



ISTANBUL TECHNICAL UNIVERSITY

Faculty Vita

Ahmet Hamdi Kayran

Professor
Department of Electronics and Communication Engineering
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Education:

- ◆ PhD: University of London, 1982
- ◆ DIC: Imperial College of Science and Technology, London, 1982
- ◆ MSEE: University of California - Berkeley, 1979
- ◆ BSEE: Istanbul Technical University, Istanbul, 1977

ITU Experience:

- ◆ 2010-2012: Dean of International Education
- ◆ 2008-2012: Member of ITU Undergraduate Curriculum Committee
- ◆ 2008-2012: Member of ITU Executive Board
- ◆ 2006-2012: Member of ITU Senate
- ◆ 1997-2010: Chair for Telecommunications
- ◆ 2003-2004: Administrator of the Graduate Program in Satellite Communications and Remote Sensing
- ◆ 1996-1999: Dean of Faculty of Electrical and Electronics Engineering
- ◆ 1993-Present: Professor, Department of Electronics and Communication Engineering
- ◆ 1987-1993: Associate Professor, Department of Electronics and Communication Engineering
- ◆ 1985-1987: Assistant Professor, Department of Electronics and Communication Engineering

Other Experience:

- ◆ 1984-1985: Assistant Professor, Department of Electrical and Computer Engineering, Northeastern University, Boston, Massachusetts
- ◆ 1982-1984: National Research Council Research Associate, Department of Electrical and Computer Engineering, Naval Postgraduate School, Monterey, California

Research Interests:

- ◆ Adaptive and Statistical Signal Processing
 - ◆ Digital and Multirate Signal Processing
 - ◆ Multidimensional Signal Processing
 - ◆ Sensor Array and Multichannel Processing
 - ◆ Signal Processing for Communications
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Teaching Interests:

- ◆ Adaptive and Statistical Signal Processing
 - ◆ Analog and Digital Communications
 - ◆ Digital Signal and Image Processing
 - ◆ Linear Algebra
 - ◆ Probability and Stochastic Processes
 - ◆ Signals and Systems
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Awards and Memberships:

- ◆ 2003-Present: IEEE Senior Member
 - ◆ 1982-1984: National Research Council Research Associateship Award, National Science Foundation
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Boards:

- ◆ 2007-Present: Associate Editor of *Multidimensional Systems and Signal Processing*
 - ◆ 2002-2004: Associate Editor of *ARI-Bulletin of Istanbul Technical University*
 - ◆ 1993-1995: Associate Editor of *Circuits, Systems and Signal Processing*
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Ph.D. Thesis Supervised:

1. *O. Gatera*, "Predictive and adaptive channel estimation models for cooperative wireless communications," Istanbul Technical University, 2017
2. *E. Camcioglu*, "New efficient 2-D lattice structures for general autoregressive modelling," Istanbul Technical University, 2014
3. *A. K. Tanc*, "Novel methods for signal and power spectrum estimation in multi-rate systems," Istanbul Technical University, 2011
4. *C. M. Yetis*, "Wireless network capacity," Istanbul Technical University, 2010
5. *A. Kizilkaya*, "New approaches for the estimation of two dimensional autoregressive moving average model parameters," Istanbul Technical University, 2006
6. *N. Y. Sari*, "Two-dimensional ARMA parameter identification using two-channel AR lattice approach," Istanbul Technical University, 2005
7. *E. M. Eksioğlu*, "Novel methods for Volterra filter representation, identification and realization," Istanbul Technical University, 2005
8. *I. E. Yazgan*, "High resolution inverse synthetic aperture radar imaging by two dimensional complex lattice structure," Istanbul Technical University, 2001
9. *M. T. Ozden*, "Adaptive volterra filtering with complete lattice orthogonalization," Istanbul Technical University, 1996

International Journal Papers (SCI & SCI-Expanded):

1. O. Gatera, H. Ilhan and A. H. Kayran, "A novel LMS-BLM algorithm for AF relays based cooperative wireless networks," *AEU- International Journal of Electronics and Communications*, vol. 70, pp. 1480-1488, 2016
2. A. H. Kayran and E. Camcioglu, "New efficient 2-D lattice structures for general autoregressive modeling of random fields," *IEEE Transactions on Signal Processing*, vol. 62, pp. 1590-1602, 2014
3. A. K. Tanc and A. H. Kayran, "Maximum entropy power spectrum estimation for 2-D multirate systems," *Circuits, Systems and Signal Processing*, vol. 31, pp. 271-281, 2012
4. C. M. Yetis and A. H. Kayran, "A new training protocol for channel state estimation in wireless relay networks," *IEEE Transactions on Signal Processing*, vol. 58, pp. 5950-5955, 2010
5. C. M. Yetis, T. Gou, S. A. Jafar and A. H. Kayran, "On feasibility of interference alignment in MIMO interference networks," *IEEE Transactions on Signal Processing*, vol. 58, pp. 4771-4782, 2010
6. A. K. Tanc and A. H. Kayran, "Iterative maximum entropy power spectrum estimation for multirate systems," *AEU-International Journal of Electronics and Communications*, vol. 64, pp. 93-98, 2010
7. M. T. Ozden and A. H. Kayran, "Adaptive multichannel decision feedback equalization for Volterra type nonlinear communication channels," *AEU- International Journal of Electronics and Communications*, vol. 62, pp. 430-437, 2008
8. A. Kizilkaya and A. H. Kayran, "ARMA model parameter estimation based on the equivalent MA approach," *Digital Signal Processing*, vol. 16, pp. 670-681, 2006
9. A. Kizilkaya and A. H. Kayran, "Computation of the exact Cramer-Rao lower bound for 2-D ARMA parameter estimation-I: The quarter-plane case," *IEEE Transactions on Circuits and Systems II*, vol. 53, pp. 23-27, 2006
10. A. Kizilkaya and A. H. Kayran, "ARMA-Cepstrum recursion algorithm for the estimation of the MA parameters of 2-D ARMA models," *Multidimensional Systems and Signal Processing*, vol. 16, pp. 397-415, 2005
11. E. M. Eksioglu and A. H. Kayran, "Volterra kernel estimation for nonlinear communication channels using deterministic sequences," *AEU-International Journal of Electronics and Communications*, vol. 59, pp. 118-127, 2005
12. A. H. Kayran and E. M. Eksioglu, "Nonlinear system identification using deterministic multilevel sequences," *Circuits, Systems and Signal Processing*, vol. 24, pp. 151-181, 2005
13. A. Kizilkaya and A. H. Kayran, "Estimation of 2-D ARMA model parameters by using equivalent AR approach," *Journal of the Franklin Institute- Engineering and Applied Mathematics*, vol. 342, pp. 39-67, 2005
14. A. Kizilkaya and A. H. Kayran, "Matrix-based computation of the exact Cramer-Rao bound for the ARMA parameter estimation realized with relatively short data records," *Frequenz*, vol. 58, pp. 278-281, 2004
15. A. H. Kayran and I. Erer, "Optimum asymmetric half-plane autoregressive lattice parameter modeling of 2-D fields," *IEEE Transactions Signal Processing*, vol. 52, pp. 807-819, 2004
16. M. T. Ozden and A. H. Kayran, "Volterra model based decision feedback equalisation with lattice orthogonalisation," *Electronics Letters*, vol. 39, pp. 477-479, 2003
17. I. Erer, A. H. Kayran, "Superresolution ISAR imaging using 2-D autoregressive lattice filters," *Microwave and Optical Technology Letters*, vol. 32, pp. 81-85, 2002

18. I. Erer, M. Kartal and A. H. Kayran, "2-D data extrapolation for high resolution radar imaging using autoregressive lattice modeling," *IEE Proceedings-Radar, Sonar and Navigation*, vol. 148, pp. 277-283, 2001
19. M. T. Ozden and A. H. Kayran, "Decision feedback equalisation with complete lattice orthogonalisation," *Electronics Letters*, vol. 37, pp. 923-925, 2001
20. A. H. Kayran and E. Eksioglu, "2D FIR Wiener filter realization using orthogonal lattice structures," *Electronics Letters*, vol. 36, pp. 1078-1079, 2000
21. M. T. Ozden, A. H. Kayran and E. Panayirci, "Adaptive Volterra channel equalisation with lattice ortogonalisation," *IEE Proceedings-Communications*, vol. 145, pp. 109-115, 1998
22. M. T. Ozden, A. H. Kayran and E. Panayirci, "Adaptive identification and equalization of magnetic recording channels," *European Transactions on Telecommunications*, vol. 9, pp. 203-208, 1998
23. A. H. Kayran, "Improved 2-D joint process lattice adaptive restoration of images," *Electronics Letters*, vol. 34, pp. 350-351, 1998
24. A. H. Kayran, U. Kucuk and S. R. Parker, "Two-dimensional Schur algorithm," *Multidimensional Systems and Signal Processing*, vol. 9, pp. 7-37, 1998
25. A. H. Kayran and S. R. Parker, "Optimum quarter-plane autoregressive modeling of 2-D fields using four field lattice approach," *IEEE Transactions on Signal Processing*, vol. 45, pp. 2363-2373, 1997
26. M. T. Ozden, E. Panayirci and A. H. Kayran, "Identification of nonlinear magnetic channels with lattice orthogonalisation," *Electronics Letters*, vol. 33, pp. 376-377, 1997
27. A. H. Kayran, "2D Schur algorithm using a new generator matrix," *Electronics Letters*, vol. 32, pp. 2044-2045, 1996
28. M. T. Ozden, A. H. Kayran and E. Panayirci, "Adaptive Volterra filtering with complete lattice orthogonalization," *IEEE Transactions on Signal Processing*, vol. 44, pp. 2092-2098, 1996
29. A. H. Kayran, "2D ARMA lattice modelling using two-channel AR lattice approach," *Electronics Letters*, vol. 32, pp. 1434-1435, 1996
30. A. H. Kayran, "2D maximum likelihood spectrum estimation using orthogonal 2-D lattice filters," *Electronics Letters*, vol. 32, pp. 1339-1340, 1996
31. A. H. Kayran, "Two-dimensional orthogonal lattice structures for autoregressive modeling of random fields," *IEEE Transactions on Signal Processing*, vol. 44, pp. 963-978, 1996
32. M. T. Ozden, A. H. Kayran and E. Panayirci, "Satellite channel identification with lattice orthogonalisation," *Electronics Letters*, vol. 32, pp. 303-304, 1996
33. A. Ertuzun, A. H. Kayran and E. Panayirci, "Further improved 2-D lattice filter structure employing missing reflection coefficients," *Circuits, Systems and Signal Processing*, vol. 14, pp. 473-494, 1995
34. A. Ertuzun, A. H. Kayran and E. Panayirci, "An improved 2-D lattice filter and its entropy relations," *Signal Processing*, vol. 28, pp. 1-24, 1992
35. A. H. Kayran, "Design of 2-D recursive filters with asymmetric half-plane lattice modeling," *IEE Proceedings-Circuits, Devices and Systems*, vol. 137, pp. 427-438, 1990
36. A. Ertuzun, A. H. Kayran and E. Panayirci, "Stable quarter-plane 2-D lattice filters," *Electronics Letters*, vol. 26, pp. 806-807, 1990
37. S. R. Parker and A. H. Kayran, "Lattice-parameter autoregressive modeling of two-dimensional fields 1: The quarter-plane case," *IEEE Transactions on Acoustics, Speech and Signal Processing*, vol. 32, pp. 872-885, 1984

38. A. H. Kayran, Y. C. Lim and S. R. Parker, "Decimation technique for optimal data transfer in one-dimensional and two-dimensional FIR digital-filter implementations," *IEE Proceedings-Circuits, Devices and Systems*, vol. 131, pp. 86-89, 1984
39. A. H. Kayran and R. A. King, "Design of recursive and nonrecursive fan filters with complex transformations," *IEEE Transactions on Circuits and Systems*, vol. 30, pp. 849-857, 1983
40. Y. C. Lim, A. H. Kayran and S. R. Parker, "Efficient positive coefficient algorithm for image processing," *Electronics Letters*, vol. 19, pp. 324-325, 1983
41. D. S. R. Gunawardena, A. H. Kayran and R. A. King, "Some properties of multidimensional sampling rate conversion," *Electronics Letters*, vol. 18, pp. 321-323, 1982
42. R. A. King and A. H. Kayran, "Simple design technique for inherently stable fan filters," *Electronics Letters*, vol. 18, pp. 127-130, 1982
43. R. A. King and A. H. Kayran, "Modified stabilization technique for two-dimensional recursive digital-filters design," *IEE Proceedings-Circuits, Devices and Systems*, vol. 128, pp. 77-80, 1981
44. A. H. Kayran and R. A. King, "Stability test for two-dimensional recursive digital-filters using inner determinants," *Electronics Letters*, vol. 17, pp. 67-68, 1981
45. A. H. Kayran and R. A. King, "Comments on the least-square inverse polynomials and a counterexample for Jury conjecture," *Electronics Letters*, vol. 16, pp. 795-796, 1980