# CURRICULUM VITAE


## Arnab K. Shaw

**Department of Electrical Engineering**
**Wright State University**
**Dayton OH 45435**
**Phone: (937)-775-5064; Email: ashaw@cs.wright.edu**


**Citizenship Status:** Citizen of USA
**Marital Status:** Married with 2 Children

## EDUCATION

| Institution | Concentration | Degree/Date | |
|---|---|---|---|
| University of Rhode Island, Rhode Island | Electrical Engineering | Ph.D. | 1987 |
| Villanova University, Pennsylvania | Electrical Engineering | M.S. | 1983 |
| Jadavpur University, Calcutta, India | Electrical Engineering | B.E. | 1979 |

## ACADEMIC EXPERIENCE

| Institution | Position | Dates |
|---|---|---|
| Wright State University | Professor | Fall-2000- |
| Wright State University | Associate Professor | 1994-2000 |
| Wright State University | Assistant Professor | 1987-1994 |
| University of Rhode Island | Research Fellow | 1984-1987 |
| Southern Methodist University | Teaching Assistant | 1983 |
| Villanova University | Teaching Assistant | 1982-1983 |

## OTHER PROFESSIONAL EXPERIENCE

| Organization | Position | Dates |
|---|---|---|
| Wright-Patterson AFB, Dayton | Sabbatical | 2003-2004 |
| Wright-Patterson AFB, Dayton | Summer Faculty | 1992 |
| Villanova University | Consultant, Computer Services | 1983 |
| Villanova University | Programmer, CAD Project | 1982-83 |
| Calcutta Electric Supply Company | Engineer Trainee | 1980 |

## PROFESSIONAL MEMBERSHIP

| Association | Status | Dates |
|---|---|---|
| IEEE | Member | 1978-present |

## AWARDS

| | |
|---|---|
| 1993-1994 | Excellence in Research, College of Engineering and Computer Science, Wright State University |
| 1984-1987 | Transcom Research Fellowship, for pursuing Ph.D. studies at University of Rhode Island |

# LIST OF COURSES TAUGHT

### UNDERGRADUATE LEVEL

| | |
|---|---|
| EE 303/503 | Circuit Analysis II |
| EE 304/504 | Circuit Analysis II (Lab) |
| EE 331/531 | Electronic Devices I |
| EE 332/532 | Electronic Devices I (Lab) |
| EE 321/521 | Linear Systems I |
| EE 322/522 | Linear Systems II |
| EE 421/621 | Communication Theory |
| EE 435/635 | Analog and Digital Filter Design |
| EE 473/673 | Communication Systems Design I |
| EE 480/680 | Probability Theory for Electrical Engineers |

### GRADUATE LEVEL

| | |
|---|---|
| EE 701 | Linear Systems |
| EE 735 | Wireless Communication Techniques |
| EE 736 | Advanced Wireless Communication Techniques |
| EE 761 | Analytical Techniques of Stochastic Analysis |
| EE 762 | Detection, Estimation, and Optimal Filter Theory |
| EE 763 | Classical and Modern Spectral Analysis |

**PATENT APPLICATION**

1. Chakravarthy, V., Shaw, A. K. et al., "Spectrum Reuse Employing Transform Domain Communication Systems (TDCS)," US Patent Application, Submitted, June, 2003.

## PRINTED SCHOLARSHIP

### Journal Articles

1. Paul, A. S. and Shaw A. K., "Robust HRR Radar Target Identification by Hybridization of HMM and Eigen-Template based Matched Filtering," Submitted to *IEEE Transactions on Aerospace and Electronic Systems,* Dec. 2004.
2. Mitra, A. K., Paul, A. S., Shaw A. K., and Lewis T., "Improved SAR Target Detection Using Subspace Filtering," Under preparation, ***IEEE Transactions on Aerospace and Electronic Systems*.**
3. Chakravarthy, V., Stephens, J. P., Shaw, A. K. and Temple M., "An Adaptive Waveform with Spectrum Sharing and Interference Avoidance Capabilities," Submitted to *IEEE Journal on Selected areas in Communication;* Special Issue on Advances in Military Communication Systems, December, 2003.
4. Shaw, A. K. Paul, A. S. and Williams, R., "Automatic Target Recognition using HRR data: Target Eigen-Subspaces as Templates and Normalized Matched Filtering for Classification," Under preparation, *IEEE Transactions on Aerospace and Electronic Systems*.
5. Shaw, A. K. and Rakshit T., "Maximum Likelihood Estimation of Rectangular Cavity Dimension Parameters," Under review, *IEEE Transactions on Signal Processing*.
6. Shaw, A. K. and Rakshit T., "Estimation of Circular Cavity Dimension Parameters," Under review, *IEEE Transactions on Antennas and Propagation.*
7. Chakravarthy, V., Stephens, J. P., Shaw, A. K. and Temple M. "A Comparative Study: Transform Domain Communication Systems, Orthogonal Frequency Division Multiplexing and Multi Carrier CDMA," *IEEE Communication Magazine*, to be published, Dec. 2004.
8. Mitra, A. K., Shaw A. K., and Lewis T., "Rank-Order Filters for FOPEN Target Detection," *IEEE Signal Processing Letters*, vol. 11, No. 2, pp. 93-96, February, 2004.
9. Shaw, A. K., and Naishadham, K., "ARMA based Time-Signature Estimator for analyzing resonant structures by the FDTD method," *IEEE Transactions Antennas and Propagation*, vol. 49, no. 3, pp. 327-339, Mar., 2001.
10. Shaw, A. K. and Imtiaz, M., "Pipelined Recursive Digital Filters: A General Look-Ahead Scheme and Optimal Approximation," accepted for publication, *IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing*, vol. 46, no. 11, pp. 1415-1420, 1999.
11. Shaw, A. K. and Pokala, S., "A Structured Matrix Approach for Spatial Domain Design of 2-D IIR Filters," *IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing*, vol. 44, no. 9, pp. 769-774, September, 1997.

12. Shaw, A. K., “Optimal Design of Digital IIR Filters by Model-Fitting Frequency Response Data,” *IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing*, vol. 42, no. 11, pp. 702-710, November 1995.
13. Shaw, A. K. and Misra, P., “Shaping Time Response by State Feedback in Minimum-Phase Systems," *Journal of Control, Guidance, and Dynamics*, vol. 18, no. 4, pp. 913-916, July-August 1995.
14. Shaw, A. K., “Maximum Likelihood Estimation of Multiple Frequencies with Constraints to Guarantee Unit Circle Roots,” *IEEE Transactions on Signal Pro*cessing, vol. 43, no. 3, pp. 796-799, March 1995.
15. Shaw, A. K., “Design of Denominator Separable 2-D IIR Filters,” *Signal Processing*, Switzerland, vol. 42, no. 1, pp. 191-206, February 1995.
16. Shaw, A. K., Misra, P. and Kumaresan, R., “Multidimensional System Identification From Impulse Response Data,” *Circuits, Systems and Signal Processing - Special Issue on Multivariable Systems*, vol. 13, no. 6, pp. 759-782, December 1994.
17. Shaw, A. K., “A Decoupled Approach for Optimal Estimation of Transfer Function Parameters from Input-Output Data," *IEEE Transactions on Signal Processing*, vol. 42, no. 5, pp. 1275-1278, May 1994.
18. Shaw, A. K.,” Optimal Estimation of the Parameters of All-Pole Transfer Functions," *IEEE Transactions on Circuits and Systems*, vol. 41, no. 2, pp.140-150, February 1994.
19. Shaw, A. K. and Xia, W., “Minimum-Norm Method Without Eigendecomposition,” *IEEE Signal Processing Letters*, vol. 1, no. 1, pp. 12-14, Jan., 1994.
20. Shaw, A. K., “Optimal Identification of Discrete-Time Systems from Impulse Response Data,” *IEEE Transactions on Signal Processing*, vol. 42, no. 1, pp. 113-120, January 1994.
21. Misra, P., and A. K. Shaw, “Realization of 2-D State Space Filters with Fewer Multipliers", *IEEE Transactions on Circuits and Syst*ems, pp. 252-256, January 1990.
22. Kumaresan, R. and Shaw, A. K., “Superresolution by Structured Matrix Approximation,'” *IEEE Transactions on Antennas and Propagation* vol. AP-36, pp. 34-44, January 1988.
23. Kay, S. M. and Shaw, A. K., “Frequency Estimation by Principal Component AR Spectral Estimation Method Without Eigen-decomposition," *IEEE Transactions on Acoustics, Speech and Signal Processing*, vol. ASSP-36, no. 1, pp. 95-101, January 1988.
24. Kumaresan, R., Scharf, L. L. and Shaw, A. K., “An Algorithm for Pole-Zero Modeling and Spectral Analysis," *IEEE Transactions on Acoustics, Speech and Signal Processing*, vol. ASSP-34, no. 3, pp. 637-640, June, 1986.
25. Kumaresan, R. and Shaw, A. K., “An Exact Least Squares Fitting Technique for Two-Dimensional Frequency-Wavenumber Estimation," *IEEE Proceedings*, vol. 74, no. 4, pp. 606-607, April 1986.

## PAPERS PUBLISHED IN FULL IN OFFICIAL PROCEEDINGS

1. Lewis, T, and Shaw, A. K., " An Iterative Method for SAR Moving Target Detection and Geolocation for Staring Radar Applications", SPIE-2005, Orlando, FL, March, 2005.

2. Chakravarthy, V., Stephens, J. P., Shaw, A. K. and Temple M. “Cognitive Radio – An Adaptive Waveform with Spectral Sharing Capability,” *IEEE Wireless Communications & Networking Conference (WCNC)*, March 2005.
3. Mitra, A., Lewis, T, and Shaw, A. K., "Ultra-wideband Radar Target Detection for Sloped and Diffuse Scattering Environments", SPIE-2004, Orlando, FL, April, 2004.
4. Roy, A., Shaw, A. K. and Kerrick, A.,"Colored Petri Net Simulation and Modeling of Air-to-Ground Targeting," SPIE-2004, Orlando, FL, April-2004.
5. Kerrick, A. and Shaw, A. K., "A Kill Chain Architecture for Prosecution of Ground Targets," SPIE-2004, Orlando, FL, April-2004.
6. Paul, A.S. and Shaw, A.K., “Robust HRR radar target identification by hybridization of HMM and Eigen template based matched filtering”, *Automatic Target Recognition XIII, Proceedings of SPIE*, vol. 5094, pp. 278-289, Orlando, FL, April 2003.
7. Mitra, A. K., Paul, A. S., and Shaw, A. K., "Self-Training Algorithms for Ultra-wideband Radar Target Detection," SPIE-2003, Orlando, FL, April-2003.
8. Paul, A. S., Das, K., Shaw, A. K., and Mitra, A. K., "Improved HRR-ATR using Hybridization of HMM and Eigen-Template based Matched Filtering," ICASSP-03, Hong Kong, April-2003.
9. Brungart, D. S., Kordik, A. J., Das, K. and Shaw, A. K., "The Effects of F0 Manipulation on the Perceived Distance of Speech," 7th International conference on spoken language processing (ICSLP-2002), pp. 1641-1644, Denver, CO, Sept. 16-20, 2002.
10. Mitra, A., Lewis, T, Paul A. S. and Shaw, A. K., "Order Statistical Filters for Detecting target in UHF radar environment", SPIE Meeting, Orlando, FL, April, 2002.
11. Blasch, E., Westerkamp J, Hong, L, Layne, J and Shaw, A. K., “Identifying Moving HRR Signatures with an ATR Belief Data Association Filter,” *SPIE*, Orlando, FL, pp. 479-488, April 2000.
12. Shaw, A. K., Vashist R., and Williams, R. W., “HRR-ATR using Eigen-Templates with Noisy Observations in Unknown Target Scenario,” *SPIE*, Orlando, FL, pp. 467-478, April 2000.
13. Shaw, A. K., Rakshit T and Welsh, B. M., “Maximum-Likelihood Estimation (MLE) of Rectangular Cavity Dimensions from Scattering data,” *SPIE*, Orlando, FL, April 2000.
14. Shaw, A. K., Pokala, S. and Kumaresan, R., “Toeplitz and Hankel Approximation using Structured Approach,*" IEEE International Conference on Acoustics, Speech and Signal Processing*, Seattle, WA, May 1998.
15. Bhatnagar, V.; Shaw, A. K. and Williams, R. W., “Improved Automatic Target Recognition using Singular Value Decomposition,*" IEEE International Conference on Acoustics, Speech and Signal Processing*, Seattle, WA, May 1998.
16. Shaw, A. K. and Bhatnagar, V., “Automatic Target Recognition Using Eigen-Templates,” *SPIE*, Orlando, FL, April 1998.
17. Shaw, A. K. and Naishadham, K., “`Efficient ARMA Modeling of FDTD Time Sequences for Microwave Resonant Structures,” *IEEE Microwave Theory and Techniques Symposium*, Denver, CO, June 1997.

18. Shaw, A. K. and Naishadham, K., "Efficient Late-Time Extrapolation of FDTD Time Sequences using ARMA Modeling," *Progress in Electromagnetic Research Symposium (PIERS)*, Cambridge, MA, July 1997.
19. Pokala, S.; Shaw, A. K. and Imtiaz, M., "Optimal Least-Squares Design of Pipelined Recursive Filters in the Time-Domain," *IEEE International Conference on Acoustics, Speech and Signal Processing*, Atlanta, GA, May 1996.
20. Shaw, A. K. and Imtiaz, M., "New Look-Ahead Algorithm for Pipelined Implementation of Recursive Digital Filters," *IEEE International Conference on Acoustics, Speech and Signal Processing*, Atlanta, GA, May 1996.
21. Shaw, A. K. and Imtiaz, M., "A General Look-Ahead Algorithm for Pipelining IIR Filters," *International Symposium on Circuits and Systems*, Atlanta, GA, May 1996.
22. Imtiaz, M. and Shaw, A. K., "Tracking of Multiple Targets using Pipelined-Adaptive Algorithm," *International Symposium on Circuits and Systems*, Atlanta, GA, May 1996.
23. Pokala, S. and Shaw, A. K., "Optimal Spatial Domain Design of 2-D IIR Filters," *IEEE International Symposium on Circuits and Systems*, Seattle, WA, pp. I335-I338, April 1995.
24. Pokala, S. and Shaw, A. K., "Optimal Frequency Domain Design of Denominator Separable Two-Dimensional Digital IIR Filters," *IEEE International Conference on Acoustics, Speech and Signal Processing*, Detroit, MI, pp. 2133-2136, May 1995.
25. Shaw, A. K. and Xia, W., "DFT-Based Preprocessing for High-Resolution Angles-of-Arrival Estimation Without Eigendecomposition," *Twenty-Seventh ASILOMAR Conference on Signals, Systems and Computers*, Pacific Grove, CA, pp. 826-830, October 1994.
26. Shaw, A. K. and Xia, W., "High-Resolution Angles of Arrival Estimation using Minimum-Norm Method Without Eigendecomposition," *IEEE International Conference on Acoustics, Speech and Signal Processing*, Adelaide, Australia, vol. IV, pp. 233-236, April 1994.
27. Shaw, A. K. and Kundu, S., "Improved ARMA Modeling from Noisy Observations," *Twenty-Seventh ASILOMAR Conference on Signals, Systems and Computers*, Pacific Grove, CA, October 1993.
28. Shaw, A. K. and Kundu, S., "AR-Spectrum Estimation from Noisy Observation Data," *Twenty-Seventh ASILOMAR Conference on Signals, Systems and Computers*, Pacific Grove, CA, October 1993.
29. Shaw, A. K., "Optimal Design of Digital IIR Filters by Model-Fitting Frequency Response Data," *IEEE International Symposium on Circuits and Systems*, Chicago, IL, pp. 475-478, May 1993.
30. Shaw, A. K., "Optimal Estimation of AR-Model Parameters from Impulse Response Data," *31st IEEE Conference on Decision and Control*, Tucson, AZ, pp. 903-908, December 1992.
31. Shaw, A. K., "A New Algorithm for Optimal Estimation of Plant Parameters from Input-Output Data," *31st IEEE Conference on Decision and Contro*l, Tucson, AZ, pp. 1684-1685, December 1992.

32. Shaw, A. K. and Kundu, S., "Decoupling of Numerator and Denominator Estimation in Rational Modeling," *Twenty-Sixth ASILOMAR Conference on Signals, Systems and Computers*, Pacific Grove, CA, October 1992.
33. Shaw, A. K., "Optimally Decoupled Estimation of Rational Transfer Function Parameters," *Fifth IEEE Digital Signal Processing Workshop*, Starved Rock, IL, September 1992.
34. Misra, P. and Shaw, A. K., "A Computational Approach for the Selection of Closed-Loop Pole Locations," *IEEE Automatic Control Conference*, Chicago, IL, June 1992.
35. Shaw, A. K., "An Optimal Method for Identification of Pole-Zero Transfer Functions," *IEEE International Symposium on Circuits and Systems*, San Diego, CA, pp. 2409-2412, May 1992.
36. Shaw, A. K. and Misra, P., "Optimal 2-D IIR Filters: Strictly Proper Case," *IEEE International Conference on Acoustics, Speech and Signal Processing*, San Francisco, CA, IV-333-336, April 1992.
37. Shaw, A. K. and Kundu, S., "Parametric Non-linear Prediction of Speech," *IEEE Automatic Speech Recognition Workshop*, Arden House, Harriman, NY, pp. 35-38, December 1991.
38. Shaw, A. K., P. Misra and Kumaresan, R., "Optimal Identification of Discrete Multivariable Systems From Noisy Impulse Response Data," *30th IEEE Conference on Decision and Controls*, Brighton, UK, pp. 953-958, December 1991.
39. Shaw, A. K., "Order Recursive Parametric Bispectrum Estimation," *IEEE International Conference on Acoustics, Speech and Signal Processing*, Toronto, Canada, pp. 3501-3504, May 1991.
40. Shaw, A. K. and Misra, P., "Time Domain Identification of Proper Discrete Systems from Measured Impulse Response Data," *IEEE International Conference on Acoustics, Speech and Signal Processing*, Toronto, Canada, pp. 1689-1692, May 1991.
41. Shaw, A. K., "A Novel Cyclic Algorithm for Maximum Likelihood Frequency Estimation," *IEEE International Conference on Systems Engineering*, Dayton, OH, pp. 412-415, August 1991.
42. Mitchell, R. and Shaw, A. K., "Vowel Recognition using Time Delay Neural Networks," *IEEE International Conference on Systems Engineering*, Dayton, OH, pp. 637-640, August 1990.
43. Shaw, A. K. and Mitchell, R., "Phoneme Recognition using Time Delay Neural Networks," *International Joint Conference on Neural Networks*, San Diego, CA, vol.-2, pp. 191-195, June 1990.
44. Shaw, A. K. and Misra, P., "An Exact Realization of 2-D IIR Filters Using Separable 1-D Modules," *IEEE International Conference on Acoustics, Speech and Signal Processing*, Albuquerque, NM, pp. 1293-1296, April 1990.
45. Shaw, A. K.; Misra, P. and Manickam, T., "Design of 2-D Recursive Digital Filters in the Spatial Domain," *IEEE International Symposium on Circuits and Systems*, New Orleans, LA, pp. 2465-2468, May 1990.
46. Misra, P. and Shaw, A. K., "2-D State-space Filters with Reduced Number of Multipliers," *Asilomar Conference*, Pacific Grove, CA, September 1989.

47. Shaw, A. K. and Manickam, T., "A Parameter Adaptive Fast Simulated Annealing Algorithm," *IEEE International Conference on Systems Engineering*, Dayton, OH, pp. 213-216, August 1989.
48. Shaw, A. K. and Kumaresan, R., "Some Structured Matrix Approximation Problems'" *IEEE International Conference on Acoustics, Speech and Signal Pro*cessing, New York, NY, pp. 2324-2327, April 1988.
49. Shaw, A. K. and Kumaresan, R., "Estimation of Angles of Arrivals of Broad-band Sources," *IEEE International Conference on Acoustics, Speech and Signal Proce*ssing, Dallas, TX, pp. 2296-2299, April 1987.
50. Shaw, A. K. and Kumaresan, R., "Frequency-Wavenumber Estimation by Structured Matrix Approximation," *Third IEEE-ASSP Workshop on Spectrum Estimation and Mode*ling, Boston, MA, pp. 81-84, November 1986.
51. Kumaresan, R. and Shaw, A. K., "High Resolution Bearing Estimation Without Eigendecomposition," *IEEE International Conference on Acoustics, Speech and Signal Processing,* Tampa, FL, pp. 576-579, April 1985.

## GRANTS AND CONTRACTS

**Total External Funding = $ 817,165** **Total Funding = $ 845,537**

1. Principal Investigator , Shaw, A. K., Analysis and Characterization of Hyperspectral Images in Urban Combat, DARPA/AFRL via Alphatech Corporation. (Aug-04 to Feb-05, **$40,000**)
2. Co-Principal Investigator , Shaw, A. K, (with R. Moses, L. Potter, OSU and A. Terzouli AFIT), Performance Assessment for FOPEN Radar target Dection, Dayton Area Graduate Studies Institute (DAGSI). (July 1, 2001 to June 2004, **$50,849**)
3. Principal Investigator , Shaw, A. K., Controlling the Apparent Vocal Effort of Synthetic Speech, Air Force Research Lab, WPAFB via Veridian Corporation. (Jan-01 to Sep-03, **$114,264**)
4. Principal Investigator , Shaw, A. K., Order Statistics for FOPEN Target Detection, Air Force Research Lab, WPAFB via Sverdrup Corporation. (Oct-01 to Feb-03, **$25,000**)

5. Principal Investigator (Sub-contract), Shaw, A. K., Unified Design of 1-D Automatic Target Recognition Systems for Surveillance and Attack}, DARPA and WPAFB via Mission Research Corporation. (June 1998 to November 2000, **$130,233**)
   **Note:** A consortium of 4 Universities and 3 Corporations is conducting this 3-year project with $1.4mil/year award from DARPA.

6. Principal Investigator, Shaw, A. K., Algorithms for High-Range Resolution Automatic Target Recognition, AARC (via Sverdrup Corp.), Wright Patterson Air Force Base, Dayton, OH. Program Monitor : Dr. Rob Williams, (June 1996 to June 2001, **$143,466**)

7. Principal Investigator, Shaw, A. K., - Automatic Target Recognition using High-Range Resolution Data, jointly funded by AFOSR and Wright Laboratories, Program Monitors :

Dr. Jon Sjogren and Dr. Rob Williams (April 1997 to December 1997, **$31,486**)

8. Principal Investigator, Shaw, A. K., Pipelined and Systolic Architectures for Signal Processing, Ohio Research Challenge Award, Wright State University, (June, 1997 to May 1999, **$16,222**)

9. Principal Investigator - A. K. Shaw, Algorithms for Digital Microwave Receivers and Optimal System Identification, Air Force Office of Scientific Research (AFOSR); Program Monitor : Dr. Jon Sjogren (October 1992 to October 1996, **$142,884**)

10. Principal Investigator - A. K. Shaw, High Resolution DOA Estimation, Research Incentive Award, Graduate Research Council, Wright State University, (July 1994 to June 1995, $7,500)

11. Principal Investigator - A. K. Shaw, Digital Signal Processing Algorithm for Digital EW Receivers, AFOSR - Research and Development Laboratory, Research Initiation Program, Program Monitor: Dr. James B. Y. Tsui, Avionics Laboratories, Wright-Patterson AFB (January 1993 to December 1993, **$20,000**)

12. Co-Principal Investigator - W. Hankey, P. Misra and A. K. Shaw, Inverse Methods for Iterative Refinement of Turbulence Models, WRDC, Wright Patterson Air Force Base (1990-1992, **$120,000**).

13. Principal Investigator - A. K. Shaw, New Algorithms for Broadband and Narrowband Source Localization, Air Force Office of Scientific Research (AFOSR), Program Monitor: Maj. Brian Woodruff, and Dr. Jon Sjogren (April 1989 to August 1991, **$35,647**).

14. Principal Investigator - A. K. Shaw, Faster Simulated Annealing Algorithms}, Research Incentive Award, Graduate Research Council, Wright State University (June 1989 to May 1991, 3,000).

15. Equipment Grant from Motorola, DSP 5600 Board (1991, $3,500).

16. Travel Grant, Graduate Research Council, Wright State University (September 1992, $450).

17. Travel Grant, Graduate Research Council, Wright State University (December 1991, $1,200).

## TECHNICAL REPORTS

1. A. K. Shaw. - Order Statistics for FOPEN Detection, Sverdrup Corporation and Wright Laboratories, Monthly Reports, 2002-2003.

2. A. K. Shaw, - Controlling the Apparent Vocal Effort of Synthetic Speech, Veridian Corporation and Wright Laboratories, Monthly Reports. 2001-2003.

3. A. K. Shaw, - Algorithms for High-Range Resolution Automatic Target Recognition, Interim Technical Report, AARC (via Sverdrup Corp.), Wright Patterson Air Force Base, Dayton, OH.

4. A. K. Shaw, - Algorithms for Digital Microwave Receivers and Optimal System Identification, Air Force Office of Scientific Research (AFOSR); Final Technical Report, January 1997.
5. A. K. Shaw, Digital Signal Processing Algorithm for Digital EW Receivers, Final Report, AFOSR-RDL Research Initiation Program, December 1993.
6. A. K. Shaw, and Nunes, S., Detection and Adaptive Frequency Estimation for Digital Microwave Receivers, Final Report, AFOSR Summer Research Program, October 1992.
7. Shaw, A. K., New Algorithms for Broadband and Narrow-band Source Localization and Efficient Realization of 2D IIR Filters, Final Report, AFOSR-Bolling AFB, September 1991.
8. R. Kumaresan and A. K. Shaw, Description of Algorithms and Programs for Echo Cancellation, Final Report, Transcom Electronics, Newport, RI, 1987.

## THESIS SUPERVISED (and Committee memberships)

| | | |
|---|---|---|
| 1. | Arunesh Roy | Ph.D.-EE, "Hybrid Nonlinear Filtering for Robust Tracking of Targets". in progress (**Dissertation Director**) |
| 2. | Nathan Wilkins | Ph.D.-EE, "Angles-of-Arrival Estimation of Broadband Signals". in progress (**Dissertation Director**) |
| 3. | Thomas Lewis | Ph.D.-EE, "Efficient Geolocation of Moving Targets". in progress (**Dissertation Director**) |
| *4.* | Andrew Kondrath | MS-EE, "Hyperspectral Image Processing" In progress, (Committee Member) |
| 5. | Vasu Chakravarty | Ph.D.-EE, "Transform Domain Wireless Communication". in progress (**Dissertation Director**) |
| 6. | Sivaram Bandaru | MS.-EE, "Turbo-Coding and Space-time Wireless Communication". 2004 (**Thesis Director**) |
| 7. | Anindya Paul | MS-EE, "Improved Target Recognition and Target Detection Algorithms using HRR Profiles and SAR Images", September, 2003 (**Thesis Director**) |
| 8. | Koel Das | MS-EE, "Perceived Distance of Synthesized Speech and Automatic Speaker Recognition using F0 Manipulation", December 2002 (**Thesis Director**) |
| 9. | Radhika Prakash | MS-EE, "Feature-based HRR-ATR using HMM of Wavelet Coefficients", (**Thesis Director**) |
| 10. | Titash Rakshit | MS-EE, "Physics-Based Modeling of Dispersive Scatterers". June, 2000 (**Thesis Director**) |
| 11. | Rajesh Vashist | MS-EE, "Automatic Target Recognition using Wavelet Basis". March, 2000 (**Thesis Director)** |
| 12. | Vijay Bhatnagar | MS-EE, "Automatic Target Recognition using High Range Resolution Data" 1998 (**Thesis Director**) |

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| 13. | Imtiaz Mohamed | MS-EE, "Efficient Architectures for Signal Processing Algorithms," 1996 (**Thesis Director**) |
| 14. | Srikanth Pokala | MS-EE, "`Two-Dimensional Filter Design using Structured Matrix Approximation," 1995 (**Thesis Director)** |
| 15. | Wei Xia | MS-EE, "Angles-Of-Arrival and Radio Frequency Estimation in the Digital Electronic Warfare Receiver Design," 1994. (**Thesis Director**) |
| 16. | Shubhasish B. Kundu | MS-EE, "Linear and Nonlinear System Identification," 1992 (**Thesis Director**) |
| 17. | Richard A. Mitchell | MS-EE, "Speech and Speaker Recognition with a Time Delay Neural Network," 1990 (**Thesis Director**) |
| *18.* | Jian Ming | Ph.D.-EE, "Acoustical Source Localization in Microphone Array'', *Nanyang Technological University, Singapore, September 1998 (**External Examiner)*** |
| *19.* | Prithiviraj Tissainayagam | Master of Engineering Science, "Subspace Decomposition and Tracking using Artificial Neural Networks," *University of Melbourne, Parkville, Australia, December 1994, **(External Examiner)*** |
| *20.* | Erik Blasch | Ph.D.-EE, "Simultaneous HRR Target Tracking and Identification," April, 2002 (Committee Member) |
| *21.* | Arunesh Roy | MS-EE, "Synthesis of Controllers using the Polytope Algorithm," June 1999, (Committee Member) |
| *22.* | Aneesa Kunju | MS-EE, "An FPGA Implementation of a 2D Pipelined Median Filter," June 1999, (Committee Member) |
| *23.* | Masoud Pourali | MS-EE, "Quality Power for Sensitive Load," June 1999, (Committee Member) |
| 24. | Yusheng Sun | MS-EE, "Multirate Model Based Multipattern Data Association and Target Tracking Algorithm," June 1998, (Committee Member) |
| 25. | Rajamohana Hegde | MS-EE, "Design of Digital Filters using the Maximally Flat Criterion," July 1996 (Committee Member) |
| *26.* | Sanjiv M. Karani | MS-EE, "Geometric Invariance in Computer Vision Considering Multiresolution Approaches," 1995 (Committee Member) |
| 27. | Gwo-Jieh Wang | MS-EE, "Real-Time Adaptive Multiresolution Multiple-Model Target Tracking," 1994 (Committee Member) |
| 28. | Weichang Wang | MS-EE, "Multiplatform Multiresolution Distributed Filtering for Maneuvering Targets with Adaptive-Rate Data Communication," 1994 , (Committee Member) |
| 29. | Hong-Hui Xu | MS-EE, "Integrating MHT/SB with IMM for Advanced Target Tracking," December 1993 (Committee Member) |
| 30. | Matthew P. Dierking | MS-EE, "A Spinning Mirror System for Laser Receiver Absolute Response Evaluation," 1991 (Committee Member) |
| 31. | Ron Kamm | MS-EE, "High-Speed Spectral Estimation using an Optical Implementation of the Discrete Hartley Transform," 1991 (Committee Member) |

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| 32. | Thulasinath Manickam | MS-EE, “Principal Component Analysis of Multidimensional Systems: Theory and Applications,” 1990 (Committee Member) |
| 33. | Clay Breznik | MS-EE, “A Neural Network for Detecting Edges in a Gray Scale Image,” 1989 (Committee Member) |
| 34. | John Mossing | *MS-CS*, “Developing a Personal Computer Based Digital Signal Processing System,” 1991 (Committee Member) |
| 35. | Deepak Advani | *MS-CS*, “Design and Implementation of a Driver for Token Ring LAN under UNIX Environment,” 1990 (Committee Member) |

## SERVICE AND ACADEMIC OUTREACH

### UNIVERSITY, COLLEGE AND DEPARTMENT

| **University Committee** | **Position** | **Dates** |
|---|---|---|
| Academic Council | Member (elected) | 1995-1997 |
| Buildings and Grounds | Member | 1997-1998 |
| Regent's Undergraduate Fellow Selection | Member | 1995-2001 |
| Undergraduate Petition Council | Member | 1994-1995 |
| Food Services | Member | 1993 |
| Library | Member | 1989-90 |

| **College Committee** | **Position** | **Dates** |
|---|---|---|
| Faculty Development | Member (elected) | 2000-2002<br>2004-present |
| EE Chair Search | Member | 1998-2000 |
| Academic Mediation | Member | 1999-2003 |
| Due Process | Member | 1997-2003 |
| EE Chair Review | Member | 1995-1996 |
| Undergraduate Petitions | Member | 1993-1995 |
| Library | Member | 1989-90 |

| **Department Committees** | **Position** | **Dates** |
|---|---|---|
| Lab Development | Chair | 1996-2003 |
| | Member | 1993-1996 |
| Faculty Search | Member | 2000-present |
| Colloquium | Chair | 1990 |
| | Member | 1988-89<br>1996-2001 |
| Curriculum (subcommittees) | Member | 1987-present |

## INTERNATIONAL, NATIONAL AND LOCAL

| | | |
|---|---|---|
| **Associate Editor**<br>**Editorial Board member** | 1998-2004 | **IEEE Transactions on Signal Processing** |
| Program Committee | 2003 | ACM Workshop on Biometrics |
| Panelist, Phenomenology Based ATR | April, 2000 | SPIE-2000, Orlando, Florida |
| International Advisory Board and Reviewer | December, 1999 | 2nd International Conference on Information, Communications and Signal Processing |
| External Reviewer | Ph.D.-EE Dissertation<br>September 1998 | Nanyang Technological University, Singapore |
| Faculty Representative | 1997-present | IEEE Chapter, Wright State University. |
| President | 1995-96 | Local Chapter of IEEE Signal Processing Society, Dayton OH |
| Vice-President | 1994-95 | Local Chapter of IEEE Signal Processing Society, Dayton OH |
| Secretary | 1993-94 | Local Chapter of IEEE Signal Processing Society, Dayton OH |
| External Reviewer | Master of Engg Science<br>December 1994 | University of Melbourne, Parkville, Australia |
| Proposal Reviewer | 1991-1992 | National Science Foundation; reviewed 3 proposals |
| Paper Reviewer | | IEEE Transactions on Signal Processing; IEEE Transactions on Circuits and Systems, IEEE Transactions on Control Systems, IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Multimedia; and IEE Proceedings, IEEE Signal Processing Letters. Also for several IEEE International Conferences. |
| Tutorial Presentation | May 1991 | Classical & Modern Frequency Estimation, IEEE-NAECON-91, Dayton OH |
| Member,<br>Organizing Committee | 1989 | IEEE International Conference on Systems Engineering, Dayton OH |