signal and Information Processing over Networks,* Vol. 8, pp. 389-403, 2022.

j62. E. Ayanoglu, K. Davaslioglu, and Y. Sagduyu, "Machine Learning in NextG Networks via Generative Adversarial Networks," *IEEE Transactions on Cognitive Communications and Networking,* Vol. 8, pp. 480-501, June 2022.

j61. T. Ketseoglou, M. Valenti, and E. Ayanoglu, "Millimeter Wave Massive MIMO Downlink Per-Group Communications with Hybrid Linear Precoding," *IEEE Transactions on Vehicular Technology* Vol. 70, pp. 6841-6854, July 2021.

j60. S. Sedighi and E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Perfect Coding in Millimeter-Wave MIMO Systems," *IEEE Wireless Communications Letters,* Vol. 10, pp. 644-648, March 2021.

j59. S. Sedighi and E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming in Millimeter-Wave Massive MIMO Systems," *IEEE Transactions on Communications,* Vol. 68, pp. 6174-6185, October 2020.

j58. S. Zhang, S. Xu, G. Y. Li, and E. Ayanoglu, "First 20 Years of Green Radios," *IEEE Transactions on Green Communications and Networking,* Vol. 4, pp. 1-15, March 2020.

j57. T. Ketseoglou and E. Ayanoglu, "Zero-Forcing Per-Group Precoding (ZF-PGP) for Robust Optimized Downlink Massive MIMO Performance," *IEEE Transactions on Communications,* Vol. 67, pp. 6816-6828, October 2019.

j56. M. L. Tran, S. Kim, T. Ketseoglou, and E. Ayanoglu, "LED Selection and MAP Detection for Generalized LED Index Modulation," *IEEE Photonics Technology Letters,* Vol. 30, pp. 1695-1698, October 2018.

j55. T. Ketseoglou and E. Ayanoglu, "Downlink Precoding for Massive MIMO Systems Exploiting Virtual Channel Sparsity," *IEEE Transactions on Communications,* Vol. 66, pp. 1925-1939, May 2018.

j54. C. C. Coskun and E. Ayanoglu, "Energy- and Spectral-Efficient Resource Allocation Algorithm for Heterogeneous Networks," *IEEE Transactions on Vehicular Technology,* Vol. 67, pp. 590-603, January 2018.

j53. C. C. Coskun, K. Davaslioglu, and E. Ayanoglu, "Three-Stage Resource Allocation for Energy-Efficient Heterogeneous Networks," *IEEE Transactions on Vehicular Technology,* Vol. 66, pp. 6942-6957, August 2017.

j52. T. Ketseoglou and E. Ayanoglu, "Linear Precoding Gain for Large MIMO Configurations with QAM and Reduced Complexity," *IEEE Transactions on Communications,* Vol. 64, pp. 4196-4208, October 2016.

j51. K. Davaslioglu, C. C. Coskun, and E. Ayanoglu, "Energy-Efficient Resource Allocation for Fractional Frequency Reuse in Heterogeneous Networks," *IEEE Transactions on Wireless Communications,* Vol. 14, pp. 5484-5497, October 2015.

j50. F. Keceli, I. Inan, and E. Ayanoglu, "Fair and Efficient TCP Access in the IEEE 802.11 Infrastructure Basic Service Set," *Wiley Wireless Communications and Mobile Computing Journal,* Vol. 15, pp. 1376-1390, June 2015.

j49. S. N. Avci and E. Ayanoglu, "Link Failure Recovery over Large Arbitrary Networks: The Case of Coding," *IEEE Transactions on Communications,* Vol. 63, pp. 1726-1740, May 2015.

j48. T. Ketseoglou and E. Ayanoglu, "Linear Precoding for MIMO with LDPC Coding and Reduced Complexity," *IEEE Transactions on Wireless Communications,* Vol. 14, pp. 2192-2204, April 2015.

j47. K. Davaslioglu and E. Ayanoglu, "Quantifying Potential Energy Efficiency Gain in Green Cellular Wireless Networks," *IEEE Communications Surveys and Tutorials,* Vol. 16, pp. 2065-2091, Fourth Quarter 2014.

j46. C. C. Coskun and E. Ayanoglu, "Energy-Efficient Base Station Deployment in Heterogeneous Networks,"*IEEE Wireless Communications Letters,* Vol. 3, pp. 593-596, December 2014.

j45. A. L. Swindlehurst, E. Ayanoglu, P. Heydari, and F. Capolino, "Millimeter-Wave Massive MIMO: The Next Wireless Revolution?," *IEEE Communications Magazine,* Vol. 52, pp. 56-62, September 2014.

j44. K. Davaslioglu and E. Ayanoglu, "Efficiency and Fairness Trade-Offs in SC-FDMA Schedulers," *IEEE Transactions on Wireless Communications,* Vol. 13, pp. 2991-3002, June 2014.

j43. S. N. Avci and E. Ayanoglu , "Coded Path Protection: Efficient Conversion of Sharing to Coding," *IEEE Transactions on Communications,* Vol. 61, pp. 4294-4309, October 2013.

j42. B. Li and E. Ayanoglu, "Diversity Analysis of Bit-Interleaved Coded Multiple Beamforming with Orthogonal Frequency Division Multiplexing," *IEEE Transactions on Communications,* Vol. 61, pp. 3794-3805, September 2013.

j41. S. N. Avci and E. Ayanoglu, "Optimal Algorithms for Near-Hitless Network Restoration via Diversity Coding," *IEEE Transactions on Communications*, Vol. 61, pp. 3878-3893, September 2013.

j40. B. Li and E. Ayanoglu, "Full-Diversity Precoding Design of Bit-Interleaved Coded Multiple Beamforming with Orthogonal Frequency Division Multiplexing," *IEEE Transactions on Communications,* Vol. 61, pp. 2432-2445, June 2013.

j39. B. Li and E. Ayanoglu, "Multiple Beamforming with Perfect Coding," *IEEE Transactions on Communications,* Vol. 60, pp. 1575-1586, June 2012.

j38. B. Li and E. Ayanoglu, "Reduced Complexity Sphere Decoding," *Wiley Wireless Communications and Mobile Computing Journal,* Vol. 11, pp. 1518-1527, December 2011. (Invited Paper)

j37. H. J. Park, B. Li, and E. Ayanoglu, "Constellation Precoded Multiple Beamforming," *IEEE Transactions on Communications,* Vol. 59, pp. 1275-1286, May 2011.

j36. E. Ayanoglu, E. G. Larsson, and E. Karipidis, "Computational Complexity of Decoding Orthogonal Space-Time Block Codes," *IEEE Transactions on Communications,* Vol. 59, pp. 936-941, April 2011.

j35. H. J. Park and E. Ayanoglu, "Diversity Analysis of Bit-Interleaved Coded Multiple Beamforming," *IEEE Transactions on Communications,* Vol. 58, pp. 2457-2463, August 2010.

j34. I. Inan, F. Keceli, and E. Ayanoglu, "A Capacity Analysis Framework for the IEEE 802.11e Contention-based Infrastructure Basic Service Set," *IEEE Transactions on Communications,* Vol. 57, pp. 3433-3445, November 2009.

j33. L. Azzam and E. Ayanoglu, "Reduced Complexity Sphere Decoding via a Reordered Lattice Representation," *IEEE Transactions on Communications,* Vol. 57, pp. 2564-2569, September 2009.

j32. L. Azzam and E. Ayanoglu, "Real-Valued Maximum Likelihood Decoder for Quasi-Orthogonal Space-Time Block-Codes," *IEEE Transactions on Communications,* Vol. 57, pp. 2260-2263, August 2009.

j31. I. Inan, F. Keceli, and E. Ayanoglu, "Analysis of the 802.11e Enhanced Distributed Channel Access Function," *IEEE Transactions on Communications,* Vol. 57, pp. 1753-1764, June 2009.

j30. E. Sengul, H. J. Park, and E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Imperfect CSIT," *IEEE Transactions on Communications,* Vol. 57, pp. 1505-1513, May 2009.

j29. L. Azzam and E. Ayanoglu, "A Novel Maximum Likelihood Decoding Algorithm for Orthogonal Space-Time Block Codes," *IEEE Transactions on Communications,* Vol. 57, pp. 606-609, March 2009.

j28. E. Akay, E. Sengul, and E. Ayanoglu, "Bit Interleaved Coded Multiple Beamforming," *IEEE Transactions on Communications,* Vol. 55, pp. 1802-1811, September 2007.

j27. E. Akay and E. Ayanoglu, "Achieving Full Frequency and Space Diversity in Wireless Systems via BICM, OFDM, STBC, and Viterbi Decoding," *IEEE Transactions on Communications,* Vol. 54, pp. 2164-2172, December 2006.

j26. B. A. Cetiner, E. Sengul, E. Akay, and E. Ayanoglu, "A MIMO System with Multifunctional Reconfigurable Antennas," *IEEE Antennas and Wireless Propagation Letters,* Vol. 5, pp. 463-466, December 2006.

j25. E. Sengul, E. Akay, and E. Ayanoglu, "Diversity Analysis of Single and Multiple Beamforming," *IEEE Transactions on Communications,*Vol. 54, pp. 990-993, June 2006.

j24. M. Alanyali and E. Ayanoglu, "A Provisioning Algorithm for WDM Optical Networks," *IEEE/ACM Transactions on Networking,* Vol. 7, pp. 767-778, October 1999.

j23. E. Ayanoglu, "Wireless Broadband and ATM Systems," *Computer Networks and ISDN Systems Journal,* Vol. 31, pp. 395-410, February 1999. (Invited Paper)

j22. E. Karasan and E. Ayanoglu, "Performance of WDM Transport Networks," *IEEE Journal on Special Areas in Communication*s, Vol. 16, pp. 1081-1096, September 1998.

j21. E. Ayanoglu, N. R. Dagdeviren, G. D. Golden, and J. E. Mazo, "An Equalizer Design Technique for the PCM Modem: A New Modem for the Digital Public Switched Telephone Network," *IEEE Transactions on Communications,* Vol. 46, pp. 763-774, June 1998.

j20. E. Karasan and E. Ayanoglu, "Effects of Wavelength Routing and Selection Algorithms on Wavelength Conversion Gain in WDM Optical Networks," *IEEE/ACM Transactions on Networking,* Vol. 6, pp. 186-196, April 1998.

j19. E. Ayanoglu, "Data Transmission When the Sampling Frequency Exceeds the Nyquist Rate," *IEEE Communications Letters,* Vol. 1, pp. 157-159, November 1997.

j18. E. Ayanoglu, P. Pancha, A. Reibman, and S. Talwar, "Forward Error Control for MPEG-2 Video Transport in a Wireless LAN," *ACM/Baltzer Mobile Networks and Applications Journal,* Vol. 1, pp. 235-244, December 1996.

j17. E. Ayanoglu, K. Y. Eng, M. J. Karol, Z. Liu, P. Pancha, M. Veeraraghavan, and C. B. Woodworth, "Mobile Information Infrastructure," *Bell Labs Technical Journal,* Vol. 1, pp. 143-164, November 1996.

j16. E. Ayanoglu, K. Y. Eng, and M. J. Karol, "Wireless ATM: Limits, Challenges, and Proposals," *IEEE Personal Communications Magazine,* Vol. 3, pp. 18-34, August 1996. **IEEE Communications Society 1997 Best Tutorial Paper Award** (for the best tutorial paper published in IEEE Communications Society publications in 1996). (Invited Paper)

j15. E. Ayanoglu and R. D. Gitlin, "Broadband Network Restoration," *IEEE Communications Magazine,* Vol. 34, pp. 110-119, July 1996.

j14. K. Y. Eng, M. Karol, M. Veeraraghavan, E. Ayanoglu, C. Woodworth, and R. A. Valenzuela, "A Wireless Broadband Ad-Hoc ATM Local-Area Network," *ACM/Baltzer Wireless Networks Journal,* Vol. 1, pp. 161-174, May 1995.

j13. E. Ayanoglu, S. Paul, T. F. La Porta, K. K. Sabnani, and R. D. Gitlin, "AIRMAIL: A Link-Layer Protocol for Wireless Networks," *ACM/Baltzer Wireless Networks Journal,* Vol. 1, pp. 47-60, February 1995.

j12. T. F. LaPorta, M. Veeraraghavan, E. Ayanoglu, M. Karol, and R.D. Gitlin, "Broadband Integrated Services Digital Networks: A Technological Discontinuity," *IEEE Communications Magazine,* Vol. 32, pp. 84-97, October 1994.

j11. E. Ayanoglu, C.-L. I, R. D. Gitlin, and I. Bar-David, "Analog Diversity Coding to Provide Transparent Self-Healing Communication Networks," *IEEE Transactions on Communications,* Vol. COM-42, pp. 110-118, January 1994. **IEEE Communications Society 1995 Stephen O. Rice Prize Paper Award** (for the best original paper published in *IEEE Transactions on Communications* in 1994).

j10. E. Ayanoglu, C.-L. I, R. D. Gitlin, and J. E. Mazo, "Diversity Coding for Self-Healing and Fault-Tolerant Communication Networks," *IEEE Transactions on Communications,* Vol. COM-41, pp. 1677-1686, November 1993.

j9. E. Ayanoglu, R. D. Gitlin, and N. C. Oguz, "Performance Improvement in Broadband Networks Using Forward Error Correction for Lost Packet Recovery," *Journal of High-Speed Networks,* Vol. 2, pp. 287-304, 1993.

j8. E. Ayanoglu and R. J. Caballero, "Path Enumeration and Hot-Potato Routeing Analysis in Multihop Networks," *International Journal of Digital and Analog Communication Systems,* Vol. 5, pp. 217-223, November 1992.

j7. E. Ayanoglu, "Robust and Fast Failure Detection and Prediction for Fault-Tolerant Communication Network," *Electronics Letters,* Vol. 28, pp. 940-941, May 1992.

j6. E. Ayanoglu and R. D. Gitlin, "Tandem Transcoding Without Distortion Accumulation for Vector Quantization," *IEEE Transactions on Communications,* Vol. COM-40, pp. 397-403, February 1992.

j5. J. H. Winters, E. Ayanoglu, I. Bar-David, R. D. Gitlin, and C.-L. I, "Ghost Cancellation of Analog TV Signals with Applications to IDTV, EDTV, and HDTV," *IEEE Transactions on Circuits and Systems for Video Technology,* Vol. CSVT-1, pp. 136-146, March 1991.

j4. E. Ayanoglu, "On Optimal Quantization of Noisy Sources," *IEEE Transactions on Information Theory,* Vol. IT-36, pp. 1450-1452, November 1990.

j3. J.-D. Wang and E. Ayanoglu, "Priority Statistical Multiplexer Design for SNA/SDLC Access to a Virtual Circuit Packet Network," *AT&T Technical Journal,* Vol. 67, pp. 69-86, November 1988.

j2. E. Ayanoglu and R. M. Gray, "The Design of Joint Source and Channel Trellis Waveform Coders," *IEEE Transactions on Information Theory,* Vol. IT-33, pp. 855-865, November 1987.

j1. E. Ayanoglu and R. M. Gray, "The Design of Predictive Trellis Waveform Coders Using the Generalized Lloyd Algorithm," *IEEE Transactions on Communications,* Vol. COM-34, pp. 1073-1080, November 1986.

BOOK CHAPTERS AND ARTICLES

b7. K. Davaslioglu, E. Ayanoglu, and Y. E. Sagduyu, "Generative AI at the MAC Layer," *Generative AI for Communications Systems: Fundamentals, Applications, and Prospects*, Wiley, D. N. Nguyen, N. H. Chu, D. T. Hoang, O. A. Dobre, D. Niyato, and P. Popovski (Eds), to be published. **Invited Chapter**

b6. E. Ayanoglu and N. Akar, "B-ISDN (Broadband Integrated Services Digital Network)," Wi*ley Encyclopedia of Telecommunications,* J. Proakis (Ed.), Wiley, December 2002. **Invited Contribution**

b5. E. Ayanoglu, K. Y. Eng, and M. J. Karol, `Limits and Challenges for Wireless ATM," *Mobile Multimedia Communications,* D. J. Goodman and D. Raychaudhuri (Eds), Plenum Press, New York, 1997.

b4. E. Ayanoglu, "Wireless Packet and Wireless ATM Systems," *Wireless Communications, TDMA versus CDMA,* S. G. Glisic and P. A. Leppanen (Eds), Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997.

b3. E. Ayanoglu, P. Pancha, A. Reibman, and S. Talwar, "Combined Source and Channel Coding for Wireless ATM LANs," *Signal Processing in Telecommunications,* E. Biglieri and M. Luise (Eds), Springer, London, 1996.

b2. E. Ayanoglu, "Signal Flow Graphs for Path Enumeration and Deflection Routing Analysis in Multihop Networks," in Performance Evaluation of High-Speed Switching Fabrics and Networks: ATM, Broadband ISDN, and MAN Technology, T. Robertazzi (Ed.), IEEE Press, Piscataway, New Jersey, 1993.

b1. E. E. Kuruoglu and E. Ayanoglu, "The Design of Finite-State Machines for Quantization Using Simulated Annealing," in *Coding and Quantization: DIMACS/IEEE Workshop Proceedings,* October 19-21, 1992, R. Calderbank, D. G. Forney, Jr., N. Moayeri (Eds.), American Mathematical Society, Providence, RI, 1993.

CRITICALLY AND ANONYMOUSLY REFEREED ARCHIVAL CONFERENCE PAPERS

c101. Y. Jiang and E. Ayanoglu, "Model-Based Approaches for Channel Charting in Next-Generation Wireless Networks with Large-Scale Antennas," *IEEE 27th International Workshop on Signal Processing and Artificial Intelligence for Wireless Communications (SPAWC),* Sep. 2026. **Invited Paper.**

c100. D. K. Pekcan, H. Liao, and E. Ayanoglu, "Discrete Beamforming Optimization for RISs with a Limited Phase Range and Amplitude Attenuation," *2026 International Conference on Computing, Networking and Communications (ICNC),* Feb. 2026. **Invited Paper.**

c99. Y. Jiang and E. Ayanoglu, "Alternative Channel Charting Techniques in Cellular Wireless Communications," *Asilomar Conference on Signals, Systems, and Computers*, Oct. 2024. **Invited Paper**

c98. A. Aly and E. Ayanoglu, "Channel Charting: Model-Based Approaches," *IEEE International Conference on Communicatoins, (ICC)*, pp. 1066-1072, Rome, Italy, Jun. 2023.

c97. A. Aly and E. Ayanoglu, "Estimation of User Coordinates via Channel Charting and MUSIC," *2023 International Conference on Computing, Networking and Communications (ICNC)*, pp. 343-347, Honolulu, HI, Feb. 2023.

c96. N. Beigiparast and E. Ayanoglu, "Precoders and Equalizers for Spatially Correlated Antennas in Single-Carrier Massive MIMO Transmission," *2020 International Conference on Computing, Networking and Communications (ICNC)*, pp. 35-40, Hawaii, HI, Feb. 2020.

c95. T. Ketseoglou, M. C. Valenti and E. Ayanoglu, "Millimeter Wave Massive MIMO Downlink Per-Group Communications with Hybrid Linear Precoding," *53rd Asilomar Conference on Signals, Systems, and Computers*, Asilomar Grounds, CA, pp. 973-977, Nov. 2019.

c94. S. Sedighi and E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming in Millimeter-Wave Massive MIMO Systems," *IEEE International Conference on Communications (ICC)*, Shanghai, China, pp. 1-6, May 2019.

c93. T. Ketseoglou and E. Ayanoglu, "Downlink Precoding for Massive MIMO Systems Exploiting Virtual Channel Model Sparsity," *2018 IEEE International Conference on Communications (ICC)*, pp. 1-6, Kansas City, MO, May 2018.

c92. N. Beigiparast, G. M. Guvensen and E. Ayanoglu, "The Effect of Antenna Correlation in Single-Carrier Massive MIMO Transmission," *2018 IEEE 87th Vehicular Technology Conference (VTC Spring)*, pp. 1-7, Porto, Portugal, May 2018.

c91. C. C. Coskun and E. Ayanoglu, "Energy-Spectral Efficiency Tradeoff for Heterogeneous Networks with QoS Constraints," *Proc. IEEE ICC 2017,* pp. 1-7, Paris, France, May 2017.

c90. G. M. Guvensen and E. Ayanoglu, "Beamspace Aware Adaptive Channel Estimation for Single-Carrier Time-varying Massive MIMO Channels," *Proc. IEEE ICC 2017,* pp. 1-7, Paris, France, May 2017.

c89. G. M. Guvensen and E. Ayanoglu, "A Generalized Framework on Beamformer Design and CSI Acquisition for Single-Carrier Massive MIMO Systems in Millimeter Wave Channels," *Proc. IEEE GLOBECOM 2016 Workshops Emerging Technologies for 5G Wireless Cellular Networks,* pp. 1-7, Washington, DC, December 2016.

c88. T. Ketseoglou and E. Ayanoglu, "Linear Precoding Gain for Large MIMO Configurations and Reduced Complexity," *Proc. IEEE GLOBECOM 2016,* pp. 1-7, Washington, D.C., December 2016.

c87. T. Ketseoglou and E. Ayanoglu, "Linear Precoding for Large MIMO Configurations and QAM Constellations," *Proc. Wireless Telecommunications Symposium,* pp. 1-7, London, United Kingdom, April 2016.

c86. E. Ayanoglu, "5G Today: Modulation Technique Alternatives," *Proc. IEEE ICNC 2016*, pp. 1-5, Kauai, HI, February 2016. **Invited Paper**

c85. C. C. Coskun, K. Davaslioglu, and E. Ayanoglu, "An Energy-Efficient Resource Allocation Algorithm with QoS Constraints for Heterogeneous Networks," *Proc. GLOBECOM 2015*, pp. 1-7, San Diego, CA, December 2015.

c84. C. C. Coskun and E. Ayanoglu, "A Greedy Algorithm for Energy-Efficient Base Station Deployment in Heterogeneous Networks," *Proc. ICC 2015*, pp. 7-12, London, United Kingdom, June 2015.

c83. T. Ketseoglou and E. Ayanoglu, "MIMO Linear Precoders with Reduced Complexity," *Proc. Wireless Telecommunications Symposium,* pp. 1-7, New York, NY, April 2015.

c82. S. N. Avci and E. Ayanoglu, "Network Coding-Based Link Failure Recovery over Large Arbitrary Networks," *Proc. IEEE GLOBECOM 2013,* pp. 1519-1525, Atlanta, GA, December 2013.

c81. B. Li and E. Ayanoglu, "Full-Diversity Precoding Design of Bit-Interleaved Coded Multiple Beamforming with Orthogonal Frequency Division Multiplexing," *Proc. IEEE GLOBECOM 2013, pp. 3643-3649,* Atlanta, GA, December 2013.

c80. T. Ketseoglou and E. Ayanoglu, "Linear Precoding for MIMO with LDPC Coding and Reduced Complexity," *Proc. Asilomar Conference on Signals, Systems, and Computers 2013,* pp. 2067-2071, Asilomar Grounds, CA, November 2013.

c79. S. N. Avci and E. Ayanoglu, "New Diversity Coding Design Algorithms for Link Failure Recovery in Communication Networks," *Proc. IEEE ICC 2013,* pp. 930-935, Budapest, Hungary, June 2013.

c78. B. Li and E. Ayanoglu, "Diversity Analysis of Bit-Interleaved Coded Multiple Beamforming with Orthogonal Frequency Division Multiplexing," *Proc. IEEE ICC 2013,* pp. 3614-3619, Budapest, Hungary, June 2013.

c77. S. N. Avci and E. Ayanoglu, "Optimal Algorithms for Near-Hitless Network Restoration via Diversity Coding," *Proc. IEEE GLOBECOM 2012*, pp. 1877-1883, Anaheim, CA, November 2012.

c76. K. Davaslioglu and E. Ayanoglu, "Common Rate Maximization in Two-Layer Cellular Radio Systems," *Proc. IEEE GLOBECOM 2012 Multicell Cooperation Workshop,* pp. 1096-1101, Anaheim, CA, November 2012.

c75. S. N. Avci and E. Ayanoglu, "Extended Diversity Coding: Coding Protection and Primary Paths for Network Restoration," *Proc. IEEE International Symposium on Network Coding,,* pp. 119-124, Boston, MA, June 2012.

c74. S. N. Avci and E. Ayanoglu, "Coded Path Protection: Efficient Conversion of Sharing to Coding," *Proc. IEEE ICC 2012,* pp. 1198-1203, Ottawa, Canada, June 2012.

c73. B. Li and E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Perfect Coding," *Proc. IEEE ICC 2012,* pp. 4246-4251, Ottawa, Canada, June 2012.

c72. S. N. Avci, X. Hu, and E. Ayanoglu, "Recovery from Link Failures in Networks with Arbitrary Topology via Diversity Coding," *Proc. IEEE GLOBECOM 2011,* Houston, TX, December 2011.

c71. B. Li and E. Ayanoglu, "Reduced Complexity Decoding for Bit-Interleaved Coded Multiple Beamforming with Constellation Precoding," *Proc. IEEE IWCMC 2011,* pp. 152-156, Istanbul, Turkey, July 2011.

c70. B. Li and E. Ayanoglu, " Reduced Complexity Sphere Decoding," *Proc. IEEE IWCMC 2011,* pp. 147-151, Istanbul, Turkey, July 2011.

c69. B. Li and E. Ayanoglu, "Golden Coded Multiple Beamforming," *Proc. IEEE GLOBECOM 2010,* Miami, FL, November 2010.

c68. E. Ayanoglu, E. G. Larsson, and E. Karapidis, "Computational Complexity of Decoding Orthogonal Space-Time Block Codes," *Proc. IEEE ICC 2010,* Cape Town, South Africa, May 2010.

c67. H. J. Park and E. Ayanoglu, "An Upper Bound to the Marginal PDF of the Ordered Eigenvalues of Wishart Matrices and Its Application to MIMO Diversity Analysis," *Proc. IEEE ICC 2010,* Cape Town, South Africa, May 2010.

c66. H. J. Park and E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Constellation Precoding," *Proc. IEEE ICC 2010,* Cape Town, South Africa, May 2010.

c65. H. J. Park and E. Ayanoglu, "Constellation Precoded Beamforming," *Proc. IEEE GLOBECOM 2009,* Honolulu, HI, December 2009.

c64. H. J. Park and E. Ayanoglu, "Diversity Analysis of Bit-Interleaved Coded Multiple Beamforming," *Proc. IEEE ICC 2009,* Dresden, Germany, June 2009.

c63. L. Azzam and E. Ayanoglu, "Low-Complexity Maximum Likelihood Detection of Orthogonal Space-Time Block Codes," *Proc. IEEE GLOBECOM 2008,* New Orleans, LA, November 2008.

c62. L. Azzam and E. Ayanoglu, "Low-Complexity SQR-based Decoding Algorithm for Quasi-Orthogonal Space-Time Block Codes," *Proc. IEEE GLOBECOM 2008,* New Orleans, LA, November 2008.

c61. L. Azzam and E. Ayanoglu, "An Efficient Tree Search for Reduced Complexity Sphere Decoding," *Proc. IEEE GLOBECOM 2008,* New Orleans, LA, November 2008.

c60. I. Inan, F. Keceli, and E. Ayanoglu, "Multimedia Capacity Analysis of the 802.11e Contention-based Infrastructure Basic Service Set," *Proc. IEEE GLOBECOM 2008,* New Orleans, LA, November 2008.

c59. L. Azzam and E. Ayanoglu, "Maximum Likelihood Detection of Quasi-Orthogonal Space-Time Block Codes: Analysis and Simplification," *Proc. IEEE ICC 2008,* pp. 3948-3954, Beijing, China, May 2008.

c58. F. Keceli, I. Inan, and E. Ayanoglu, "Achieving Fair TCP Access in the IEEE 802.11 Infrastructure Basic Service Set," *Proc. IEEE ICC 2008,* pp. 2637-2643, Beijing, China, May 2008.

c57. F. Keceli, I. Inan, and E. Ayanoglu, "Weighted Fair Uplink/Downlink Access Provisioning in IEEE 802.11e WLANs," *Proc. IEEE ICC 2008,* pp. 2473-2479, Beijing, China, May 2008.

c56. F. Keceli, I. Inan, and E. Ayanoglu, "Fair and Efficient TCP Access in IEEE 802.11 WLANs," *Proc. IEEE WCNC 2008,* pp. 1745-1750, Las Vegas, NV, March 2008.

c55. L. Azzam and E. Ayanoglu, "Reduced Complexity Sphere Decoding for Square QAM via a New Lattice Representation," *Proc. IEEE GLOBECOM 2007,* pp. 4242-4246, Washington, DC, November 2007.

c54. I. Inan, F. Keceli, and E. Ayanoglu, "Performance Analysis of the IEEE 802.11e Enhanced Distributed Coordination Function using the Cycle Time Approach," *Proc. IEEE GLOBECOM 2007,* pp. 2552-2557, Washington, DC, November 2007.

c53. I. Inan, F. Keceli, and E. Ayanoglu, "Modeling the 802.11e Enhanced Distributed Channel Access Function," *Proc. IEEE GLOBECOM 2007,* pp. 2546-2551, Washington, DC, November 2007.

c52. I. Inan, F. Keceli, and E. Ayanoglu, "Saturation Throughput Analysis of the 802.11e Enhanced Distribution Channel Access Function," *Proc. IEEE ICC 2007,* pp. 409-414, Glasgow, Scotland, UK, June 2007.

c51. F. Keceli, I. Inan, and E. Ayanoglu, "TCP ACK Congestion Control and Filtering for Fairness Provision in the Uplink of IEEE 802.11 Infrastructure Basic Service Set," *Proc. IEEE ICC 2007,* pp. 4512-4517, Glasgow, Scotland, UK, June 2007.

c50. B. A. Cetiner, E. Akay, E. Sengul, and E. Ayanoglu, "A MIMO System Equipped with Multifunctional Reconfigurable Antennas," *Proc. IEEE AP-S International Symposium 2006,* pp. 157-160, Albuquerque, NM, July 2006.

c49. I. Inan, F. Keceli, and E. Ayanoglu, "An Adaptive Multimedia QoS Scheduler for 802.11e Wireless LANs," *Proc. IEEE ICC 2006,* pp. 5263-5270, Istanbul, Turkey, June 2006.

c48. E. Sengul, E. Akay, and E. Ayanoglu, "Adaptive Modulation and Coding for Bit Interleaved Coded Multiple Beamforming," *Proc. IEEE VTC Spring 2006,* Vol. 5, pp. 2088-2092, Melbourne, Australia, May 2006.

c47. E. Akay, E. Sengul, and E. Ayanoglu, "Achieving Full Spatial Multiplexing and Full Diversity in Wireless Communications," *Proc. IEEE WCNC 2006,* Vol. 4, pp. 2046-2050, Las Vegas, NV, April 2006.

c46. E. Akay and E. Ayanoglu, "Low Complexity Decoding of BICM STBC," *Proc. IEEE VTC Spring 2005,* Vol. 2, pp. 715-718, Stockholm, Sweden, June 2005.

c45. E. Sengul, E. Akay, and E. Ayanoglu, "Diversity Analysis of Single and Multiple Beamforming," *Proc. IEEE VTC Spring 2005,* Vol. 2, pp. 1293-1296, Stockholm, Sweden, June 2005.

c44. E. Akay, E. Sengul, and E. Ayanoglu, "Performance Analysis of Beamforming for MIMO OFDM with BICM," *Proc. IEEE ICC 2005,* Vol. 1, pp. 613-617, Seoul, Korea, May 2005.

c43. E. Akay and E. Ayanoglu, "Bit Interleaved Coded Modulation with Space-Time Block Codes for OFDM Systems," *Proc. IEEE VTC Fall 2004,* Vol. 3, pp. 1870-1874, Los Angeles, CA, September 2004.

c42. E. Akay and E. Ayanoglu, "Full Frequency Diversity Codes for Single Input Single Output Systems," *Proceedings of IEEE VTC Fall 2004,* Vol. 4, pp. 2477-2481, Los Angeles, CA, September 2004.

c41. E. Akay and E. Ayanoglu, "Low Complexity Decoding of Bit Interleaved Coded Modulation for M-ary QAM," *Proc. IEEE ICC 2004,* Vol. 2, pp. 901-905, Paris, France, June 2004.

c40. E. Akay and E. Ayanoglu, "High Performance Viterbi Decoder for OFDM Systems," *Proc. of IEEE VTC Spring 2004,* Vol. 1, pp. 323-327, Milan, Italy, May 2004.

c39. E. Akay and E. Ayanoglu, "Bit Interleaved Coded Modulation: Low Complexity Decoding," *Proc. IEEE VTC Spring 2004,* Vol. 1, pp. 328-332, Milan, Italy, May 2004.

c38. O. Gurbuz and E. Ayanoglu, "A Transparent ARQ Scheme for Broadband Wireless Access," *Proc. IEEE WCNC 2004,* Vol. 1, pp. 423-429, Atlanta, GA, March 2004.

c37. E. Ayanoglu and E. Akay, "Advanced Coding for IEEE 802.11a: Modified SINR Metric," *Proc. International Conference on Computational and Experimental Sciences,* Corfu, Greece, August 2003.

c36. E. Ayanoglu, VK Jones, G. G. Raleigh, J. Gardner, D. Gerlach, and K. Toussi, "VOFDM Broadband Wireless Transmission and Its Advantages over Single Carrier Modulation," *Proc. IEEE ICC 2001,* Vol. 6, pp. 1660-1664, Helsinki, Finland, June 2001.

c35. M. Alanyali and E. Ayanoglu, "A Provisioning Algorithm for WDM Optical Networks," *Proc. IEEE INFOCOM 1998,* Vol. 2, pp. 910-918, San Francisco, CA, April 1998.

c34. E. Ayanoglu, N. R. Dagdeviren, G. D. Golden, and J. E. Mazo, "An Equalizer Design Technique for the PCM Modem: A New Modem for the Digital Public Switched Telephone Network," *Proc. IEEE GLOBECOM 1997 Communication Theory Mini-Conference,* pp. 71-79, Phoenix, AZ, November 1997.

c33. E. Karasan and E. Ayanoglu, "Effects of Wavelength Routing and Selection Algorithms on Wavelength Conversion Gain in WDM Optical Networks," *Proc. IEEE GLOBECOM 1996,* Vol. 1, pp. 299-305, London, United Kingdom, November 1996.

c32. E. Ayanoglu, P. Pancha, A. Reibman, and S. Talwar, "Forward Error Control for MPEG-2 Video Transport in a Wireless LAN," *Proc. IEEE 1996 International Conference on Image Processing,* Vol. 3, pp. 833-836, Lausanne, Switzerland, September 1996.

c31. E. Karasan and E. Ayanoglu, "Effects of Wavelength Routing and Selection Algorithms on Wavelength Conversion Gain in WDM Optical Networks," *Digest of IEEE/LEOS 1996 Summer Topical Meeting on Broadband Optical Networks - Enabling Technologies and Applications,* pp. 43-44, Keystone, CO, August 1996.

c30. G. Jeong and E. Ayanoglu, "Comparison of Wavelength-Interchanging and Wavelength-Selective Cross-Connects in Multiwavelength All-Optical Networks," *Proc. IEEE INFOCOM 1996,* pp. 156-163, San Francisco, CA, March 1996.

c29. E. Ayanoglu, "Reduction of Restoration Capacity in Advanced Optical Networks," *Proc. 1995 IEEE GLOBECOM 1995,* pp. 1018-1022, Singapore, November 1995.

c28. E. Ayanoglu, "Adaptive ARQ/FEC for Multitone Transmission in Wireless Networks," *Proc. IEEE GLOBECOM 1995,* pp. 2278-2283, Singapore, November 1995.

c27. E. Ayanoglu, P. Pancha, and A. Reibman, "Video Transport over Wireless ATM," Proc. *IEEE 1995 IEEE International Conference on Image Processing,* pp. III-400-III-403, Washington, DC, October 1995.

c26. E. Ayanoglu, P. Pancha, A. Reibman, and S. Talwar, "Combined Source and Channel Coding for Wireless ATM LANs," *Proc. 1995 International Tyrrhenian Workshop on Digital Communications,* pp. 125-135, Tyrrhenia, Italy, September 1995.

c25. K. Y. Eng, M. Karol, M. Veeraraghavan, E. Ayanoglu, C. Woodworth, and R. A. Valenzuela, "A Wireless Broadband Ad-Hoc ATM Local-Area Network," *Proc. IEEE ICC 1995,* pp. 1216-1223, Seattle, WA, June 1995.

c24. E. Ayanoglu, P. Pancha, and A. Reibman, "Image and Video Transmission in Wireless ATM," *Proc. 48th Annual Conference of the Society for Imaging Science and Technology,* pp. 45-49, Washington, DC, May 1995.

c23. S. Paul, E. Ayanoglu, T. F. LaPorta, K.-W. H. Chen, K. K. Sabnani, and R. D. Gitlin, "An Asymmetric Link-Layer Protocol for Digital Cellular Communications," *Proc. IEEE INFOCOM 1995,* pp. 1053-1062, Boston, MA, April 1995.

c22. N. C. Oguz and E. Ayanoglu, "Performance Analysis of Two-Level Forward Error Correction for Lost Cell Recovery in ATM Networks," *Proc. IEEE INFOCOM 1995,* pp. 728-737, Boston, MA, April 1995.

c21. N. C. Oguz and E. Ayanoglu, "A Simulation Study of Forward Error Correction for Lost Packet Recovery in B-ISDN/ATM," *Proc. IEEE ICC 1993,* pp. 1843-1846, Geneva, Switzerland, May 1993.

c20. E. Ayanoglu, "A Fast Topology Update Algorithm for Restoration under Multiple Failures in Broadband Networks," *Proc. IEEE ICC 1990,* pp. 1295-1299, Geneva, Switzerland, May 1993.

c19. R. Izmailov and E. Ayanoglu, "Priority Statistical Multiplexing of Mixed VBR Video and CBR Traffic in B-ISDN/ATM with a Threshold Algorithm," *Proc. IEEE INFOCOM 1993,* Vol. 3, pp. 910-918, San Francisco, CA, March 1993.

c18. N. C. Oguz and E. Ayanoglu, "A Simulation Study of Forward Error Correction for Lost Packet Recovery in High-Speed Communication Networks," *Proc. IEEE 1993 International Symposium on Information Theory,* p. 317, San Antonio, TX, January 1993.

c17. E. Ayanoglu, "Failure Detection for Communication Networks Using Finite-State Models and Viterbi Decoding," *Proc. IEEE 1993 International Symposium on Information Theory,* p. 219, San Antonio, TX, January 1993.

c16. E. E. Kuruoglu and E. Ayanoglu, "The Design of Finite-State Machines for Quantization Using Simulated Annealing," *Proc. IEEE 1993 International Symposium on Information Theory,* p. 443, San Antonio, TX, January 1993.

c15. N. C. Oguz and E. Ayanoglu, "A Simulation Study of Forward Error Correction for Lost Packet Recovery in B-ISDN/ATM," *Proc. Bilkent International Conference on Lightwave Communications,* pp. 70-80, Ankara, Turkey, July 1992.

c14. E. Ayanoglu and R. D. Gitlin, "Performance Improvement in Broadband Networks Using Forward Error Correction for Lost Packet Recovery," *Proc. 1992 Conference on Information Science and Systems,* Vol. 1, pp. 63-67, Princeton, NJ, March 1992.

c13. J. H. Winters, E. Ayanoglu, I. Bar-David, R. D. Gitlin, and C.-L. I, "Ghost Cancellation of Analog TV Signals with Applications to IDTV, EDTV, and HDTV," *Proc. IEEE 1991 International Conference on Acoustics, Speech, and Signal Processing,* pp. 30.M10.10.1-30.M.10.4, Toronto, Canada, May 1991.

c12. E. Ayanoglu, C.-L. I, R. D. Gitlin, and I. Bar-David, "Analog Diversity Coding to Provide Transparent Self-Healing Communication Networks," *Proc. IEEE GLOBECOM 1990,* pp. 683-688, San Diego, CA, December 1990.

c11. E. Ayanoglu, R. D. Gitlin, P. Johri, and W. S. Lai, "Protocols for Loss Recovery in High-Speed Networks," *Proc. 7th International Teletraffic Congress Seminar,* Morristown, NJ, October 1990.

c10. E. Ayanoglu, C.-L. I, and R. D. Gitlin, "Analog Diversity Coding," *Proc. Bilkent International Conference on New Trends in Communication, Control, and Signal Processing*, Vol. I, pp. 294-300, Ankara, Turkey, July 1990.

c9. E. Ayanoglu, C.-L. I, R. D. Gitlin, and J. E. Mazo, "Diversity Coding: Using Error Control for Self-Healing Communication Networks," *Proc. IEEE INFOCOM 1990,* Vol. I, pp. 95-104, San Francisco, CA, June 1990.

c8. C.-L. I, E. Ayanoglu, R. D. Gitlin, and J. E. Mazo, "Transparent Self-Healing Communication Networks via Diversity Coding," *Proc. IEEE ICC 1990,* pp. 308.6.1-308.6.6, Atlanta, GA, April 1990.

c7. E. Ayanoglu, R.D. Gitlin, C.-L. I, and J. E. Mazo, "Diversity Coding for Transparent Self-Healing Communication Networks," *Proc. IEEE 1990 International Symposium on Information Theory,* p. 60, San Diego, CA, January 1990.

c6. E. Ayanoglu and C.-L. I, "A Method of Calculating the Reliability Polynomial of a Network," *Proc. IEEE GLOBECOM 1989,* pp. 9.6.1-9.6.7, Dallas, TX, November 1989.

c5. E. Ayanoglu, "Signal Flow Graphs for Path Enumeration and Deflection Routing Analysis in Multihop Networks," *Proc. IEEE GLOBECOM 1989,* pp. 28.6.1-28.6.8, Dallas, TX, November 1989.

c4. E. Ayanoglu and R. D. Gitlin, "Tandem Transcoding Without Distortion Accumulation for Memoryless and Predictive Vector Quantizers," *Proc. IEEE GLOBECOM 1988,* Hollywood, FL, Vol. 1, pp. 295-300, November 1988.

c3. E. Ayanoglu, "Optimal Quantization of Noisy Sources," *Proc. IEEE 1988 International Conference on Acoustics, Speech, and Signal Processing,* New York, NY, Vol. S, pp. 569-572, April 1988.

c1. E. Ayanoglu and R. M. Gray, "The Design of Trellis Waveform Encoders for Noisy Digital Channels," *Proc. IEEE International Symposium on Information Theory,* p. 90, Brighton, England, June 1985.

ISSUED PATENTS

p23. O. Gurbuz, D. Pignatelli, D. Stephenson, E. Perahia, B. Douglas, and E. Ayanoglu, *Media Access Control for MIMO Wireless Network*, US Patent 9,236,928, January 2016.

p22. O. Gurbuz, D. Pignatelli, D. Stephenson, E. Perahia, B. Douglas, and E. Ayanoglu, *Media Access Control for MIMO Wireless Network,* US Patent 8,625,507, January 2014.

p21. O. Gurbuz, E. Ayanoglu, and R. Meier, *Point-to-Point MAC Protocol for High-Speed Wireless Bridging,* US Patent 8,363,639, January 2013.

p20. O. Gurbuz, D. Pignatelli, D. Stephenson, E. Perahia, B. Douglas, and E. Ayanoglu, *Media Access Control for MIMO Wireless Network ,* US Patent 7,929,412, April 2011.

p19. O. Gurbuz, E. Ayanoglu, and R. Meier, *Point-to-Point MAC Protocol for High-Speed Wireless Bridging,* US Patent 7,567,537, July 2009.

p18. M. D. Paranjpe, B. Hart, D. J. Pignatelli, E. Ayanoglu, E. Perahia, P. J. Ryan, B. L. Douglas, and U. Parker, *Decoding Method and Apparatus Using Channel State Information for Use in a Wireless Network Receiver,* US Patent 7,359,311, April 2008.

p17. O. Gurbuz, D. Pignatelli, D. Stephenson, E. Perahia, B. Douglas, and E. Ayanoglu, *Media Access Control for MIMO Wireless Networks,* US Patent 7,301,924, November 2007.

p16. R. Radhakrishnan, K. Patel, O. Gurbuz, E. Ayanoglu, A. Khanna, A. Bernstein, and C. Chan, *ARQ (Automatic Repeat Request) for Broadband Fixed Wireless Network,* U.S. Patent 7,000,021, February 2006.

p15. E. Ayanoglu, N. R. Dagdeviren, J. E. Mazo, B. R. Saltzberg, and I. Kalet, *High-Speed Modem Synchronized to a Remote Codec,* U.S. Patent RE37,569 (re-issue of U.S. Patent 5,394,437), March 2002.

p14. M. Alanyali and E. Ayanoglu, *WDM Optical Communications Networks and Methods For Provisioning,* U.S. Patent 6,304,349, October 2001.

p13. E. Ayanoglu and K. Y. Eng, *Method and Apparatus for Restoration of an ATM Network,* U.S. Patent 6,122,759, September 2000.

p12. E. Ayanoglu, K. Y. Eng, M. Karol, and P. Pancha, *Wireless Internet Access System,* U.S. Patent 6,058,422, May 2000.

p11. E. Ayanoglu, K. Y. Eng, and M. J. Karol, *Method and Apparatus for Transmitting Packetized Data over a Common Communications Channel,* U.S. Patent 6,014,385, January 2000.

p10. E. Ayanoglu, K.-Y. Eng, M. J. Karol, P. Pancha, M. Veeraraghavan, C. Woodworth, *Signaling and Control Architecture for an Ad-Hoc ATM LAN,* U.S. Patent 5,822,309, October 1998.

p9. E. Ayanoglu, *Adaptive ARQ/FEC Technique for Multitone Transmission,* U.S. Patent 5,719,883, February 1998.

p8. E. Ayanoglu, *Data Link Layer Protocol for Transport of ATM Cells Over a Wireless Link,* U.S. Patent 5,717,689, February 1998.

p7. E. Ayanoglu and K. K. Sabnani, Navigation *System for an Automotive Vehicle,* U.S. Patent 5,689, 252, November 1997.

p6. E. Ayanoglu, R. D. Gitlin, T. F. La Porta, S. Paul, and K. K. Sabnani, *Adaptive Forward Error Correction System,* U.S. Patent 5,600,663, February 1997.

p5. E. Ayanoglu, R. D. Gitlin, T. F. La Porta, S. Paul, and K. K. Sabnani, *Asymmetric Protocol for Wireless Communications,* U.S. Patent 5,570,367, October 1996.

p4. E. Ayanoglu, G. D. Golden, R. K. Jones, J. E. Mazo, and D. G. Shaw, *High Speed Quantization Level Sampling Modem with Equalization Arrangement,* U.S. Patent 5,528,625, June 1996.

p3. E. Ayanoglu, N. R. Dagdeviren, J. E. Mazo, and B. R. Saltzberg, *A High-Speed Modem Synchronized to a Remote Codec,* U.S. Patent 5,394,437, February 1995.

p2. E. Ayanoglu, I. Bar-David, R. D. Gitlin, C.-L. I, and J. Winters, *Ghost Cancellation of Analog TV Signals,* U.S. Patent 5,119,196, June 1992.

p1. E. Ayanoglu, R. D. Gitlin, C.-L. I, and J. E. Mazo, *Diversity Coding for Transparent Self-Healing Communication Networks,* U.S. Patent 5,007,067, April 1991.

SPECIAL JOURNAL ISSUES

e4. E. Ayanoglu (Guest Editor), *IEEE Journal on Selected Areas in Communications – Green Communications and Networking Series: Issue III,* December 2016.

e3. E. Ayanoglu (Guest Editor), *IEEE Journal on Selected Areas in Communications – Green Communications and Networking Series: Issue II,* June 2016.

e2. E. Ayanoglu (Guest Editor), *IEEE Journal on Selected Areas in Communications – Green Communications and Networking Series: Issue I,* December 2015.

e1. E. Ayanoglu, V. Bahl, R. S. Cheng, R. R. Rao, M. Zorzi (Guest Editors), *IEEE Journal on Selected Areas in Communications – Special Issue on Multimedia Network Radios,* May 1999.

TECHNICAL REPORTS, WORKSHOP AND COMMITTEE REPORTS, POPULAR LITERATURE ARTICLES

r18. N. Beigiparast, G. M. Guvensen and E. Ayanoglu, "Spatial Correlation in Single-Carrier Massive MIMO Systems," *Proc. Information Theory and Applications Workshop (ITA)*, pp. 1-12, San Diego, CA, Feb. 2020. **Invited Presentation**

r17. E. Ayanoglu, "Energy Efficiency in Data Centers," *IEEE ComSoc Technical Committees Newsletter,* November 2019. **Invited Contribution**

r16. S. Sedighi, G. M. Guvensen and E. Ayanoglu, "Adaptive Channel Estimators with Hybrid Beamforming for Single-Carrier Massive MIMO," *Proc. Information Theory and Applications Workshop (ITA)*, pp. 1-6, San Diego, CA, 2018. **Invited Presentation**

r15. K. Davaslioglu, C. C. Coskun, and E. Ayanoglu, "New Algorithms for Maximizing Wireless Network Energy Efficiency," *Proc. Information Theory and Applications Workshop (ITA),* La Jolla, CA, February 2016. **Invited Presentation**

r14. S. N. Avci and E. Ayanoglu, "Link Failure Recovery in Large Arbitrary Networks via Network Coding," *Proc. Information Theory and Applications Workshop (ITA),* San Diego, CA, February 2014. **Invited Presentation**

r13. K. Davaslioglu and E. Ayanoglu, "Interference-Based Cell Selection in Heterogenous Networks," *Proc. Information Theory and Applications Workshop (ITA),* San Diego, CA, February 2013. **Invited Presentation**

r12. S. N. Avci and E. Ayanoglu, "Design Algorithms for Fast Restoration of Next-Generation Networks," *Proc. Information Theory and Applications Workshop (ITA),* San Diego, CA, February 2012. **Invited Presentation**

r11. S. N. Avci, X. Hu, and E. Ayanoglu, "Hitless Recovery from Link Failures in Networks with Arbitrary Topology," *Proc. Information Theory and Applications Workshop (ITA),* La Jolla, CA, February 2011. **Invited Presentation**

r10. H. J. Park, B. Li, and E. Ayanoglu, "Multiple Beamforming with Constellation Precoding: Diversity Analysis and Sphere Decoding," *Proc. Information Theory and Applications Workshop (ITA),* La Jolla, CA, February 2010. **Invited Presentation**

r9. H. J. Park and E. Ayanoglu, "Diversity Analysis of Bit-Interleaved Coded Multiple Beamforming," *Information Theory and Applications Workshop (ITA),* La Jolla, CA, February 2009. **Invited Presentation**

r8. L. Azzam and E. Ayanoglu, "Reduction of ML Decoding Complexity for MIMO Sphere Decoding, QOSTBC, and OSTBC," *Proc. Information Theory and Applications Workshop (ITA),* La Jolla, CA, January 2008. **Invited Presentation**

r7. E. Akay, E. Sengul, and E. Ayanoglu, "MIMO BICM-OFDM Beamforming with Full and Partial CSIT," *Proc. Information Theory and Applications Workshop (ITA),* La Jolla, CA, January 2007. **Invited Presentation**

r6. E. Akay, E. Sengul, and E. Ayanoglu, "Performance of MIMO Techniques to Achieve Full Diversity and Maximum Spatial Multiplexing," *Proc. UCSD Information Theory and Applications Workshop (ITA)*, La Jolla, CA, February 2006. **Invited Presentation**

r5. E. Ayanoglu, B. L. Douglas, O. Gurbuz, E. Perahia, and K. Toussi, "BWIF - Bringing Broadband Wireless Access Indoors, " *IEEE-ISTO Broadband Wireless Internet Forum White Paper,* Document WP-4/TG-1, September 2001.

r4. E. Ayanoglu, M. Burgess, M. Pollack, and A. Zamanian, "Frequency Division Duplexing and Time Division Duplexing for Broadband Wireless Applications," *IEEE-ISTO Broadband Wireless Internet Forum White Paper,* Document WP-3/TG-1, February 2001.

r3. E. Ayanoglu, VK Jones, G. G. Raleigh, J. Gardner, D. Gerlach, and K. Toussi, "VOFDM Broadband Wireless Transmission and Its Advantages over Single Carrier Modulation," *IEEE-ISTO Broadband Wireless Internet Forum White Paper,* Document WP-1/TG-1, December 2000.

r2. E. Ayanoglu, "Media Access Protocols: Circuit Switching to DOCSIS," *IEEE-ISTO Broadband Wireless Internet Forum White Paper,* Document WP-2/TG-1, December 2000.

r1. E. Ayanoglu, White Paper Contribution, *Research Priorities in Wireless and Mobile Communications and Networking,* J. Bannister and J. Modestino (Eds), Report of NSF Workshop Held March 24-26, 1997, Airlie House, VA.

PUBLIC LECTURES

l159. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," İstanbul Technical University Electronics and Communications Engineering Department, Türkiye, Jul. 2026, **Distinguished Lecturer Tour**

l158. E. Ayanoglu, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," Signal Processing Applications Conference, Turgut Reis University, Türkiye, Jul. 2026, **Distinguished Lecturer Tour**

l157. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," The Scientific and Technological Research Council of Türkiye Informatics and Information Security Advanced Technologies Research Center, Türkiye, Jul. 2026, **Distinguished Lecturer Tour**

l136. E. Ayanoglu, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," Information Theory and Applications Workshop, San Diego, CA, Feb. 2026. **Invited Presentation**

l155. E. Ayanoglu, "Beating the Shannon Limit: The Case of the 56K Modem," IEEE Communications Society Northwest Florida Chapter, Oct. 2025, **Virtual Distinguished Lecture**

l154. E. Ayanoglu, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," IEEE Communications Society Hungary Chapter, Sep. 2025, **Virtual Distinguished Lecture**

l153. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," IEEE Communications Society Morelos Chapter, Mexico, Oct. 2025, **Distinguished Lecturer Tour**

l152. E. Ayanoglu, "Beating the Shannon Limit: The Case of the 56K Modem," IEEE Communications Society Puebla Chapter, Mexico, Oct. 2025, **Distinguished Lecturer Tour**

l151. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," IEEE Communications Society Monterrey Chapter, Mexico, Oct. 2025, **Distinguished Lecturer Tour**

l150. E. Ayanoglu, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," IEEE Communications Society Harbin Chapter, China, Sep. 2025, **Virtual Distinguished Lecture**

l149. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," IEEE Communications Society SSN School of Engineering Student Chapter, India, Sep. 2025, **Virtual Distinguished Lecture**

l148. E. Ayanoglu, "Beating the Shannon Limit: The Case of the 56K Modem," IEEE Communications Society Kenya Chapter, Sep. 2025, **Virtual Distinguished Lecture**

l147. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," 2025 IEEE Communications Society School Series – Envisioning the Future – Pioneering Next Generation Communication Technologies, Jaffna, Sri Lanka, Aug. 2025, **Virtual Keynote**

l146. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," IEEE Computational Intelligence Society Santa Clara Chapter, Aug. 2025, **Virtual Distinguished Lecture**

l145. E. Ayanoglu, “Machine Learning in NextG Networks via Generative Adversarial Networks,” IEEE Communications Society Karachi and Bahrain Chapters, Jul. 2025, **Virtual Distinguished Lecture**

l144. E. Ayanoglu, “Machine Learning in NextG Networks via Generative Adversarial Networks,” IEEE Southern California Council, IEEE Communications Society San Fernando Valley Section, San Diego Section, Utah Section, Foothill Section, Lone Star Section, Buenoventura Section, Seattle Section, Orange County Chapter, Jun 2025, **Virtual Distinguished Lecture**

l143. E. Ayanoglu, “Machine Learning in NextG Networks via Generative Adversarial Networks,” IEEE Communications Society Long Island Chapter, IEEE Signal Processing Society Long Island Chapter, May 2025, **Virtual Distinguished Lecture**

l142. E. Ayanoglu, “Algorithms to Implement Diversity Coding for Link Failures in Networks,” IEEE Southern California Council, IEEE Communications Society San Fernando Valley Section, San Diego Section, Utah Section, Foothill Section, Lone Star Section, Buenoventura Section, Seattle Section, Orange County Chapter, May 2025, **Virtual Distinguished Lecture**

l141. E. Ayanoglu, “Beating the Shannon Limit in Voiceband Modems: The Case of the 56K Modem,” IEEE Southern California Council, IEEE Communications Society San Fernando Valley Section, San Diego Section, Utah Section, Foothill Section, Lone Star Section, Buenoventura Section, Orange County Chapter, Apr. 2025, **Virtual Distinguished Lecture**

l140. E. Ayanoglu, “Energy and Spectral-Efficient Resource Allocation Algorithm for Heterogeneous Networks,” IEEE Southern California Council, IEEE Communications Society San Fernando Valley Section, San Diego Section, Utah Section, Foothill Section, Lone Star Section, Buenoventura Section, Orange County Chapter, Mar. 2025, **Virtual Distinguished Lecture**

l139. E. Ayanoglu, “Machine Learning inNextG Networks via Generative Adversarial Networks,” IEEE Communications Society Princeton/Central Jersey Section, E// GenAI Automation Interest Group, Feb. 2025, **Virtual Distinguished Lecture**

l138. E. Ayanoglu, “Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces,” IEEE Southern California Council, IEEE Communications Society San Fernando Valley Section, San Diego Section, Utah Section, Foothill Section, Orange County Chapter, Feb. 2025, **Virtual Distinguished Lecture**

l137. E. Ayanoglu, “Received Power Maximization for Discrete-Phase RISs with Elementwise Updates,” International Conference on Computing, Networking, and Communications (ICNC), Honolulu, HI, Feb. 2025. **Invited Talk**

l136. E. Ayanoglu, “Machine Learning in NextG Networks via Generative Adversarial Networks,” IEEE Communications Society Foothill Section, San Francisco Section, Buenaventura Section, Orange County Section Chapters, December 2024, **Virtual Distinguished Lecture**

l135. E. Ayanoglu, “Breaking the Shannon Limit in Voiceband Modems: The Case of the 56K Modem,” IEEE Communications Society Bolivia and Morales/Mexico Chapters, September 2024, **Virtual Distinguished Lecture**

l134. E. Ayanoglu, “Received Power Maximization for Discrete-Phase RISs with Elementwise Updates,” Information Theory and Applications Workshop, San Diego, CA, Feb. 2024. **Invited Presentation**

l133. E. Ayanoglu, "Achieving Optimum Received Power in the Smallest Number of Steps for Discrete-Phase RISs," International Conference on Computing, Networking, and Communications (ICNC), Honolulu, HI, Feb. 2024. **Invited Talk**

l132. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," IEEE Communications Society Washington D.C./North Virginia Chapter, December 2023. **Virtual Distinguished Lecture**

l131. E .Ayanoglu, "Generative Adversarial Networks for Spectrum Sharing,"ICCBD/CSEA/ /CEBI/ICEBB 2023, Singapore, October 2023. **Keynote Speaker**

l130. E. Ayanoglu, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," National Science Foundation Spectrum and Wireless Innovation enabled by Future Technologies (SWIFT) Principal Investigator Meeting, NSF Spectrum Week including IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), Washington, D.C., April 2023. **Invited Presentation**

l129. E. Ayanoglu, "Generative Adversarial Networks for Spectrum Sharing," Information, Communication, Technology and Society Conference (ICTAS), Durban University of Technology, South Africa, March 2023. **Keynote Speaker**

l128. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks," International Conference on Computing, Networking, and Communications (ICNC), Honolulu, HI, Feb. 2023. **Invited Talk**

l120. D. K. Pekcan, E. Ayanoglu, and T. Ketseoglou, "Received Power Maximization with Reconfigurable Intelligent Surfaces," Information Theory and Applications Workshop, San Diego, CA, February 2023. **Invited Presentation**

l126. E. Ayanoglu, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," IEEE Communications Society and Information Theory Society Joint Chapter, Finland, January 2023. **Virtual Distinguished Lecture**

l125. E. Ayanoglu, "Wave-Controlled Metasurface-Based Reconfigurable Intelligent Surfaces," IEEE Communications Society and Vehicular Technology Society Chapters, Portugal, January 2023. **Virtual Distinguished Lecture**

l124. E. Ayanoglu, "Energy- and Spectral-Efficient Resource Allocation Algorithm for Heterogeneous Networks," IEEE Communications Society and Vehicular Technology Society Chapters, Portugal, November 2022. **Virtual Distinguished Lecture**

l123. E. Ayanoglu, "Generative Adversarial Networks for Spectrum Sharing," IEEE Communications Chapter, Atlanta, GA, November 2022. **Virtual Distinguished Lecture**

l122. E. Ayanoglu, "Generative Adversarial Networks for Spectrum Sharing," Bilkent University Electrical and Electronics Engineering Distinguished Seminar Series, October 2022. **Distinguished Seminar**

l121. E. Ayanoglu, "What Should/Would/Will 6G Be (and What Not?)," IEEE Communications Society Communication Theory Technical Committee Workshop, October 2022. **Panelist**

l120. E. Ayanoglu, "Machine Learning in NextG Networks via Generative Adversarial Networks (GANs)," Information Theory and Applications Workshop, San Diego, CA, May 2022. **Invited Presentation**

l119. E. Ayanoglu, "Massive MIMO with Spatially Correlated Antennas," International Conference on Computing, Networking, and Communications (ICNC), Big Island, HI, Feb. 2020. **Invited Talk**

l118. E. Ayanoglu, "Energy and Spectral Efficiency in Next-Generation Cellular Networks," Tongji University, Shanghai, China, May 2019.

l117. E. Ayanoglu, "Energy and Spectral Efficiency in Next-Generation Cellular Networks," Fudan University, Shanghai, China, May 2019.

l116. G. Miao, Z. Niu, E. Ayanoglu, "Energy and Spectral Efficiency Tradeoffs in Future Communication Networks" International Conference on Communications (ICC), Shanghai, China, May 2019. **Tutorial**

l115. E. Ayanoglu, "Energy and Spectral Efficiency in Next-Generation Cellular Networks," UC Riverside ECE Department Seminar Series Seminar, Riverside, CA, Apr. 2019. **Distinguished Seminar Speaker**

l114. N. Beigiparast, R. M. Guvensen, E. Ayanoglu, "Performance of Single-Carrier Massive MIMO with Spatially Correlated Antennas," Information Theory and Applications Workshop, San Diego, CA, February 2019. **Invited Presentation**

l113. E. Ayanoglu, "Spatial Correlation in Single-Carrier Massive MIMO," International Conference on Computing, Networking, and Communications (ICNC), Honolulu, HI, Feb. 2019. **Invited Talk**

l112. E. Ayanoglu, "Why Energy Efficiency is Very Important and Its Relation with Spectral Efficiency in Next-Generation Wireless Networks," IEEE Green Energy and Small Systems Conference (IGESSC), Long Beach, CA, Oct. 2018. **Keynote Speaker**

l111. G. Miao, G. Li, and E. Ayanoglu, "Spectrum and Energy Efficiency in 5G Mobile Data Networks," International Conference on Communications (ICC), Kansas City, MO, May 2018. **Tutorial**

l110. E. Ayanoglu, "Energy-Spectral Efficiency Tradeoff for Heterogeneous Networks with QoS Constraints," International Conference on Computing, Networking, and Communications (ICNC), Maui, HI, March 2018. **Invited Talk**

l109. E. Ayanoglu, Emerging Wireless Technologies Panel, DASpedia Wireless with Woz Conference , Irvine, CA, Feb. 2018. **Invited Panelist**

l108. E. Ayanoglu, "Adaptive Channel Estimators with Hybrid Beamforming for Single-Carrier Massive MIMO" IEEE International Conference on Microwaves, Communications, Antennas, and Electronic Systems (IEEE COMCAS 2017), Tel Aviv, Israel, November 2017. **Invited Talk**

l107. E. Ayanoglu, "Next-Generation (5G) Cellular Wireless: What, Why, How, and When?" IEEE International Conference on Microwaves, Communications, Antennas, and Electronic Systems (IEEE COMCAS 2017), Tel Aviv, Israel, November 2017. **Plenary Speaker**

l106. E. Ayanoglu, “Fifth Generation Cellular Wireless: Goals, Schedules, and Implementation” Second Wireless Silk Road International Academic Symposium, Beijing Jiaotong University, Beijing, China, July 2017. **Keynote Speaker**

l105. E. Ayanoglu, “What is Achievable in Energy Efficiency for Cellular Wireless Communications?,” Grande École d'Ingénieurs Généraliste Électronique, Informatique et Télécommunications (ENSEA), Cergy-Pontoise, France, May 2017.

l104. E. Ayanoglu, “What Can be Achieved in Energy Efficiency for Cellular Wireless Communications?,” Laboratory of Information, Networking and Communication Sciences (LINCS), Paris, France, May 2017.

l103. E. Ayanoglu, “Energy-Spectral Efficiency Tradeoff for Heterogeneous Networks with QoS Constraints,” IEEE International Conference on Communications (ICC), Paris, France, May 2017. **Invited Presentation**

l102. E. Ayanoglu, “Beamformer Design for Massive MIMO Systems in Millimeter-Wave Channels,” International Conference on Computing, Networking, and Communications (ICNC), Santa Clara, CA, February 2017. **Invited Talk**

l101. E. Ayanoglu, “Beamformer Design and Adaptive Channel Estimation for Millimeter-Wave Massive MIMO ,” Information Theory and Applications Workshop, San Diego, CA, February 2017. **Invited Presentation**

l100. E. Ayanoglu, “Fifth Generation (5G) Cellular Wireless: Vision, Goals, and Challenges ,” International Performance Computing and Communications Conference, Las Vegas, NV, December 2016. **Keynote Speaker**

l99. E. Ayanoglu, “Introduction to Electrical Engineering and Computer Engineering: Communications and Digital Signal Processing,” EECS1 Seminar, UC Irvine, CA, May 2016.

l98. E. Ayanoglu, “Green Cellular Communications: What Are the Potential Gains and How to Achieve Them?,” Muroran Institute of Technology, Japan, March 2016. **Invited Presentation**

l97. E. Ayanoglu, “5G Today: Modulation Technique Alternatives,” Muroran Institute of Technology, Japan, March 2016. **Invited Presentation**

l96. E. Ayanoglu, “5G Today: Modulation Technique Alternatives,” International Conference on Computing, Networking, and Communications (ICNC), Kauai, HI, February 2016. **Invited Talk**

l95. E. Ayanoglu, “New Algorithms for Maximizing Wireless Network Energy Efficiency,” Information Theory and Applications Workshop, La Jolla, CA, February 2016. **Invited Presentation**

l94. E. Ayanoglu, “Introduction to Electrical Engineering and Computer Engineering: Communications and Digital Signal Processing,” EECS 1 Seminar, UC Irvine, CA, May 2015.

l93. E. Ayanoglu, “Green Cellular Communications: What Are the Potential Gains and How to Achieve Them?,” International Conference on Sustainable Computing and Communications (SustainCom), Chengdu, China, December 2015. **Keynote Presentation**

l92. E. Ayanoglu, "A Greedy Algorithm for Energy-Efficient Base Station Deployment in Heterogeneous Networks," IEEE International Conference on Communications (ICC), London, United Kingdom, June 2015.

l91. E. Ayanoglu, "Green Cellular Communications: What Are the Potential Gains and How to Achieve Them?," IEEE Wireless Communications and Networking Conference (WCNC), New Orleans, LA, March 2015. **Tutorial**

l90. E. Ayanoglu, "Green Cellular Communications: What Are the Potential Gains and How to Achieve Them?," International Conference on Computing, Networking, and Communications, (ICNC), Anaheim, CA, February 2015. **Distinguished Lecture**

l89. E. Ayanoglu, "Energy-Efficient Fractional Frequency Reuse Techniques for Cellular Wireless Systems," Information Theory and Applications Workshop, La Jolla, CA, February 2015. **Invited Presentation**

l88. E. Ayanoglu, "Link Failure Recovery in Large Arbitrary Networks via Network Coding," Information Theory and Applications Workshop, San Diego, CA, February 2014. **Invited Presentation**

l87. E.Ayanoglu, "Full-Diversity Precoding Design of Bit-Interleaved Coded Multiple Beamforming with Orthogonal Frequency Division Multiplexing," IEEE Global Communications Conference (GLOBECOM) 2013, Atlanta, GA, December 2013.

l86. E. Ayanoglu, "State and Future of Wireless Communications and Networking," UC Riverside Department of Electrical and Computer Engineering Seminar, Riverside, CA, November 2013.

l85. E. Ayanoglu, "New Diversity Coding Design Algorithms for Link Failure Recovery in Communication Networks," IEEE International Conference on Communications (ICC) 2013, Budapest, Hungary, June 2013

l84. E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Orthogonal Frequency Division Multiplexing," IEEE International Conference on Communications (ICC) 2013, Budapest, Hungary, June 2013.

l83. E. Ayanoglu, "Interference-Based Cell Selection in Heterogenous Networks," Center for Information Theory Applications Workshop, San Diego, CA, February 2013.

l82. E. Ayanoglu, "State and Future of Wireless Communications and Networking," UCI EECS Colloquium, Irvine, CA, November 2012 *(Invited).*

l81. E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Perfect Coding," IEEE International Conference on Communications (ICC) 2012, Ottawa, Canada, June 2012.

l80. E. Ayanoglu, "Coded Path Protection: Efficient Conversion of Sharing to Coding," IEEE International Conference on Communications (ICC) 2012, Ottawa, Canada, June 2012.

l79. E. Ayanoglu, "Design Algorithms for Fast Network Restoration via Diversity Coding," Center for Information Theory Applications Workshop, San Diego, CA, February 2012.

l78. E. Ayanoglu, "Recovery from Link Failures in Networks with Arbitrary Topology via Diversity Coding," IEEE Global Communications Conference (GLOBECOM) 2011, Houston, TX, December 2011.

l77. E. Ayanoglu, "State and Future of Wireless Communications and Networking," UCI EECS Colloquium, Irvine, CA, November 2011 *(Invited).*

l76. E.Ayanoglu, "Reduced Complexity Decoding for Bit Interleaved Coded Multiple Beamforming with Constellation Precoding," IEEE International Wireless Communications and Mobile Computing Conference (IWCMC) 2011, Istanbul, Turkey, July 2011.

l75. E. Ayanoglu, "Reduced Complexity Sphere Decoding," IEEE International Wireless Communications and Mobile Computing Conference (IWCMC) 2011, Istanbul, Turkey, July 2011.

l74. E. Ayanoglu, "Hitless Recovery from Link Failures in Networks with Arbitrary Topology," Center for Information Theory Applications Workshop, San Diego, CA, February 2011

l73. E. Ayanoglu, "State and Future of Wireless Communications and Networking," UCI EECS Colloquium, Irvine, CA, November 2010 *(Invited).*

l72. E. Ayanoglu, "Computational Complexity of Decoding Orthogonal Space-Time Block Codes," IEEE International Conference on Communications (ICC) 2010, Cape Town, South Africa, June 2010.

l71. E. Ayanoglu, "An Upper Bound to the Marginal PDF of the Ordered Eigenvalues of Wishart Matrices and Its Application to MIMO Diversity Analysis," IEEE International Conference on Communications (ICC) 2010, Cape Town, South Africa, June 2010.

l70. E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Constellation Precoding," IEEE International Conference on Communications (ICC) 2010, Cape Town, South Africa, June 2010.

l69. E. Ayanoglu, "Multiple Beamforming with Constellation Precoding: Diversity Analysis and Sphere Decoding," Center for Information Theory Applications Workshop, San Diego, CA, January 2010.

l68. E. Ayanoglu, "Multiple Beamforming with Constellation Precoding," IEEE Global Communications Conference (GLOBECOM) 2009, Honolulu, HI, December 2009.

l67. E. Ayanoglu, "State and Future of Wireless Communications and Networking," UCI EECS Colloquium, Irvine, CA, November 2009 *(Invited).*

l66. E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming with Constellation Precoding," Department of Electrical Engineering Seminar, UC Riverside, Riverside, CA, October 2009 *(Invited).*

l65. E. Ayanoglu, "Engineering Optimization and Nature," Calit2 Irvine Division Workshop on Biological and Computing/Communication Systems, Irvine, CA, July 2009.

l64. E. Ayanoglu, "Wireless Communications Research," Calit2 Irvine Division Wireless Workshop, Irvine, CA, March 2009.

l63. E. Ayanoglu, "Diversity Analysis of Bit-Interleaved Coded Multiple Beamforming," Center for Information Theory Applications Workshop, La Jolla, CA, February 2009.

162. E. Ayanoglu, "Low-Complexity SQR-based Decoding Algorithm for Quasi-Orthogonal Space-Time Block Codes," IEEE Global Communications Conference (GLOBECOM) 2008, New Orleans, LA, December 2008.

161. E. Ayanoglu, "An Efficient Tree Search for Reduced Complexity Sphere Decoding," IEEE Global Communications Conference (GLOBECOM) 2008, New Orleans, LA, December 2008.

160. E. Ayanoglu, "Low-Complexity Maximum-Likelihood Detection of Orthogonal Space-Time Block Codes," IEEE Global Communications Conference (GLOBECOM) 2008, New Orleans, LA, December 2008.

159. E. Ayanoglu, "Multimedia Capacity Analysis of the 802.11e Contention-based Infrastructure Basic Service Set," IEEE Global Communications Conference (GLOBECOM) 2008, New Orleans, LA, December 2008.

158. E. Ayanoglu, "State and Future of Wireless Communications and Networking," UCI EECS Colloquium, Irvine, CA, November 2008 *(Invited).*

157. E. Ayanoglu, "Maximum Likelihood Decoding of Quasi-Orthogonal Space-Time Block Codes: Analysis and Simplification," IEEE International Conference on Communications (ICC) 2008, Beijing, China, May 2008.

156. E. Ayanoglu, "Achieving Fair TCP Access in the IEEE 802.11 Infrastructure Basic Service Set," IEEE International Conference on Communications (ICC) 2008, Beijing, China, May 2008.

155. E.Ayanoglu, "Weighted Fair Uplink/Downlink Access Provisioning in IEEE 802.11e WLANs," IEEE International Conference on Communications (ICC) 2008, Beijing, China, May 2008.

154. E. Ayanoglu, "Current State and Future of Communications and Networking," UCI EECS Colloquium, Irvine, CA, November 2007 *(Invited).*

153. R. Halim, P. Voois, A. Dickinson, and E. Ayanoglu, "Semiconductors in High-Speed Communications," Panel, Southern California Summit on Semiconductors and Communications, Newport Beach, CA, June 2007 *(Invited).*

152. E. Ayanoglu, "Bit-Interleaved Coded Multiple Beamforming to Achieve Full Diversity and Maximum Spatial Multiplexing," IEEE Radio and Wireless Symposium 2007, Long Beach, CA, January 2007. **Invited Talk**

151. E. Ayanoglu, "MIMO BICM-OFDM Beamforming with Full and Partial CSIT," Center for Information Theory Applications Workshop, La Jolla, CA, January 2007.

150. E. Ayanoglu, "Opportunities and Challenges in Communications over the Next Decade," UCI EECS Colloquium, Irvine, CA, November 2006. *(Invited)*

149. E. Ayanoglu, "Performance of MIMO Techniques to Achieve Full Diversity and Maximum Spatial Multiplexing," Center for Information Theory Applications Inaugural Workshop, La Jolla, CA, February 2006. **Invited Presentation**

148. E. Ayanoglu, "Opportunities and Challenges in Communications over the Next Decade," UCI EECS Colloquium, Irvine, CA, November 2005 *(Invited).*

l47. E. Ayanoglu, "Opportunities and Challenges in Communications over the Next Decade," UCI EECS Colloquium, Irvine, CA, November 2004 *(Invited).*

l46. E. Ayanoglu, "Low Complexity Decoding of Bit Interleaved Coded Modulation for M-ary QAM," IEEE International Conference on Communications (ICC) 2004, Paris, France, June 2004.

l45. E. Ayanoglu, "Bit Interleaved Coded Modulation: Low Complexity Decoding," IEEE Vehicular Technology Conference (VTC Spring) 2004, Milan, Italy, May 2004.

l44. E. Ayanoglu, "High Performance Viterbi Decoder for OFDM Systems," IEEE Vehicular Technology Conference (VTC Spring) 2004, Milan, Italy, May 2004.

l43. E. Ayanoglu, "UCI Center for Pervasive Communications and Computing," Cal-$(IT)^2$ All Hands Meeting, La Jolla, CA, April 2004 *(Invited).*

l42. E. Ayanoglu, "Unique Technical Functional Capabilities and the New Kinds of Research They Will Enable: Networking (UCI)," Cal-$(IT)^2$ All Hands Meeting, La Jolla, CA, April 2004 *(Invited).*

l41. E. Ayanoglu, "Opportunities and Challenges in Communications Over the Next Decade," UCI EECS Colloquium, Irvine, CA, November 2003 *(Invited).*

l40. E. Ayanoglu, "The Failure of Fixed Broadband Wireless," IEEE Topical Conference on Wireless Technology and NSF Wireless Grantees Workshop, Los Angeles, CA, October 2003 *(Invited).*

l39. E. Ayanoglu, "Advanced Coding for IEEE 802.11a: Modified SINR Metric," International Conference on Computational and Experimental Engineering and Sciences, Corfu, Greece, July 2003.

l38. E. Ayanoglu, "Pervasive Communications and Computing Research at UC Irvine," Keynote, IEEE Conference on Electronic Commerce, Irvine, CA, June 2003 *(Invited).*

l37. E. Ayanoglu, "The Failure of Fixed Broadband Wireless: Where Do We Go From Here?" UCLA EE Department Colloquium, Los Angeles, CA, April 2003. **Invited Talk**

l36. E. Ayanoglu, "The Failure of Fixed Broadband Wireless: Where Do We Go From Here?" UCI HSSoE Research Review, Irvine, CA, March 2003 *(Invited).*

l35. E. Ayanoglu, "Technological Challenges in Communications," UCI EECS Colloquium,Irvine, CA, February 2003 *(Invited).*

l34. E. Ayanoglu, "Center for Pervasive Communications at UCI," Cal-$(IT)^2$ UCI Layer Leaders Meeting, La Jolla, CA, December 2002 *(Invited).*

l33. E. Ayanoglu, "Towards Pervasive Communications: State and Future of Fixed Wireless and Wireless LANs," Cal-$(IT)^2$ UCSD Division Talk, La Jolla, CA, December 2002 *(Invited).*

l32. E. Ayanoglu, "Center for Pervasive Communications at UCI," UCI Engineering Advisory Board Meeting, Irvine, CA, October 2002 *(Invited).*

l31. E. Ayanoglu, S. Fisher, J. Frederick, A. Klinkert, and H. Zaghloul, "Setting Requirements and Standards for Multi-Vendor Interoperability," Panel, *Wireless Communications International 14th Annual Convention,* Boston, MA, June 2001.

l30. E. Ayanoglu and B. Kiernan, "Standards and Industry Specifications," Panel, *Supercomm 2001,* Atlanta, GA, June 2001.

l29. E. Ayanoglu, R. Krishnamoorthy, R. Muse, and H. Zaghloul, "Contrasting Non Line of Sight Technology Approaches," Panel, *Broadband Wireless World Forum,* San Francisco, CA, February 2001.

l28. E. Ayanoglu, V. Hayes, D. Kostas, D. Satapathy, and H. Zaghloul, "BWA Standards for License Exempt: What Do the Options Deliver and What Are the Service Options," Panel, *Wireless Communications Association 7th Annual Technical Symposium, San Jose,* CA, January 2001.

l27. E. Ayanoglu, E. A. Hervatic, and M. Shahar, "Layer 2 Alternatives for Broadband Wireless Access," Panel, *Supernet 2001,* San Jose, CA, January 2001.

l26. E. Ayanoglu, "OFDM and Single Carrier Amplitude Modulation for Fixed Broadband Wireless Access," UCLA Electrical Engineering Department Seminar, Los Angeles, CA, November 2000. **Invited Talk**

l25. E. Ayanoglu, J.M. Costa, K. Krechmer, R.Marks, and R. McAllister, "Fixed Broadband Wireless Access: Technologies and Standards," Panel, *International Symposium on Advanced Radio Technologies,* Boulder, CO, September 2000.

l24. E. Ayanoglu, D. Hendricks, A. Paulraj, R. Petroff, and H. Zaghloul, "Wireless Internet Services and Technology," Panel, *Hot Interconnects: A Symposium on High Performance Interconnect*s, Stanford, CA, August 2000.

l23. E. Ayanoglu, "Broadband Wireless Multimedia Networking," *Wireless '99,* Calgary, Canada, July 1999. **Invited Tutorial**

l22. E. Ayanoglu, "Broadband Wireless Packet Communications," *IEEE International Communications Conference, ICC '99,* Vancouver, Canada, June 1999. **Tutorial**

l21. E. Ayanoglu, "Wireless Packet and Wireless ATM Systems," *The 8th IEEE International Symposium on Personal, Indoor, and Mobile Radio Communications,* Helsinki, Finland, September 1997. **Invited Talk**

l20. E. Ayanoglu, "Broadband Wireless Packet Communications and Wireless ATM," *IEEE Global Communications Conference, GLOBECOM '98,* Sydney, Australia, November 1998. **Tutorial**

l19. E. Ayanoglu, "Wireless ATM," Tutorial, *IEEE Global Communications Conference, GLOBECOM '97,* Phoenix, AZ, November 1997.

l18. E. Ayanoglu, "Wireless Packet," Tutorial, *IEEE International Conference on Universal and Personal Communications, ICUPC '97,* San Diego, CA, October 1997.

l17. E. Karasan and E. Ayanoglu, "Performance Comparison of Reconfigurable Wavelength Selective and Wavelength Interchanging Cross-Connects in WDM Transport Networks," *ICC '97 Workshop on WDM Network Management and Control,* Montreal, Canada, June 1997.

l16. M. Alanyali and E. Ayanoglu, "Fast Wavelength Assignment in WDM Networks," *ICC '97 Workshop on WDM Network Management and Control,* Montreal, Canada, June 1997.

l15. E. Ayanoglu, "Wireless ATM," Tutorial, *International Conference on Mobile and Wireless Communications Networks,* Paris, France, May 1997.

l14. E. Ayanoglu, "Data Transmission When Sampling Frequency is More Than the Nyquist Rate," *26th IEEE Communications Society Communication Theory Committee Workshop,* Tucson, AZ, April 1997.

l13. E. Ayanoglu, "Wireless ATM: Limits, Challenges, and Proposals," *North Jersey Chapter of the IEEE Communications Society, NJIT Center for Communications and Signal Processing Research, New Jersey Center for Multimedia Research,* Newark, NJ, December 1996. **Invited Talk**

l12. E. Ayanoglu, K. Y. Eng, and M. J. Karol, "Wireless ATM: Limits, Challenges, and Proposals," *7th Maryland Workshop on Very High Speed Networks,* Baltimore, MD, November 1996.

l11. E. Ayanoglu, "Is Wavelength Conversion in WDM Networks Viable?" *7th Maryland Workshop on Very High Speed Networks,* Baltimore, MD, November 1996.

l10. E. Ayanoglu, R. Jain, S, Lam, K. K. Sabnani, H. Schulzrinne, "Are Real-Time Services on the Internet Realistic?" Panel, *IEEE International Conference on Network Protocols,* Columbus, OH, November 1996.

l9. E. Ayanoglu, K. Y. Eng, and M. J. Karol, "Wireless ATM: Limits, Challenges, and Proposals," *3rd International Workshop on Mobile Multimedia Communications,* Princeton, NJ, September 1996.

l8. E. Ayanoglu, P. Pancha, A. R. Reibman, and S. Talwar, "Forward Error Control for MPEG-2 Video Transport in a Wireless ATM LAN," *3rd International Workshop on Mobile Multimedia Communications,* Princeton, NJ, September 1996.

l7. E. Karasan and E. Ayanoglu, "Wavelength Routing and Selection Algorithms for WDM Optical Networks," *ICC '96 Workshop on WDM Network Management and Control,* Dallas, TX, June 1996.

l6. E. Ayanoglu, K. Y. Eng, M. J. Karol, P. Pancha, R. A. Valenzuela, M. Veeraraghavan, C. B. Woodworth, "The BAHAMA Wireless ATM LAN," *IEEE ATM Workshop,* Washington, DC, October 1995.

l5. E. Ayanoglu, "Source and Channel Coding for Networks," *1995 IEEE Information Theory Workshop on Information Theory, Multiple Access and Queueing*, St. Louis, MO, April 1995.

l4. E. Ayanoglu, "Broadband Network Technological Discontinuity: Error, Loss, and Failure Recovery" *IEEE PCJS Communications and Consumer Electronics Societies and the Jersey Coast Sections of CAS/SP and Computer/Instrumentation Societies,* March 1995. **Invited Talk**

l3. E. Ayanoglu and M. Veeraraghavan, "Advanced Topics in Broadband ATM Networks," *IEEE INFOCOM '94,* Toronto, Canada, June 1994. **Tutorial**

l2. E. Ayanoglu, "Broadband Network Restoration," *Columbia Workshop on Telecommunications,* Columbia University, New York, NY, September 1992.

11. E. Ayanoglu, “Signal Flow Graphs for Path Enumeration and Deflection Routing Analysis in Multihop Networks,” *20th IEEE Communications Society Communication Theory Committee Workshop,* Rhodes, Greece, June 1991.