

CURRICULUM VITA

Lang Hong, Ph.D.
Department of Electrical Engineering
Wright State University
Dayton, OH 45435

I. EDUCATION

<u>Institution</u>	<u>Concentration</u>	<u>Degree/Date</u>
University of Tennessee/Knoxville	Electrical & Computer Engineering	Ph.D., 1989
University of Tennessee/Knoxville	Electrical & Computer Engineering	M.S., 1986
Fuzhou University	Electrical Engineering	B.S., 1982

II. ACADEMIC EXPERIENCE

<u>Institution</u>	<u>Position</u>	<u>Dates</u>
Wright State University	Professor	1999 - present
Wright State University	Associate Professor	1995 - 1999
Wright State University	Assistant Professor	1989 - 1995
University of Tennessee/Knoxville	Lecturer	1986 - 1988
University of Tennessee/Knoxville	Research/Teaching Assistant	1984 - 1989
Fuzhou University	Lecturer	1982 - 1984

III. PROFESSIONAL MEMBERSHIP

<u>Association</u>	<u>Status</u>	<u>Dates</u>
IEEE	Senior Member	1994 - present
IEEE	Member	1989 - 1994
SPIE	Member	1996 - present

IEEE Society Membership:

IEEE Computer Society, IEEE Information Theory Society, IEEE Robot. & Auto. Society,
IEEE Control & System Society, IEEE Aero. and Elec. Sys. Society.

IV. HONORARY SOCIETY MEMBERSHIP

<u>Society</u>	<u>Status</u>	<u>Dates</u>
Phi Kappa Phi Society	Member	1985 - present

V. AWARDS

- (1) Outstanding Faculty Member Award, College of Engineering and Computer Science, 1995-1996.
- (2) Excellence in Research Award, College of Engineering and Computer Science, 1996-1997.
- (3) Nominee for Excellence in Research Award, Wright State University, 1996-1997.
- (4) Nominee for Excellence in Research Award, Wright State University, 1997-1998.
- (5) Nominee for Distinguished Professor for Research, Wright State University, 2005-2006.
- (6) Trustees' Award for Faculty Excellence, Wright State University, 2006.

VI. PROFESSIONAL ACTIVITIES

- Reviewed papers for IEEE Transactions on Automatic Control, IEEE Transactions on Signal Processing, IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Systems, Man, and Cybernetics, IEEE Transactions on Industrial Electronics, and papers for various international conferences.
- Associate Editor of DYNAMICS OF CONTINUOUS, DISCRETE AND IMPULSIVE SYSTEMS, Series B: Applications & Algorithms (DCDIS-B).
- Chaired two sessions at SPIE 2006.
- Chaired a session at IASTED SIP 2003.
- Chaired a session at IEEE ICCA'02.
- Chaired a session at ACC 2002.
- Associate Editor for ISCAS 2001.
- 2000 International Control Application Conference Technical Program Committee.
- Chaired one session of "Tracking and Estimation" at 1999 American Control Conference.
- 1999 American Control Conference Technical Program Committee.
- Organized a session of "Sensor Fusion" at *Second International Workshop on Intelligent Control*, Research Triangle Park, NC, Oct. 98.
- Chaired two sessions in 1997 International Conference on Decision and Control.
- Co-chaired a session of "Aerospace Systems Control" at American Control Conference, June, 1997.
- Chaired a session of "Signal Interpretation" at American Control Conference, June, 1997.
- Co-chaired a session of "Tracking and Estimation" at IEEE Int. Conf. on Decision and Control, Dec. 1994.
- Co-chaired a session of "Multisensor Integration" at American Control Conference, June 29-July 1, 1994.
- Gave an invited presentation on "Distributed Filtering" at University of Houston, Dec. 1993.
- Gave a tutorial on "Multisensor/data Fusion" at *1st IEEE Regional Conference on Aerospace Control Systems*, LA, CA, May, 1993.
- Co-chaired a session of "Target Tracking" at 1st IEEE International Conference on Control Applications, Sept. 13-16, 1992.
- Gave a tutorial on "Multitarget Tracking" at *1993 IEEE National Aerospace and Electronics Conference*, Dayton, OH, May, 1993.
- Gave a tutorial on "Multisensor Integration" at *1992 IEEE National Aerospace and Electronics Conference*, Dayton, OH, May, 1992.

- Chaired a session of “Parameter Estimation” at IEEE International Conference on Systems Engineering, Aug. 1-3, 1991.
- Gave an invited presentation on “Target Identification via Information Integration” to IEEE Signal Processing Society – Dayton Chapter, Dayton, OH, July 1991.
- Secretary of IEEE Control & System Society, Dayton Chapter, 1990 - 1991.

VII. PRINTED SCHOLARSHIP

JOURNAL PAPERS:

Submitted Journal Papers:

1. Zhiqiang Wu, P. Ratazzi, V. Chakravarthy and L. Hong, “**Performance Evaluation of Adaptive Non-contiguous MC-CDMA and Non-contiguous CI/MC-CDMA for Dynamic Spectrum Access**”, submitted to *IEEE Journal of Selected Areas in Signal Processing*.
2. Zhiqiang Wu, P. Ratazzi, V. Chakravarthy and L. Hong, “**High Performance High Security OFDM Transmission via Polyphase Spreading and LFSR Cipher**”, submitted to *IEEE Transactionson Vehicular Technology*.
3. Yanhua Ruan, Lang Hong and Devert Wicker “**Performance Study of a Feature-Aided Global Nearest Neighbor Algorithm in Applications with Typical Tracking Geometries,**” accepted for publication in *IEE Proceedings: Control Theory and Applications*.

Accepted and Published Journal Papers:

1. Peter Hlinomaz and Lang Hong, “A Multi-rate Multiple Model Track-Before-Detect Particle Filter,” accepted for publication in *Mathematical and Computer Modeling*.
2. Joseph Anderson and Lang Hong, “**Comprehensive Sensor Resource Management Driven by Priorities and Threat Projection,**” *Information Sciences*, Vol. 178, pp. 2007-2021, 2008.
3. Lang Hong, Yanhua Ruan, Winston Li, Devert Wicker and Jeffery Layne, “**Energy-Based Video Tracking Using Joint Target Density Processing with an Application to UAV Surveillance,**” accepted for publication in *IET Computer Vision*.
4. Yanhua Ruan and Lang Hong, “**Feature Extraction by Gaussian Mixture with Rigidity Constraint for Feature-Aided Target Tracking,**” *IEEE Transactions on Automatic Control*, Vol. 52, No. 10, pp.1899-1907, 2007.
5. Shan Cong, Lang Hong, and Jeffery R. Layne, “**Iterative Robust Filtering for Ground Target Tracking,**” *IET Control Theory and Applications*, Vol. 1, No. 1, pp. 372-380, 2007.
6. Lang Hong and Devert Wicker, “**A Spatial-Domain Multiresolutional Particle Filter with Thresholded Wavelets,**” *Signal Processing*, Vol. 87, pp. 1384-1401, 2007.
7. Yanhua Ruan, Lang Hong and Devert Wicker “**Analytic Performance Prediction of Feature-Aided Global Nearest Neighbor Algorithm in Dense Target Scenarios,**” *IET Radar, Sonar and Navigation*, Vol. 1, No. 5, pp. 369-376, 2007.
8. Shunguang Wu and Lang Hong, “**Modelling 3D Rigid-Body Object Motion and Structure Estimation with HRR/GMTI Measurements,**” *IET Control Theory & Applications*, Vol. 1, No. 4, pp. 1023-1032, July 2007.
9. Shen Shi, Lang Hong and Shan Cong, “**Reliable Road Vehicle Collision Prediction with Constrained Filtering,**” *Signal Processing*, Vol. 86, No. 11, pp. 3339-3356, 2006.
10. Yanhua Ruan and Lang Hong, “**Use of the Interacting Multiple Model Algorithm with Multiple Sensors,**” *Mathematical and Computer Modeling*, Vol. 44, pp. 332-341, 2006.
11. Lang Hong, Ningzhou Cui, Michael Bakich and Jeffery R. Layne, “**Multirate Interacting Multiple Model Particle Filter with Application to Terrain-Based Ground Target Tracking,**” *IEE Proceedings: Control Theory and Applications*, Vol. 153, No. 6, pp. 721-731, 2006.
12. Yanhua Ruan and Lang Hong, “**Feature-Aided Tracking with GMTI and HRR Measurements via Mixture Density Estimation,**” *IEE Proceedings: Control Theory and Applications*, Vol. 153, No. 3, pp. 342-356, May 2006.
13. Shunguang Wu and Lang Hong, “**Hand Tracking in a Natural Conversational Environment via Interacting Multiple Model and Probabilistic Data Association (IMM-PDA) Algorithm,**” *Pattern Recognition*, Vol. 38, pp. 2143-2158, Nov. 2005.

14. Ningzhou Cui, Lang Hong and Jeffery R. Layne, “**A Comparison of Nonlinear Filtering Approaches with Application to Ground Target Tracking**,” *Signal Processing*, Vol. 85, No. 8, pp. 1469-1492, Aug. 2005.
15. Lang Hong, Ningzhou Cui, Mark Pronobis and Stephen Scott, “**Local Motion Feature Aided Ground Moving Target Tracking with GMTI and HRR Measurements**,” *IEEE Transactions on Automatic Control*, Vol. 50, No. 1, pp. 127-133, 2005.
16. Shunguang Wu, Lang Hong and Jeffery R. Layne, “**2D Rigid Body Target Modeling for Tracking and Identification with GMTI/HRR Measurements**,” *IEE Proceedings: Control Theory and Applications*, Vol. 151, No. 4, pp. 429-438, 2004.
17. Lang Hong, Shunguang Wu and Jeffery R. Layne, “**Invariant-Based Probabilistic Target Tracking and Identification With GMTI/HRR Measurements**,” *IEE Proceedings: Part F, Radar, Sonar and Navigation*, Vol. 151, No. 5, pp. 280-290, 2004.
18. Lang Hong, Shan Cong and Devert Wicker, “**Distributed Multirate Interacting Multiple Model Fusion (DMRIMMF) with Application to Out-of-Sequence GMTI Data**,” *IEEE Trans on Automatic Control*, vol. 49, no. 1, pp. 102-107, 2004.
19. Shan Cong, Lang Hong and Devert Wicker, “**A Markov Chain Monte Carlo Approach for Association Probability Evaluation**,” *IEE Proceedings: Control Theory and Applications*, Vol. 151, No. 2, pp. 185-193, 2004.
20. Lang Hong, Ningzhou Cui, Mark T. Pronobis and Stephen Scott, “**Simultaneous Ground Moving Target Tracking and Identification Using Wavelets Features From HRR Data**,” *Information Sciences*, Vol. 162, No. 3-4, pp. 249-274, 2004.
21. Lang Hong, Shan Cong and Devert Wicker, “**Multirate Interacting Multiple Model (MRIMM) Filtering with Out-of-Sequence GMTI Data**,” *IEE Proceedings: Part F, Radar, Sonar and Navigation*, Vol. 150, No. 5, pp. 333-343, 2003.
22. Lang Hong, Shan Cong, Mark T. Pronobis and Stephen Scott “**Wavelets Feature Aided Tracking (WFAT) Using GMTI/HRR Data**,” *Signal Processing*, Vol. 86, No. 12, pp. 2683-2690, 2003.
23. Lang Hong, “**Distributed Interacting Multipattern Data Association for Multiplatform Target Tracking**,” *Signal Processing*, Vol. 82, pp. 1007-1021, 2002.
24. Baoyun Gu and Lang Hong, “**Tracking 2-D Rigid Targets with Invariant Constraints**” *Information Sciences*, Vol. 138, pp. 79-97, 2001.
25. Lang Hong and Ningzhou Cui, “**An Interacting Multipattern Probabilistic Data Association Algorithm for Target Tracking**,” *IEEE Transactions on Automatic Control*, Vol. 46, No. 8, pp. 1223-1236, Aug. 2001.
26. Shan Cong and Lang Hong, “**Interval Models for Target Tracking Algorithms**,” *Mathematical and Computer Modeling*, Vol. 34, pp. 593-602, 2001.
27. Lang Hong and Zhen Ding, “**A Distributed Multirate IMM Algorithm for Multiplatform Tracking**,” *Mathematical and Computer Modeling*, Vol. 32, pp. 1095-1116, 2000.

28. Lang Hong and Shan Cong, “**Bias Phenomenon and Compensation in Multiple Target Tracking Algorithms,**” *Mathematical and Computer Modeling*, Vol. 31, pp. 147-165, 2000.
29. Lang Hong and Ningzhou Cui, “**An Interacting Multipattern Joint Probabilistic Data Association (IMP-JPDA) Algorithm for Multitarget Tracking,**” *Signal Processing*, Vol. 80, No. 8, pp. 1561-1575, Aug. 2000.
30. Dragana Brzakovic and Lang Hong, “**Detection of Low Contrast Road Edges for Autonomous Land Vehicle Navigation,**” *Progress in Robotics and Intelligent Systems*, Eds. G. Zobrist and C.Y. Ho, pp. 1-25, Gordon and Breach Science Publishers, 2000.
31. Lang Hong, “**Sensor Your World Better: Multisensor/Information Fusion,**” *IEEE CSS Newsletter*, Vol. 10, No. 3, pp. 7-8, 12-15, 28, Sept. 1999.
32. Zhen Ding, Henry Leung and Lang Hong, “**A Decouple Joint Probabilistic Data Association Algorithm for Multiple Target Tracking,**” *IEE Proceedings: Part F*, Vol. 146, No. 5, pp. 1-4, October 1999.
33. Shan Cong and Lang Hong, “**Computational Complexity Analysis for Multiple Hypothesis Tracking**”, *Mathematical and Computer Modeling*, Vol. 29, pp. 1-16, 1999.
34. Zhen Ding, Hongcai Zhang, Guanzhong Dai and Lang Hong, “**An Adaptive Multisensor Tracking Algorithm for Air-Borne Distributed Passive Sensor Networks,**” accepted for publication in *Journal of Automatic Control*.
35. Shan Cong and Lang Hong, “**Spatial Domain Multiresolutional Measurement and Model Decomposition for Target Tracking**”, accepted for publication in *IEEE Trans. on Circuits and Systems: II*.
36. Lang Hong, “**Multirate Interacting Multiple Model Filtering for Target Tracking Using Multirate Models,**” *IEEE Transactions on Automatic Control*, Vol. 44, No. 7, pp. 1326-1340, 1999.
37. Lang Hong, “**Discrete Constant-Velocity-Equivalent Multi-Rate Models for Kalman Filtering**”, *Mathematical and Computer Modeling*, Vol. 28, No. 11, pp. 7-18, 1998.
38. Lang Hong, Ningzhou Cui, Shan Cong and Devert Wicker, “**An Interacting Multipattern Data Association (IMPDA) Tracking Algorithm,**” *Signal Processing*, Vol. 71, pp. 55-77, Nov. 1998.
39. Zhen Ding and Lang Hong, “**Bias Phenomenon Study and Compensation for PDA/JPDA Algorithms,**” *Mathematical and Computer Modeling*, Vol. 27, No. 12, pp. 1-16, 1998.
40. Zhen Ding and Lang Hong, “**Distributed IMM Fusion Algorithms for Multiplatform Target Tracking,**” *Signal Processing*, Vol. 64, pp. 167-176, 1998.
41. Lang Hong, Guanrong Chen and Charles K. Chui, “**Real-Time Simultaneous Estimation and Decomposition of Random Signals,**” *Multidimensional Systems and Signal Processing*, Vol. 9, pp. 273-289, 1998.
42. Lang Hong, Guanrong Chen and Charles K. Chui, “**A Filter-Bank Based Kalman Filtering Technique for Wavelet Estimation and Decomposition of Random Signals,**” *IEEE Trans. on Circuits and Systems II*, Vol. 45, No. 2, pp. 237-241, 1998.

43. Zhen Ding and Lang Hong, “**A Decoupling Probabilistic Data Association Algorithm for Multiplatform Multisensor Tracking,**” *Optical Engineering Journal*, Special Issue on Sensor Fusion, Vol. 37, No. 2, pp. 441-452, Feb. 1998.
44. Lang Hong, Zhen Ding and Richard A. Wood, “**Development of Multirate Model and Multirate Imm Algorithm for Multiplatform Multisensor Tracking,**” *Optical Engineering Journal*, Special Issue on Sensor Fusion, Vol. 37, No. 2, pp. 453-467, Feb. 1998.
45. Gang Chen, Guanrong Chen and Lang Hong, “**A perceptual Grouping and Fuzzy Logic Approach for Object Recognition from Ambiguous Images,**” *Latin American Applied Research*, Vol. 27, No. 4, pp. 207-218, 1997.
46. Genshe Chen and Lang Hong, “**A Genetic Algorithm Based Multidimensional Data Association Algorithm for Multisensor-Multitarget Tracking,**” *Mathematical and Computer Modeling*, Vol. 26, No. 4, pp. 57-69, 1997.
47. Lang Hong, Chunde Wang and Zhen Ding, “**Multiresolutional Decomposition and Modeling with an Application to Joint Probabilistic Data Association,**” *Mathematical and Computer Modeling*, Vol. 25, No. 12, pp. 19-32, 1997.
48. Zhen Ding and Lang Hong, “**An Interacting Multiple Model Algorithm With A Switching Markov Chain,**” *Mathematical and Computer Modeling*, Vol. 25, No. 1, pp. 1-9, 1997.
49. Lang Hong, Jing Cao and Guanrong Chen, “**A Multiresolutional Approach to 3D Object Recognition,**” *Int. Journal: Circuits, Systems and Signal Processing*, Vol. 16, No. 2, pp. 217-239, 1997.
50. Zhen Ding and Lang Hong, “**Static/Dynamic Distributed IMM Fusion Algorithms for Multi-platform Multi-sensor Tracking,**” *Optical Engineering Journal* (A Special Issue on sensor Fusion), Vol. 36, No. 3, pp. 708-715, 1997.
51. Lang Hong, Wei-Chang Wang, Michael Logan, and Thomas Donohue, “**Multiplatform Multisensor Fusion With Adaptive-Rate Data Communication,**” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 33, No. 1, pp. 274-281, 1997.
52. Lang Hong and Gwo-Jieh Wang, “**Centralized Integration of Multisensor Noisy and Fuzzy Data,**” *IEE Proceedings: Control Theory and Applications*, Vol. 142, pp. 459-465, 1995.
53. Lang Hong, “**Approximating Multirate Estimation,**” *IEE Proceedings: Vision, Image and Signal Processing*, Vol. 142, No. 4, pp. 232-236, 1995.
54. Lang Hong and Wei-Chang Wang, “**Multiresolutional Filtering for Measurements With Arbitrary Resolutions,**” *International Journal: Control-Theory and Advanced Technology*, pp. 1015-1027, Vol. 10, No. 4, 1995.
55. Lang Hong, “**Distributed Discrete Filtering for Stochastic Systems With Noisy and Fuzzy Measurements**”, *Control and Dynamic Systems*, Vol. 73, pp. 237-256, Ed. C. T. Leondes, Academic Press, 1995.

56. Lang Hong and Dragana Brzakovic, “**3-D Scene Reconstruction From Noisy Binocular Image Sequences Using Data Fusion**,” *IFAC Int. J. of Control Engineering Practice*, (A Special Issue on Multisensor Fusion), Vol. 2 No. 5, pp. 825–831, 1994.
57. Lang Hong, “**Multiresolutional Distributed Filtering**,” *IEEE Transactions on Automatic Control*, Vol. 39, No. 4, pp. 853–856, 1994.
58. Lang Hong, “**Multiresolutional Multiple-Model Target Tracking**,” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 30, No. 2, pp. 518–524, April, 1994.
59. Lang Hong and Todd Scaggs, “**Real-Time Optimal Filtering for Stochastic Systems With Multiresolutional Measurements**,” *Systems & Control Letters*, Vol. 20, pp. 381 – 387, 1993.
60. Lang Hong, “**Distributed Filtering Using Set Models for Systems with Non-Gaussian Noise**,” *Approximate Kalman Filtering*, Ed. G.R. Chen, World Scientific Publishing Company, pp. 161 – 176, 1993.
61. Lang Hong, “**Multiresolutional Filtering Using Wavelet Transform**,” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 29, No. 4, pp. 1244 – 1251, Oct., 1993.
62. Lang Hong and Andrew Lynch, “**Recursive Temporal-Spatial Information Fusion With Applications to Target Identification**,” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 29, No. 2, pp. 435 – 445, April, 1993.
63. Lang Hong, “**Distributed Filtering Using Set Models**,” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 28, No. 4, pp. 1144 – 1153, Oct., 1992.
64. Lang Hong, “**An Optimal Reduced-Order Stochastic Observer-Estimator**,” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 28, No. 2, pp. 453 – 461, April, 1992.
65. Lang Hong, “**Optimal Reduced-Order Filtering**,” *International Journal: Control–Theory and Advanced Technology*, Vol. 8, No. 1, pp. 207 – 220, 1992.
66. Lang Hong, “**Centralized and Distributed Multi-Sensor Integration With Uncertainties in Communication Networks**,” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 27, No. 2, pp. 370 – 379, March, 1991.
67. Lang Hong, “**Adaptive Distributed Filtering in Multi-Coordinated Systems**,” *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 27, No. 4, pp. 715 – 724, July, 1991.
68. Dragana Brzakovic, Antoni Liakopoulos, and Lang Hong, “**Spline Models for Boundary Detection/Description: Formulation and Performance Evaluation**,” *International Journal of Computer Vision, Graphics, and Image Processing*, Vol. 53, No. 4, pp. 392-401, July, 1991.
69. Lang Hong and James C. Hung, “**A Modified L–K Transformation for Model Reduction**,” *International Journal: Control–Theory and Advanced Technology*, Vol. 4, No. 4, pp. 411-428, 1988.

CONFERENCE PAPERS:

Accepted and Published Conference Papers:

1. Shan Cong, Lang Hong, Erik Blasch, “**Performance Model for Joint Tracking and ATR with HRR Radar,**” SPIE, Orlando, FL, March, 2007.
2. Lang Hong and Kefu Xue, “**A Spatial Domain Multiresolutional Particle Filter,**” 15th Mediterranean Conference on Control and Automation, Athens, Greece, June, 2007.
3. Salvatore Fazio and Lang Hong, “**A New Methodology for Target Recognition and Reconstruction of Moving Rigid-Body Targets,**” SPIE, Orlando, FL, April, 2006.
4. Lang Hong, Michael Bakich and Jeffery R. Layne, “**Efficient Multirate Interacting Multiple Model Particle Filter (MRIMM-PF) for Target Tracking**”, SPIE, *Intelligent Computing: Theory and Applications IV*, Vol. 6229, pp. 62290S-1 - 62290S-12, Orlando, FL, April, 2006.
5. Sam Fazio and Lang Hong, “**Using High Range Resolution (HRR) Radar Data for Reconstructing Rigid Moving Target’s Scattering Centers,**” SPIE, Orlando, FL, April, 2004.
6. Lang Hong and Kefu Xue, “**Rigid Body Target Modeling for Tracking and Identification**” IEEE International Symposium on Information Theory (ISIT), pp. 550, June, 2004.
7. Yanhua Ruan and Lang Hong, “**Do More Data Mean Better Performance? A Multi-sensor IMM Tracking Study,**” SPIE Great Lake Symposium, June, 2004.
8. Lang Hong and Kefu Xue, “**Invariant Filtering of Kinematics and Range Signals for Object Tracking and Identification,**” *Proc. of IASTED Signal and Image Processing Conference*, pp. 417-422, Hawaii, 2003.
9. Shunguang Wu and Lang Hong, “**Modelling Hand Motions in a Long Natural Conversational Environment Video Sequence,**” *Proc. of 2003 International Conference on Imaging Science, Systems, and Technology*, pp. 607-613, Las Vegas, NV, June, 2003.
10. Salvatore Fazio and Lang Hong, “**Using High Resolution Radar (HRR) for Imaging Rigid Moving Targets,**” *SPIE Automatic Target Recognition XIII*, Orlando, April 2003.
11. Shunguang Wu, Lang Hong and Francis Quek, “**Image Based Hand Tracking via Interacting Multiple Model and Probabilistic Data Association (IMM-PDA) Algorithm,**” *Proc of 2003 IEEE Int. Conf. Computer Vision and Pattern Recognition -HCI*, Madison, WI, June, 2003.
12. Lang Hong and Shan Cong, “**Multirate Filtering/Smoothing for Out-of-Sequence Data**”, *Proc. of SPIE Signal Processing, Sensor Fusion and Target Recognition* Vol. 4729, pp. 199-210,, Orlando, FL, April, 2002.

13. Salvatore Fazio and Lang Hong, “**Imaging Rigid Moving Targets Using Synthetic Aperture Radar (SAR) Data**”, *Proc. of SPIE Algorithms for Synthetic Aperture Radar Imagery IX*, Vol. 4727, pp. 246-255, Orlando, FL, April, 2002.
14. Lang Hong, Shan Cong and Devert Wicker, “**Distributed Multirate Interacting Multiple Model (MRIMM) Filtering with Out-of-Sequence GMTI Data**”, *Proc. of 2002 International Conference on Information Fusion*, pp. 1054-1061, Washington DC, July, 2002.
15. Lang Hong, “**Multitarget Tracking With HRR Wavelets Features**,” *Proc. of American Control Conference*, pp. 4549-4554, Anchorage, Alaska, May, 2002.
16. Lang Hong, “**Distributed Multirate Interacting Multiple Model Approach for Out-of-Sequence Data**,” *Proc. of IEEE Int. Conference on Control and Automation*, Xiamen, China, pp. 1451-1455, June 2002.
17. Lang Hong, “**Distributed Interacting Multipattern Data Association Tracking Algorithm**,” *Proc. of IEEE International Conference on Decision and Control*, pp. 3904-3909, Orlando, FL, Dec. 2001.
18. Zhen Ding, Henry Leung and Lang Hong, “*Evaluation of Six trackers in a Real Radar Tracking Environment*,” *SPIE Proc. of Signal Processing, Sensor Fusion, and Target Recognition IX*, pp. 26-35, Orlando, FL, April 2000.
19. E. Blasch and L. Hong, “**Data Association Through Fusion of Target Track and Identification Sets**,” *Proc. of Fusion 2000*, Paris, France, TuD2-17 – TuD2-23, July 10-13, 2000.
20. E. Blasch, J. Westerkamp, L. Hong, J. Layne, F. Garber, A. Shaw, “**Identifying moving HRR signatures with an ATR belief data association filter**” , *Proceedings of the SPIE*, Vol. 4053 , pp. 479-488, Orlando, FL, April 2000.
21. E. Blasch and L. Hong, “**Group Tracking using Data Association in High Cluttered Environments**,” *Proc. of National Sensor and Data Fusion Conference*, San Antonio, TX, 20-22 June 2000.
22. Kefu Xue, Jack Jean and Lang Hong, “**New Media on the Internet – Instrumentation and Measurement over IP**, *Proc. of The First IEEE Pacific-Rim Conference on Multimedia*, pp. 432-435, Sydney, Australia, Dec. 2000.
23. Lang Hong and Ningzhou Cui, “**Interacting Multipattern Joint Probabilistic Data Association (IMP-JPDA) Algorithm**,” *Proc. of 2000 American Control Conference*, pp. 4358-4362, Chicago, IL, June 2000.
24. Lang Hong and Ningzhou Cui, “**Multiple Target Tracking by an Interacting Multipattern Probabilistic Data Association Algorithm**,” *Proc. of 1999 American Control Conference*, pp. 4228-4232, San Diego, CA, June 1999.
25. Erik Blasch and Lang Hong, “**Sensor Fusion Cognition Using Belief Filtering for Tracking and Identification**”, *Proc. of SPIE Aerosense*, Vol. 3719, pp. 250-259, Orlando FL, April 1999.
26. Erik Blasch and Lang Hong, “**Set Theory Correlation Free Algorithm for HRRR Target Tracking**”, *Proc. of National Symposium for Sensor and Data Fusion*, May 1999.

27. Lang Hong, Ningzhou Cui, Shan Cong and Devert Wicker, “**Interacting Multipattern Data Association (IMPDA) for Dim Target Tracking**,” *Proc. of 1998 IEEE Int. Conf. on Decision and Control*, pp. 748-753, Tampa, FL, Dec. 1998 (R).
28. Shan Cong, Lang Hong and Genshe Chen, “**Multiple Model Missile Guidance**,” *Proc. of 1998 IEEE Int. Conf. on Decision and Control*, pp. 4714-4719, Tampa, FL, Dec. 1998 (R).
29. Erik Blasch and Lang Hong, “**Simultaneous Feature-Based Identification and Fusion**,” *Proc. of 1998 IEEE Int. Conf. on Decision and Control*, pp. 239-244, Tampa, FL, Dec. 1998 (R).
30. Shan Cong and Lang Hong, “**Robust Filtering Techniques for Missile Seekers**,” *Proc. of SPIE Signal and Data Processing of Small Targets*, Vol. 3373, Orlando, FL, April, 1998.
31. Erik Blasch and Lang Hong, “**Biological Sensor Fusion for HCI Security Identification**,” *proc. 4th Joint Conference in Information Sciences*, Vol. 1, pp. 369-372, Raleigh, NC, 1998.
32. Lang Hong and Zhen Ding, “**Multiple Target Tracking Using a Multirate IMMJPDA Algorithm**,” *Proc. of 1998 American Control Conference*, pp. 2427–2431, Philadelphia, PA, June 1998.
33. Shan Cong and Lang Hong, “**On the robust filtering and guidance of an intercept system**,” *Proc. of 1998 American Control Conference*, pp. 1725–1726, Philadelphia, PA, June 1998.
34. Lang Hong, “**Simultaneous Random Signal Estimation and Decomposition**,” *Proc. of 1997 IEEE Int. Conf. on Decision and Control*, pp. 3387-3392, San Diego, CA, Dec. 1997.
35. Shan Cong and Lang Hong, “**Computational Complexity Analysis for Multiple Hypothesis Tracking**,” *Proc. of 1997 IEEE Int. Conf. on Decision and Control*, pp. 4991-4996, San Diego, CA, Dec. 1997.
36. Shan Cong and Lang Hong, “**Interval Models for Target Tracking Algorithms**,” *Proc. of 1997 American Control Conference*, pp. 440-442, Albuquerque, NM, June 1997.
37. Zhen Ding and Lang Hong, “**A Distributed Multirate IMM Algorithm for Multiplatform Tracking**,” *Proc. of 1997 American Control Conference*, pp. 1458-1462, Albuquerque, NM, June 1997.
38. Shan Cong and Lang Hong, “**Spatial Domain Multiresolutional Measurement Decomposition and Target Tracking**,” *Proc. of SPIE Signal and Data Processing of Small Targets*, Vol. 3163, pp. 11-21, San Diego, July 1997.
39. Zhen Ding and Lang Hong “**Development of a Distributed IMM for Multi-platform Multi-sensor Tracking**,” *Proc. of 1996 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems*, pp. 455 – 459, Washington D.C., Dec. 1996.
40. Shan Cong, Lang Hong, Michael Logan, and Thomas Donohue, “**Bias Phenomena Study/ Compensation for Tracking Algorithms**”, *Proc. of SPIE Signal and Data Processing of Small Targets*, Vol. 2759, pp. 218-229, Orlando, April, 1996.

41. Shan Cong and Lang Hong, “**On the Number of Scans Needed for Extracting Target Information,**” *Proc. of 1996 IFAC World Congress*, Vol. 3a-09, pp. 255-260, San Francisco, CA, 1996.
42. Shan Cong and Lang Hong, “**Multiresolutional Target Tracking (MRTT) With Adaptive Spatial Resolution Levels,**” *Proc. of 1995 IEEE International Conference on Decision and Control*, pp. 2099-2102, New Orleans, Louisiana, Dec. 1995.
43. Lang Hong, Gwo-Jieh Wang, Michael Logan, and Thomas Donohue, “**Adaptive Multires Multiple Model Target Tracking,**” *Proc. of SPIE Signal and Data Processing of Small Targets 1995*, Vol. 2561, pp. 275 – 286, San Diego, CA, July 1995.
44. Lang Hong, “**Real-Time Adaptive Multi-Res Multisensor Fusion,**” *Proc. of 1995 American Control Conference*, pp. 1688 – 1692, Seattle, WA, June 1995.
45. Lang Hong, “**Adaptive Multiplatform Multisensor Fusion,**” *Proc. of 1995 International Conference on Control and Information*, pp. 345 – 348, Hong Kong, June 1995.
46. Lang Hong, “**Approximating Multirate Estimation Using a Filter Bank,**” *Proc. of 1994 IEEE International Conference on Decision and Control*, pp. 1232–1233, Orlando, FL, Dec. 1994.
47. Lang Hong and Gwo-Jieh Wang, “**Integrating Multisensor Noisy and Fuzzy Data,**” *Proc. of 1994 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems*, pp. 199–206, Las Vegas, Nevada, Oct. 1994.
48. Lang Hong, “**Two-level JPDA–NN and NN–JPDA Tracking Algorithms,**” *Proc. of 1994 American Control Conference*, pp. 1057 – 1061, Baltimore, MD, June, 1994.
49. Lang Hong, “**Fusing Multiresolutional Data Using Filter Banks,**” *Proc. of 1994 American Control Conference*, pp. 1309 – 1313, Baltimore, MD, June, 1994.
50. Lang Hong, “**Multirate Estimation,**” *Proc. of 1994 IEEE National Aerospace and Electronics Conference*, pp. 435 – 439, Dayton, OH, May, 1994.
51. Lang Hong, “**A Framework of Multiresolutional Tracking,**” *Proc. of SPIE Signal and Data Processing of Small Target 1994*, Vol. 2235, pp. 601-612, Orlando, FL, April 1994.
52. Lang Hong, “**Distributed Multiresolutional Filtering/Smoothing,**” in *12th World Congress of the International Federation of Automatic Control*, Sydney, Australia, July, 1993.
53. Lang Hong, “**Multiresolutional Target Tracking Using Wavelet Transform,**” *Proc. of 1993 IEEE International Conference on Decision and Control*, pp. 924 – 929, San Antonio, TX, Dec. 1993.
54. Lang Hong and Todd Scaggs, “**Real-Time Multiresolutional Sensor/Data Fusion,**” *Proc. of 1993 IEEE International Conference on Robotics and Automation.*, pp. 117 – 122, Atlanta, GA, May, 1993.
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57. Lang Hong, “**Optimal Multiresolutional Distributed Filtering**,” *Proc. of 1992 IEEE International Conference on Decision and Control*, pp. 3105 –3110, Tucson, AZ, Dec. 1992.
58. Lang Hong, “**Recursive Temporal-Spatial Information Fusion**,” *Proc. of 1992 IEEE International Conference on Decision and Control*, pp. 3510 –3511, Tucson, AZ, Dec. 1992.
59. Lang Hong, “**Recursive Algorithms for Information Fusion Using Belief Functions with Applications to Target Identification**,” *Proc. of IEEE 1st International Conference on Control Applications*, pp. 1052 – 1057, Dayton, OH, September, 1992.
60. Lang Hong, “**An Attractive Approach to Multiscale Estimation**,” *Proc. of 1992 IEEE National Aerospace and Electronics Conference*, pp. 381 – 387, Dayton, OH, May, 1992.
61. Lang Hong, “**Distributed Filtering Using Set Models With Confidence Values**,” *Proc. of 1992 American Control Conference*, pp. 2129 – 2133, Chicago, IL, June, 1992.
62. Lang Hong, “**A Minimum-Variance Observer-Estimator**,” *Proc. of 1992 American Control Conference*, pp. 3372 – 3373, Chicago, IL, June, 1992.
63. Lang Hong, “**Distributed Filtering Without Knowledge of Noise Distribution**,” *Proc. of 1992 IEEE International Conference on Acoustics, Speech, and Signal Processing*, IV-469 – IV-472, San Francisco, CA, March, 1992.
64. Lang Hong, “**Adaptive Multi-Sensor Integration in Uncertain Environment with Imperfect Sensors**,” *Proc. of 1991 IEEE International Conference on Decision and Control*, pp. 142 –143, Brighton, UK, Dec., 1991.
65. Lang Hong, “**Adaptive Data Fusion**,” *Proc. of 1991 IEEE International Conference on Systems, Man, and Cybernetics*, pp. 767 – 772, Charlottesville, VA, Oct., 1991.
66. Lang Hong, “**Optimal Reduced-Order Observer-Estimators**,” *Proc. of 1991 IEEE International Conference on Systems Engineering*, pp. 420 – 423, Dayton, OH, August, 1991.
67. Lang Hong, “**Optimal Reduced-Order Filtering**,” *Proc. of 1991 IEEE National Aerospace and Electronics Conference*, pp. 415 –421, Dayton, OH, May, 1991.
68. Lang Hong, “**Multi-Sensor Integration with Uncertainties in Communication**,” *Proc. of 29th IEEE International Conference on Decision and Control*, pp. 868 – 869, Honolulu, HI, Dec., 1990.
69. Lang Hong, “**3-D Scene Reconstruction Using Optimal Information Fusion**, *Proc. of SPIE Conference on Intelligent Robots and Computer Vision IX*, pp. 333-344, Boston, MA, Nov., 1990.
70. Lang Hong and Dragana Brzakovic, “**An Approach to 3-D Scene Reconstruction from Noisy Binocular Image Sequences**,” *Proc. of 3rd International Conference on Computer Vision*, pp. 658 – 662, Osaka, Japan, Dec., 1990.

71. Lang Hong and Dragana Brzakovic, “**Application of GLR-Based Adaptive Kalman Filtering in Noise Removal,**” *Proc. of IEEE International Conference on Systems Engineering*, pp. 236 – 239, Pittsburgh, PA, Aug., 1990.
72. Lang Hong, “**Dynamic and Static Distributed Algorithm for Optimal Multi-Sensor Integration,**” *Proc. of IEEE International Conference on Systems Engineering*, pp. 331 – 334, Pittsburgh, PA, Aug., 1990.
73. Lang Hong and Dragana Brzakovic, “**Distributed Algorithms for Optimal Multi-Sensor/ Information Fusion Applied to 3-D Scene Reconstruction,**” *Proc. of IEEE International Conference on Robotics and Automation*, pp. 2024 – 2031, Cincinnati, OH, May, 1990.
74. Lang Hong, “**Centralized and Distributed Kalman Filtering in Multi-coordinate Systems with Uncertainties,**” *Proc. of IEEE National Aerospace and Electronics Conference*, pp. 389 – 394, Dayton, OH, May, 1990.
75. Lang Hong and Dragana Brzakovic, “**Bayesian Restoration of Image Sequences Using 3-D Markov Random Fields,**” *Proc. of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 1413 – 1416, Glasgow, Scotland, May, 1989.
76. Dragana Brzakovic and Lang Hong, “**Road Edge Detection for Mobile Robot Navigation,**” *Proc. of IEEE International Conference on Robotics and Automation*, pp. 1143 – 1147, Scottsdale, AZ, May, 1989.
77. Lang Hong, Dragana Brzakovic, and Antoni Liakopoulos, “**Boundary Detection in Digital Images Based on Spline Functions and Estimation Theory,**” *Proc. of IEEE 26th International Conference on Decision and Control*, pp. 1048 – 1049, Los Angeles, CA, Dec., 1987.
78. Dragana Brzakovic, Nicholas Alvertos, and Lang Hong, “**3-D Vision System for Obstacle Avoidance,**” *Proc. of Robotics’87 SPIE International Symposium*, Vol. 852, pp. 126 – 131, Cambridge, MA, Nov, 1987.
79. Lang Hong and Dragana Brzakovic, “**Boundary Detection in Textured-Based Vision System,**” *Proc. of IEEE International Conference on Industrial Electronics, Control, and Instrumentation*, pp. 676 – 681, Cambridge, MA, Nov., 1987.
80. Lang Hong and James C. Hung, “**A New Technique of Model Reduction: Modified L-K Transformation,**” *Proc. of American Control Conference*, pp. 1504 – 1508, Minneapolis, MN, June, 1987.
81. Lang Hong and James C. Hung, “**Applications of Singular Perturbation and Singular Value Decomposition in Model Reduction,**” *Proc. of IEEE Southeastern Conference*, pp. 579 – 583, Tampa, FL, April, 1987.
82. J. Douglas Birdwell, Gui-Ran Chang, Peter Hansen, Lang Hong, J.S. Lai, and Gregory V. Murphy, “**Teaching with the CASCADE Computer-Aided Control System Design Environment,**” *Proc. of 19th IEEE Southeastern Symposium on System Theory*, pp. 115 – 120, Clemson, SC, March, 1987.
83. Lang Hong and James C. Hung, “**Techniques of Singular Perturbations for System Applications,**” *Proc. of 18th IEEE Southeastern Symposium on System Theory*, pp. 134 – 139, Knoxville, TN, April, 1986.

VIII. PATENTS:

1. Lang Hong and Michael Logan, “**Multiresolutional Multiple Hypothesis Tracking**”, U.S. patent No. 5842156, Nov. 24, 1998.
2. Shan Cong, Shi Shen, Lang Hong, “**Road Curvature Estimation System**,” Patent Application No. 20050225477, October 13, 2005.
3. Shan Cong, Shi Shen, Lang Hong, “**Road Curvature Estimation and Automotive Target State Estimation System**,” U.S. patent No. 7034742, April 25, 2006.

IX. GRANTS AND CONTRACTS

External Funding:

Lang Hong, PI, “Advanced Tracking Algorithm Development/Evaluation,” Wright-Patterson Air Force Base, Aug. 1992 – Sept. 1992, \$8,688.

Lang Hong, PI, “Multiresolutional Tracking Algorithm Development/Comparison,” Wright-Patterson Air Force Base, Jan. 1993 – Sept. 1993, \$50,000.

Lang Hong, PI, “Advanced Tracking Algorithm (ATRA) Analysis and Assessment,” Science Applications International Corp., Oct. 1993 – Sept. 1994, \$66,025.

Lang Hong, PI, “Technical Development Analysis and Assessment for Target Tracking” Science Applications International Corp., June 1994 – June. 1995, \$28,000.

Lang Hong, PI, “Information-Based Multiresolutional Target Tracking,” Wright-Patterson Air Force Base, Oct. 1994 – Sept. 1995, \$100,000.

Lang Hong, PI, “Multiresolution-Based Multiplatform Cooperative Fire Control,” Wright-Patterson Air Force Base, Sept 1995 – Aug. 1997, \$275,000.

Lang Hong, “Multisensor Fusion Short Course,” Wright-Patterson Air Force Base, Aug. 1995, \$15,000.

Lang Hong, PI, “Multi-res/Multi-rate Target Tracking”, MRLets Technologies, Oct. 1996 – Sept. 1998, \$133,730.

Lang Hong, PI, “Raider Cooperative Advanced Tracking: System Requirements Analysis (RaiderCAT-SRA),” Air Force Research Lab, April 1, 1998 – April 30, 1999, \$80,000.

Lang Hong, PI, “Multiresolution-Based Distributed Target Tracking,” CALSPAN, June 12, 1998 – Dec. 31, 1998, \$ 35,000.

Lang Hong, PI, “Feature-Assisted Tracking,” Air Force Research Lab, April, 1999 – April 2000, \$50,000.

Lang Hong, PI, “Predictive Collision System” Automotive Systems Laboratory, Inc., Sept. 2, 1999 – June 6, 2000, \$75,000.

Lang Hong, PI, “Distributed Interacting Multipattern Data Association (DIMPDA)”, Air Force Research Lab, Dec, 1999 – Dec, 2000, \$28,750.

Lang Hong, PI, “Wavelet-Feature-Aided Tracking”, Mission Research Coporation, Dec. 1999 – Aug. 2000, \$50,000.

Lang Hong, PI, “Automotive Collision Avoidance Systems”, Automotive Systems Laboratory, Inc, Dec. 2000 – Aug. 2002, \$78,750.

Lang Hong Co-PI, "Interferometric Radar Clutter Suppression", DAGSI-AFRL, Jun. 2001 - Jun. 2003, \$220,000.

Lang Hong, PI, "Distributed Multirate Multiple Model Filtering with Out-of-Sequence Data", MRLets Technologies, Inc., May 2002 - April 2004, \$100,000.

Lang Hong, PI, "Coupled GMTI Target Tracking with STAP Signal Processing," AFOSR/CUBRC, Oct. 2001 - Dec. 2002, \$73,390.

Lang Hong, PI, "Distributed Multiple Model Fusion" MRLets Technologies, Inc., July 2002 - June 2004, \$55,000.

Lang Hong, PI, "Multisensor Highway Safety System", Automotive Systems Laboratory, Inc., Sept. 2002 - Aug. 2003, \$71,500.

Lang Hong, PI, "Invariant-Based Joint Target Tracking and Identification," MRLets Technologies, Inc., May 2003 - May 2005, \$150,000.

Lang Hong, PI, "Robust Feature-Aided Tracking," MRLets Technologies, Inc., May 2003 - May 2005, \$125,000.

Lang Hong, PI, "Terrain/Feature-Aided Tracking and Finger-Printing," Anteon Corporation, Feb. 2003 - June 2003, \$30,000.

Lang Hong, PI, "Multirate Interacting Multiple Model Fusion," MRLets Technologies, Inc., May 2002 - June 2007, \$250,000.

Lang Hong, PI, "Persistent Target Tracking," AFRL/SN, 2004 - 2007, \$171,000.

Lang Hong, PI, "Multiresolutional Particle Filters," MRLets Technologies, Inc., July 2005 - June 2006, \$80,000.

Lang Hong, PI, "Image-Based Tracking for UAVs (TrackMaster)," Systran, Aug. 2006 - May 2007, \$59,900 + \$12,500.

Lang Hong, PI, "Unmanned Ground Vehicle (UGV) Tracking," MRLets Technologies, Inc., July 2006 - Dec. 2007, \$150,000.

Lang Hong, Co-PI, "Multi-Sensor/Multi-Modal Sensor Development and Algorithm Research for Urban Vigilance," Wright-Brothers Institute, Inc., Aug. 2006 - Oct. 2007, \$416,000.

Lang Hong, PI, "Video Tracking and Sensor Registration," AFRL, April 2007 - March. 2007, \$139,616.

Total External Funding: \$3,192,849

Internal Funding:

Lang Hong, PI, “Smart Robot Sensing: Optimal, Robust, Dynamic and Real-Time Multi-Sensor Integration,” State of Ohio Research Challenge Award, Jan. 1990 – June 1991, \$28,500.

Lang Hong, PI, “Intelligent Sensor Fusion and Management,” State of Ohio Research Challenge Award, June 1994 – June 1995, \$12,000.

Lang Hong, PI, “Multiresolutional Target Tracking”, State of Ohio Research Challenge Award, Jan. 1998 – Dec. 1998, \$14,000.

Lang Hong, PI, “Feature-Based Tracking”, State of Ohio Research Challenge Award, June 1999 - May 2000, \$13,200.

Lang Hong, PI, “An Automotive Collision Prediction System for Highway Safety,” State of Ohio Research Challenge Award, Jan. 2000 – Dec. 2000, \$18,000.

Lang Hong, Co-PI, “Computational Modeling, Target Tracking, Mission Management, and Decision Making Platform for Cooperative UAVs, State of Ohio Research Challenge Award, May 2007 – June 30, 2008, \$45,000.

Total Internal Funding: \$130,700

X. New Courses Development:

- **EE716:** Applied Estimation and Kalman Filter
- **EE717:** Multisensor/Data Fusion
- **EE718:** Multitarget Tracking and Data Association

XI. M.S. Theses Supervised:

1. “A Multiresolutional Approach to 3D Object Recognition,” Jing Cao, 1993.
2. “Integrating MHT/SB With IMM for Advanced Target Tracking,” Hong-Hui Xu, 1993, (financially supported for 9 quarters by Lang Hong).
3. “Real-Time Adaptive Multiresolutional Multiple-Model Target Tracking,” Gwo-Jieh Wang, 1994, (financially supported for 8 quarters by Lang Hong).
4. “Multiplatform Multiresolutional Distributed Filtering for Maneuvering Targets With Adaptive-Rate Data Communication,” WeiChang Wang, 1994, (financially supported for 9 quarters by Lang Hong).
5. “Geometric Invariance in Computer Vision Considering Multiresolutional Approaches,” Sanjiv Karani, 1995, (financially supported for 1 quarter by Lang Hong).
6. “Statistical Studies in Multiple Target Tracking,” Shan Cong, 1996, (financially supported for 8 quarters by Lang Hong).

7. "Multiresolutional JPDA with Sensor Management Target Tracking," Chunde Wang, 1996, (financially supported for 8 quarters by Lang Hong).
8. "Multires/Multirate JPDA Target Tracking," Yusheng Sun, 1998, (financially supported for 8 quarters by Lang Hong).
9. "Track Initiation techniques and Track Quality Measures," Wenyun Liu, 1999, (financially supported for 4 quarters by Lang Hong).
10. "Spectral Computations for Synthetic Aperture Radar Target Detection," Thomas Lee Lewis, 2001.
11. "Simulation of Radar System Using POV-Ray for Windows," Wu Yang, 2003.

XII. M.S. Theses/Ph.D. Dissertation Committee Membership:

1. "Some Applications of the Pseudo-Boundary of an Unstable Polytope of Polynomial," M.S., Seong Kim, 1991, (Advisor: Dr. Rai Pujara).
2. "The Partition of Unstable Polygons of Discrete Polynomials," M.S., James M. Peterson, 1991, (Advisor: Dr. Rai Pujara).
3. "3-D Model Acquisition by Active Vision," M.S., Christopher Huang, 1991, (Dr. Greg Shiu).
4. "Page Description Language to Bitmap Rasterization Using Strip Buffers," M.S., Cailong Zhang, 1992, (Advisor: Dr. Kefu Xue).
5. "An Ultrasonic B-Scan Compound Technique for Computer-Aided Prosthetic Socket Design," M.S., Huimin Fu, 1992, (Advisor: Dr. Kefu Xue).
6. "The Identification of a Polytope Formed by a Finite Set of Characteristic Polynomials and On the Stability of a Segments of Characteristic Polynomials," M.S., Srinivas Bollepalli, 1993, (Advisor: Dr. Kefu Xue).
7. "Robotic Visual Servoing in a Flexible Manufacturing Workcell," M.S., Todd Scaggs, 1993, (Advisor: Dr. Kuldip Rattan).
8. "Principle of Energy Conservation in Modeling PWM DC-DC Converters," M.S., Dariusz Czarkowski, 1993, (Advisor: Dr. Marian Kazimierczuk).
9. "Closed-Loop Analysis of Voltage-Mode Controlled PWM Buck DC-DC Converter," M.S., Nehru Sathappan, 1994, (Advisor: Dr. Marian Kazimierczuk).
10. "Active Non-Contact 3D Modeling Using An Accurately Calibrated Camera/Laser System," M.S., Kenneth Luke, 1994 (Advisor: Dr. Kefu Xue).
11. "Robust Stability Aspects of Voltage Mode Controlled Pulse-Width-Modulated Buck and BuckBoost Converter," M.S., A.S.M. Nazirul Islam Shaheen, December 1996, (Advisor: Dr. Rai Pujara)
12. "Continuously Variable MEMS Capacitor," M.S., Isaac P. Abraham, December 1997, (Advisor: Dr. Raymond Siferd)
13. "An Algorithm for P-Wave Detection," M.S., Pankaj Datta, August 1997, (Advisor: Dr. Kefu Xue).

14. "A Fourier Inversion Algorithm to Extract 3-D Information From Single Elevation Slant Plane Circular SAR", M.S., Richard Burns, 2000, (Advisor: Dr. Fred Garber).
15. "A Personal Low-Earth-Orbiting Satellite Communication System," M.S., James Zhang, 2001, (Advisor: Dr. Kefu Xue).
16. "Manifold Recognition," Ph.D., Michael L. Bryant, 2002, (Advisor: Dr. Fred Garber).
17. "Design of Filters as Equalizers to Minimize Intersymbol Interference," Hasan Arik, 2004 (Advisor: Dr. Belle Shenoi).
18. "Nonrigid Volume Image Registration for Brainshift Detection and Correction," Ph.D., Lyubomir Zagorchev, 2003 (Advisor: Dr. Ardeshir Goshtasby).
19. "Eddy Current Crack Detection Around Fastener Holes in Multi-Layer Structures," M.S., Jeremy Scott Knopp, 2005, (Advisor: Dr. Pradeep Misra).

XIII. Ph.D. Dissertations Supervised:

1. "derivation of a Belief Filter for High Range Resolution Radar Simultaneous Target Tracking and Identification", Erik Blasch, Dec. 1999.
2. "A Multisensor-Based Automotive Collision Prediction System", Shi Shen, Dec. 2002.
3. "Comprehensive Sensor Resource Management Driven By Priorities and Threat Projec," Joseph Anderson, April, 2005.
4. "Rigid Object Motion and Structure Estimation with HRR/GMTI Measurements," Shunguang Wu, June 2005.

XIII. Ph.D. Theses Being Supervised:

1. "Invariants-Constrained Target Tracking and Identification", Sam Fazio
2. "Simultaneous Multiple Hypothesis Target Tracking and Identification," Peter Hlinomaz
3. "Target Tracking and Identification Performance Evaluation," Dean Wardel

XIV. Outside Class Student Activity Involvement

Ph.D. Committees at Other Schools:

- Pete Hannan, AFIT, 1994-1996.
- Alan Wood, UD, 1995 – present.

XV. Post-Doctors Supervised and Supported

Dr. Zhen Ding, Dr. Genshe Chen, Dr. Ningzhou Cui, Dr. Wei Wang.

XVI. Full-time Research Associates Supported by Research Contracts:

Dr. Shan Cong, Dr. Ningzhou Cui, Dr. Shunguang Wu, Dr. Yanhua Ruan, Dr. Wenhua (Winston) Li