

Joseph P. Havlicek

The University of Oklahoma, School of Electrical & Computer Engineering
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Title: Williams Presidential Professor

Unit: School of Electrical and Computer Engineering

► **Citizenship:** USA

► **Education:**

PhD EE The University of Texas at Austin, 1996.

Dissertation: "AM-FM Image Models."

Advisor: Prof. Alan C. Bovik.

MSEE Virginia Tech, 1988.

Thesis: "Median Filtering for Target Detection in an Airborne Threat Warning System."

Advisor: Prof. John C. McKeeman.

BSEE Virginia Tech, 1986. Minors in Mathematics, Computer Science.

► **Professional Experience:**

1/97 - present: School of Electrical & Computer Engineering, Univ. OK, Norman, OK

Williams Presidential Professor: 4/09 - present

Professor: 7/07 - present

Associate Professor: 7/02 - 6/07

Assistant Professor: 1/97 - 6/02

Held tenure track position requiring excellence in research, teaching, service, and in establishing a strong, externally funded research program.

6/87 - 1/97: U.S. Naval Research Laboratory, Washington, DC

Electrical Engineer

(Was affiliated with SFA, Inc., Landover MD, from 6/87-8/89)

(Was on *leave without pay* during semesters spent at UT Austin)

Conducted applied research in signal processing for staring infrared focal plane array sensors, with emphasis on the development of missile warning receivers for next-generation Navy aircraft. This work involved the design and analysis of new algorithms and techniques for detection, tracking, and identification of multiple targets, as well as investigation of digital architectures for real-time implementation. Conducted experimental work on airborne and ground-based platforms. Extensive field experience at China Lake Naval Weapons Center, Miramar Naval Air Station, Patuxent River Naval Air Station, and Sandia National Laboratories.

6/93 - 12/96: Dept. Elec. & Comp. Eng., Univ. TX, Austin, TX

Assistant Director, Laboratory for Vision Systems

Senior student administrator of laboratory, whose members include approximately 12 research-supported graduate students. Authored and integrated grant proposals for sponsored research. Briefed potential sponsors on lab resources and capabilities, as well as on the technical aspects of proposals. Authored contract performance reports, and delivered the associated briefings. Organized and arranged tours for research sponsors and other visitors. Reviewed papers for journals and conferences. Advised and tutored graduate students in the preparation of research proposals, conference and journal papers, theses, and dissertations. Supervised honors undergraduate senior projects. Administrated procurement and maintenance contracts for computers and other research equipment.

1/93 - 12/93: Dept. E51, Still Video Products, IBM Corp., Austin, TX

Software Developer

(on-sight contractor affiliated with Ralph Kirkley Associates, Austin, TX)

Developed C code for IBM PS/2 computers under OS/2 and MS Windows to port an implementation of the JPEG image compression/decompression standard from the IBM M/ACPA card to the IBM AudioVation card.

8/87 - 8/88: Bradley Dept. of Elec. Eng., VPI & SU, Blacksburg, VA

Graduate Research Assistant

Under contract with NRL, led 9-man team in chip-level simulation of a real-time nonlinear image filter. Under contract with IBM, investigated the feasibility and performance of networks of LEO store-and-forward communication satellites.

12/84 - 5/87: Management Systems Laboratories, Blacksburg, VA

Software Engineer

Under contract with DOE, designed and implemented management decision support software for nuclear materials management on IBM mainframe computers. Extensive development experience with PL/I, REXX, PROFS, and EXEC II.

► **Honors & Awards:**

- Named to the University of Oklahoma Williams Presidential Professorship, 2009.
- IEEE Maximum Impedance Award, OU School of ECE, 2007.
- University of Oklahoma College of Engineering Outstanding Faculty Advisor Award, 2005-2006.
- Oklahoma Highway Safety Office Award of Excellence, FY 2005, presented to the OU ITS Lab for enhancing traffic records management through project SAFE-T.
- Oklahoma Highway Safety Office Project Director's Award, FY 2003, co-recipient with Dr. J.J. Sluss, Jr., for enhancing highway safety through ITS projects.
- University of Oklahoma College of Engineering Brandon H. Griffith Faculty Award, 2003.
- Listed at number 22 in OU *FY 99 Awards - Top 25 Faculty/Staff - Norman Campus*.
- IEEE Favorite Instructor Award, OU School of ECE, 1998, 2000.
- University of Texas Engineering Foundation Award for Exemplary Engineering Teaching while Pursuing a Graduate Degree, 1992.
- Department of the Navy Award of Merit for Group Achievement, 1990.
- Management Systems Laboratories Outstanding Student Employee Scholarship, 1987.
- Eta Kappa Nu Honor Society
- Tau Beta Pi Honor Society
- Phi Kappa Phi Honor Society
- Listed in *Who's Who in America*, 2002 Ed.

► **Professional Memberships:**

- Institute of Electrical and Electronics Engineers (IEEE), Senior Member
- IEEE Signal Processing Society
- IEEE Computer Society
- American Association of University Professors (AAUP)

► **Professional Service:**

- General Co-Chair (with Prof. Scott Acton, University of Virginia), *2010 IEEE Southwest Symposium on Image Analysis and Interpretation*
- Technical Program Committee, *2009 IEEE International Conference on Intelligent Transportation Systems*
- Technical Program Committee, *6th IEEE International Workshop on Object Tracking and Classification Beyond the Visible Spectrum*, 2009
- Technical Program Co-Chair (with Prof. Scott Acton, University of Virginia), *2008 IEEE Southwest Symposium on Image Analysis and Interpretation*
- Publications Chair, Organizing Committee, and Session Chair, *2007 IEEE International Conference on Image Processing*

- Technical Program Co-Chair (with Prof. Til Aach, RWTH Aachen University, Germany), *2006 IEEE Southwest Symposium on Image Analysis and Interpretation*
- Technical Program Co-Chair (with Prof. Til Aach, Medical University of Luebeck, Germany), *2004 IEEE Southwest Symposium on Image Analysis and Interpretation*
- Session Organizer and Session Chair, *45th IEEE Midwest Symposium on Circuits and Systems*
- Publicity Chairman, Technical Program Committee, and Session Chair, *2002 IEEE Southwest Symposium on Image Analysis and Interpretation*
- Organizer of special session on segmentation and texture processing, *IEEE Asilomar Conference on Signals, Systems, and Computers; 2000, 2001*
- Reviewer, *IEEE International Conference on Image Processing*, (1998 - present)
- Reviewer, *IEEE International Conference on Acoustics, Speech, and Signal Processing*, (2005-present).
- Publicity Chairman, Technical Program Committee, and Session Chair, *2000 IEEE Southwest Symposium on Image Analysis and Interpretation*
- Technical Program Committee and Session Chair, *1998 IEEE Southwest Symposium on Image Analysis and Interpretation*
- Presently serving or have served as a reviewer for *IEEE Transactions on Signal Processing; IEEE Transactions on Image Processing; IEEE Signal Processing Letters; IEEE Transactions on Pattern Analysis and Machine Intelligence; IEEE Transactions on Circuits and Systems II; IEEE Transactions on Communications; IEEE Transactions on Industrial Informatics; IEEE Transactions on Parallel and Distributed Systems; IEEE Transactions on Education; Journal of the Optical Society of America – A; IEE Proceedings – Vision, Image & Signal Processing; IEE Electronics Letters; EURASIP Journal on Applied Signal Processing; Journal of Electronic Imaging; Pattern Recognition Letters; Multidimensional Systems and Signal Processing; Signal Processing.*

► **Committee Assignments and University Service:**

- Chairman, Graduate Studies Committee, School of Electrical & Computer Engineering (Aug 08 - present)
- Committee A, School of Electrical & Computer Engineering (tenure and promotion/executive committee) (Nov 04 - Aug 08)
- Graduate Studies Committee, School of Electrical & Computer Engineering (Aug 97 - Aug 06)
- College of Engineering E-Club Faculty Co-Advisor (May 00 - May 04), Advisor (May 04 - Jan 06) (*this is the largest student organization on the OU campus*)
- School of Electrical & Computer Engineering Director search committee, (Oct 04 - Jun 05)
- Faculty Senate (Aug 02 - May 05)
- College of Engineering Academic Misconduct Board and Grade Appeals Board, (Jun 03 - Jun 05)
- Coordinator, Systems Area Faculty Interest Group (FIG), (Oct 00 - Aug 02; Dec 08 - present)
- School of ECE Faculty search committee (97, 02, 03, 05, 06, 07)

► **Teaching:**

1/97 - present: School of Elec. & Comp. Eng., Univ. OK, Norman, OK

- ECE3223, Microcomputer System Design (Fall 97)
- ECE3793, Signals and Systems (Spring 97, Fall 98, Spring 99, Fall 99, Spring 00, Fall 00, Spring 01, Spring 02, Fall 02, Spring 03, Fall 03, Spring 04, Fall 04, Spring 05, Fall 05, Spring 06, Spring 07, Spring 08)
- ECE3960, Honors Reading (Spring 00)
- ECE3980, Honors Research (Fall 01, Spring 02, Spring 03)
- ECE4213, Digital Signal Processing (Fall 02, Fall 06, Fall 07, Fall 08)
- ECE4973, Digital Image Processing (Spring 98)
- ECE4990, Special Studies (various semesters Spring 98 – present)
- ECE5213, Digital Signal Processing (Fall 02, Fall 06, Fall 07, Fall 08)
- ECE5273/CS5273, Digital Image Processing (Spring 98, Fall 00, Spring 02, Spring 03, Spring 04, Spring 05, Spring 06, Spring 07, Spring 08)

- ECE 5273, Digital Image Processing (Spring 06, Spring 07, Spring 08)
- ECE5973/ECE4973, Multimedia Communications (Fall 98)
- ECE5973, Kalman Filtering (Fall 99, Fall 03, Fall 05)
- ECE5980, Thesis Research (Spring 99 – present)
- ECE5990, Special Problems (various semesters Fall 97 – present)
- ECE6283, Advanced Image Processing (Fall 04)
- ECE6973, Advanced Image Processing (Fall 01)
- ECE6980, Dissertation Research (Spring 00 – present)

9/90 - 6/93: Dept. Elec. & Comp. Eng., Univ. TX, Austin, TX

- EE464K, Senior Design Projects (Fall 90 – Summer 93)

1/91 - 12/96: Dept. Elec. & Comp. Eng., Univ. TX, Austin, TX

- EE381K, Topic 10: Image Processing (substitute lecturer)
- EE381K, Topic 8: Digital Signal Processing (substitute lecturer)
- EE380L, Topic 7: Computer Vision (substitute lecturer)
- EE351K, Probability and Random Processes (substitute lecturer)

► **Graduate Degree Production:**

Ph.D. Supervisions Completed:

1. Peter Tay, “An Optimally Well Localized Multi-Channel Parallel Perfect Reconstruction Filter Bank,” October, 2003.
2. Guangwei Mu “WAAS Error, Integrity and Availability Modeling for GPS-based Aircraft Landing System,” April, 2004 (co-supervised with Dr. Jim Sluss).
3. Hengqing Wen, “Anti-Spoof Design for TDMA Based GPS/LAAS Landing Aid,” December, 2004.
4. Yunhua Wang, “Multiplierless CSD Techniques for High Performance FPGA Implementations of Digital Filters,” April, 2007 (co-supervised with Dr. Linda DeBrunner).
5. Osama Alkhouli, “Hirschman Optimal Transform Least Mean Square Adaptive Filters,” October, 2007 (co-supervised with Dr. Victor DeBrunner).

Ph.D. Supervisions in Progress:

- Ngao D. Mamuya
- Abiola Asojo
- Sarma Nedunuri (co-supervised with Dr. John Cheung)
- Chuong Nguyen
- Nick Mould
- Adrian Campbell
- Jon Williams

Additional Ph.D. Committees Served on:

1. Madhavi Kadiyala, “Design of Optimal Subband Filter Banks for Image Discrimination,” October, 1999.
2. Mohamed Allali, “Digital Signal Processing on the Unit Sphere via a Ramanujan Set of Rotations and Planar Wavelets” (interdisciplinary: Electrical Engineering and Mathematics), July, 2000.
3. Yunxiang Wu, “Iterative Decoding for Magnetic Recording Channels,” September, 2000.
4. Helen Jun Xing, “Performance Evaluation of CDMA Systems,” April, 2001.
5. Pamela Pike, “Leisure Piano Lessons: A Case Study of Lifelong Learning” (Music), May, 2001.
6. Longji Wang, “Active Vibration Control Systems in the Frequency and Sub-Band Domain,” July, 2001.
7. Sebastian Torres, “Estimation of Doppler and Polarimetric Variables for Weather Radars,” October, 2001.
8. Valliappa Lakshmanan, “A Hierarchical, Multiscale Texture Segmentation Algorithm for Real-World Scenes,” October, 2001.

9. Richard Todd, "Design of Low-Density Parity Check Codes for Magnetic Recording Channels," December, 2002.
10. Guoping Wang, "A High-Performance Inner-Product Processor for Real and Complex Numbers," April, 2003.
11. Leslie Fife, "TriM: Tri-Modal Data Communication in Mobile Ad-Hoc Network Database Systems" (Computer Science), December 2003.
12. Kuo-Liang Li, "Usage and Development of Piano Method Books in Tiawan: Interviews and Observations with Piano Teachers" (Music), April, 2004.
13. Weijun Tan, "Low-Density Parity-Check Coding for High-Density Magnetic Recording Systems," July, 2004.
14. Haitao Xia, "Error-Correction Coding for High-Density Magnetic Recording Channels," September, 2004.
15. Yongshien Ni, "Fuzzy Correlation and Regression Analysis," April, 2005.
16. Dayong Zhou, "Adaptive Nonlinear System Compensation Techniques and their Applications to Digital Communication and Control Systems," April, 2005.
17. Xiaojuan Hu, "FIR Filter Design for Area Efficient Implementation," May, 2005.
18. Leslie Sisterhen, "The Use of Imagery, Mental Practice, and Relaxation Techniques for Musical Performance Enhancement" (Music – DMA), June, 2005.
19. Su Yang, "Design of PHY & MAC Layer Protocols for Inter-Vehicle Communications," October, 2005.
20. Rob Sulman, "Affine Group Actions on Euclidean Space," (Mathematics) May, 2006.
21. Peng Yan, "A Study on Mobile Ad Hoc Networks Equipped with Free-Space Optical Capabilities," December, 2006.
22. Yan Zhai, "Improved Nonlinear Filtering for Target Tracking," April, 2007.
23. Cheng Zhong, "Efficient Soft-Decision Decoding of Reed-Solomon Codes," May, 2008.
24. Yih-Ru Huang, "Optoelectronics Three-Dimensional Tracking System for Collision Risk Model," April, 2009.
25. Mari Iida, "The Acceptance of Western Piano Music in Japan and the Career of Takahiro Sonoda" (Music – DMA), April, 2009.
26. Yong Ma, "Multi-Modal Behavior and Clustering in Dynamical Systems with Applications to Wind Farms," April, 2009.
27. Yuzhen Zhu, "Identification and Estimation of Multi-Modal Complex Dynamic System," May, 2009.
28. Sylvain Guinepain (CS) (*in progress*).
29. Yan Xiong (Chemistry) (*in progress*).

M.S. Supervisions Completed:

1. Santha Parameswaran, "Modulation Domain Forecasting of Nonstationary and Chaotic Time Series," March, 2000 (co-supervised with Dr. Monte Tull).
2. Tanachit Tangsukson, "AM-FM Texture Segmentation," May, 2000.
3. Altaf Ahmed, "Designing a Global IP Routing Strategy," July, 2001 (co-supervised with Dr. Jim Sluss).
4. Igor Ivić, "Demonstration of an Efficient Method for Estimating Spectral Moments," November, 2001.
5. Chee-Hong Gan, "Design of a GIS-Based Traffic Management Center Software Control Platform for Oklahoma Department of Transportation," April, 2002 (co-supervised with Dr. Jim Sluss).
6. Kok-Hoong Chow, "MPLS Modeling and Simulation in Optical Networks," July, 2002 (co-supervised with Dr. Jim Sluss).
7. Fabrice Ouandji, "Modulation Domain Texture Features for Content-Based Image Retrieval (CBIR)," July, 2004.
8. Ekasit Vorakitolan, "Work Zone Features for Oklahoma's Statewide Intelligent Transportation System," July, 2004.
9. Nantapol Kitiyanan, "AM-FM Fingerprint Reference Point Detection and Matching," November, 2004.
10. Krishnapraveen Suri, "Phase Reconstruction from Multicomponent AM-FM Image Representations," April, 2005.

11. Roy Sivley, "Perfect Reconstruction AM-FM Image Models," March, 2006.
12. Prakash K. Parthasarathy, "Minimum Entropy Based FIR Filter Estimation," December, 2006 (co-supervised with Dr. Victor DeBrunner).
13. Chuong Nguyen, "Dual-Domain Target Tracking," June, 2007.
14. Linda Ouandji, "Advanced Voice and Multimedia Communications System for the ODOT ITS Network," October, 2008.
15. Adrian Campbell, "AM-FM Image Processing Toolbox," December, 2008.
16. Colin Johnston, "Advanced Multi-Channel Dual Domain Constrained Adaptation Particle Filter for Infrared Target Tracking," April, 2009.

M.S. Supervisions In Progress:

- Sofia Otero
- Basel Kilani
- Anagha Wankhede
- John Jünger

Additional M.S. Committees Served on:

1. Kirankumar Govindarajan, "Implementation of a Wavelet Vocoder," July 1997.
2. Tod Bussert, "Using Artificial Neural Networks to Improve the Mechanical Signature Analysis Test," December, 1997.
3. Georgios Lezos, "Neural Network and Fuzzy Logic Techniques for Time Series Forecasting," December, 1998.
4. Chetan Anantharaman, "Implementation of Generic Subband/Wavelet Architectures for Image Coding," April, 1999.
5. Mir Sayed Ali, "A CORSIM Traffic Model to Support ITS and DTA in Oklahoma City," February, 2000.
6. Aaron Bansemer, "Retrieval and Analysis of the Electric Field in Thunderstorms" (Meteorology), April, 2000.
7. James Shields, "Design and Implementation of a High-Speed Multiplexer-Based Parallel Multiplier," May, 2000.
8. Rick Pendergraft, "A Performance Evaluation of an Augmented GPS Landing System," September, 2001.
9. Sudhir Rai, "Signal Analysis of Heart Rate Variability Data," December, 2001.
10. Rupa Balan, "Neural Network Modeling of Heart Rate Variability," April, 2002.
11. Anand Mohan, "Low Power and Low Space FIR Filter Design," June, 2002.
12. Alan Harris, "A Fiber Bragg Grating Load Cell," July, 2002.
13. Mahmuda Afroz, "A Design to Measure the Strain of a Large Structure Using Fiber Bragg Gratings," July, 2002.
14. Santiago Rendón, "A Statistical Evaluation of a Protected Service Volume Using an Augmented GPS Landing System," August, 2002.
15. Yuan Chen, "Effects of Digital Watermarking on Digital X-Ray Images," January, 2003.
16. Scott Graham, "A Video System for LAAS/WAAS Data Analysis," May, 2003.
17. Ewa Matusiak, "Uncertainty Principles for Finite Abelian Group and Applications" (interdisciplinary program in Signal Processing, Computational & Applied Mathematics — *SigCAM*), May, 2003.
18. Totrakool Khongsap, "Quantization on a Sphere" (interdisciplinary program in Signal Processing, Computational & Applied Mathematics — *SigCAM*), May, 2003.
19. Minh Quang Ta, "Minimum Entropy Estimation of FIR Filters," May, 2003.
20. Eric Wainright, "Wavelength Diversity in Free-Space Optics to Alleviate Fog Effects," December, 2003.
21. Benjamin Mohr, "Design, Implementation and Testing of a New Curved Path Navigator for LAAS and WAAS," April, 2004.
22. Erik Petrich, "Image Processing Methods for Product Label Identification on Cylindrical Surfaces," July, 2004.
23. John Paul Nguyenkim, "Implementation of a Redundant Binary Co-Processor onto an FPGA for Complex Arithmetic Signal Processing," September, 2004.
24. Anil Babu Chalamalasetti, "Analysis of Radar Signals with Oversampling in Range," September, 2004.

25. Yih-Ru Huang, "Evaluation of a Real Time DGPS (LAAS) Landing System for Missed Approaches and Guided Missed Approaches," September, 2004.
26. Wei Zhang, "Efficient Multiplierless Filter Implementations for Embedded Systems," October, 2004.
27. Ashish Parajuli, "Speech Enhancement Based on Perceptual Wavelet Thresholding and Auditory Masking," December, 2004.
28. Ayodeji Fajebe, "A Software Methodology for Embedded Intelligent Systems," February, 2005.
29. Abderrahmane Bennis, "Division and Square-Root Based on Redundant Binary Numbers," April, 2005.
30. Roland Ferenczhalmy, "Analysis of Adsorption and Desorption Kinetics of Volatile Analytes Using Mid-Infrared Laser Absorption Spectroscopy," August, 2005.
31. Deepak V. Bhogaraju, "Entropy Uncertainty in FIR Filter Implementations," September, 2005.
32. Benjamin Blevins, "Stereoscopic Tracking of Approaching Aircraft," December, 2005.
33. Brian Birk, "The Design and Implementation of a Fault Tolerant LAAS Base Station," May, 2006.
34. Nicholas Mould, "Reconfigurable Computing Architectures: Dynamic and Steering Vector Methods," May 2006.
35. Rodolfo Salas, "Control Electronics for Laser Absorption Spectroscopy," May, 2006.
36. Matthew S. Falk, "Developing a New Airway Criteria Using Aircraft's Required Navigational Performance," December, 2006.
37. Hieu Thai, "System Identification of Bridges Under a Moving Load and Implementation of the Bridge Monitoring System," March, 2007.
38. Kevin Ford, "Computer Hardware for Vibration Mitigation and Monitoring," March, 2007.
39. Molly Donovan, "Performance Evaluation of a Phase Contrast X-Ray Imaging Prototype System," June, 2007.
40. Kyle Sparger, "Roadside Data Collection and Monitoring using GPRS Cellular Network," July, 2007.
41. Patrick Macklin, "Development and Integration of a Power Management Board for the Collision Risk Model," September, 2007.

► **Externally Funded Grants and Contracts:**

1. R.D. Barnes (PI), James J. Sluss, Jr., M. Atiquzzaman, J.P. Havlicek, and M.P. Tull, "Roadway Weather Information System and Automatic Vehicle Location (AVL) Coordination," Oklahoma Transportation Center (OTC), \$145,433, 6/1/08-5/31/11. OU Pink Sheet Credit: 20% (\$29,087).
2. R.D. Barnes (PI), James J. Sluss, Jr., M. Atiquzzaman, J.P. Havlicek, and M.P. Tull, "Roadway Weather Information System and Automatic Vehicle Location (AVL) Coordination (Matching Funds)," Oklahoma Department of Transportation, \$55,000, 6/1/08-5/31/11. OU Pink Sheet Credit: 20% (\$11,000).
3. R.D. Barnes (PI), J.J. Sluss, Jr., J.P. Havlicek, and M.P. Tull, "Intelligent Transportation System (ITS) Engineering and Integration Services," Oklahoma Department of Transportation, \$155,000. 10/1/08-9/30/09. OU Pink Sheet Credit: 25% (\$38,750).
4. J.P. Havlicek (PI) and G. Fan, "Multiple Domain Particle Filters for Integrated Tracking and Recognition in IR Imagery," Department of Defense, Army Research Office, \$474,000, 7/1/08-6/30/11. OU Pink Sheet Credit: 100% (\$474,000).
5. R.D. Barnes (PI), J.P. Havlicek, and M.P. Tull, "OU Software Development & Integration Project," State of Oklahoma, Highway Safety Office, \$150,000, 10/1/08-9/30/09. OU Pink Sheet Credit: 33% (\$49,500).
6. R.D. Barnes (PI), J.P. Havlicek, and M.P. Tull, "OU Software Development & Integration Project Supplement," State of Oklahoma, Highway Safety Office, \$5,000, 7/15/09-9/30/09. OU Pink Sheet Credit: 33% (\$1,650).
7. M. Atiquzzaman (PI), J.P. Havlicek, M.P. Tull, and R.D. Barnes, "University of Oklahoma Crash Reporting and Analysis System," State of Oklahoma, Highway Safety Office, \$54,745, 10/1/08-9/30/09. OU Pink Sheet Credit: 22% (\$12,044).
8. J.P. Havlicek (PI), M.P. Tull, and R.D. Barnes, "OU Software Development & Integration

- Project (TraCS) Supplement,” State of Oklahoma, Highway Safety Office, \$50,000, 10/1/07-9/30/08. OU Pink Sheet Credit: 40% (\$20,000).
9. J.P. Havlicek (PI), M.P. Tull, and R.D. Barnes, “OHP Troop S Civil Assessment System,” State of Oklahoma, Department of Public Safety, \$50,000, 4/15/08-4/14/09. OU Pink Sheet Credit: 34% (\$17,000).
 10. J.P. Havlicek (PI), M.P. Tull, and R.D. Barnes, “Automated Driver License Testing System,” State of Oklahoma, Department of Public Safety, \$108,035, 10/1/07-9/30/08. OU Pink Sheet Credit: 40% (\$43,214).
 11. J.P. Havlicek (PI), M.P. Tull, and R.D. Barnes, “OU Software Development & Integration Project (TraCS),” State of Oklahoma, Highway Safety Office, \$150,000 (75,209 in carryover + 74,791 in new funds), 10/1/07-9/30/08. OU Pink Sheet Credit: 40% (\$29,916).
 12. J.P. Havlicek (PI), M. Atiquzzaman, M.P. Tull, and R.D. Barnes, “University of Oklahoma Crash Reporting and Analysis System (SAFE-T),” State of Oklahoma, Highway Safety Office, \$53,171, 10/1/07-9/30/08. OU Pink Sheet Credit: 30% (\$15,951).
 13. M.P. Tull (PI), J.J. Sluss, Jr., J.P. Havlicek, and R.D. Barnes, “ITS System Engineering and Integration Services to be Provided by the OU ITS Lab as Part of the Oklahoma Transportation Center, FY 2008,” Oklahoma Department of Transportation, \$219,976, 10/1/07-9/30/08. OU Pink Sheet Credit: 30% (\$65,993).
 14. J.P. Havlicek (PI), J.J. Sluss, Jr., and M.P. Tull, “TraCS: Traffic and Criminal Software (continuation of OU Mobile Data Collection System Pilot Project),” State of Oklahoma, Highway Safety Office, \$182,467, 10/1/06-9/30/07. OU Pink Sheet Credit: 40% (\$72,987).
 15. M.P. Tull (PI), J.J. Sluss, Jr., and J.P. Havlicek, “ITS System Engineering and Integration,” Oklahoma Department of Transportation, \$208,000, 10/1/06-9/30/07. OU Pink Sheet Credit: 45% (\$93,600).
 16. M.P. Tull (PI), J.J. Sluss, Jr., M. Atiquzzaman, J.P. Havlicek, and T. Runolfsson, “Advanced Voice and Multimedia Communications System for the ODOT ITS Network,” State of Oklahoma, Department of Transportation (Oklahoma Transportation Center), \$81,000, 10/1/06-9/30/07. OU Pink Sheet Credit: 30% (\$24,300).
 17. J.P. Havlicek (PI), J.J. Sluss, Jr., M. Atiquzzaman, M.P. Tull, and T. Runolfsson, “University of Oklahoma Crash Reporting and Analysis,” State of Oklahoma, Highway Safety Office, \$50,000. 10/1/06-9/30/07. OU Pink Sheet Credit: 25% (\$12,500).
 18. J.P. Havlicek (PI), J.J. Sluss, Jr., M.P. Tull, and T. Runolfsson, “OU Mobile Data Collection System Pilot Project (Continuation),” State of Oklahoma, Highway Safety Office, \$45,751, 10/1/06-9/30/07. OU Pink Sheet Credit: 25% (\$11,438).
 19. J.J. Sluss, Jr. (PI), J.P. Havlicek, M.P. Tull, and T. Runolfsson, “Truck Weight Enforcement Using Advanced Weigh-in-Motion Systems,” Oklahoma Transportation Center, \$78,223, 5/1/06-4/30/07. OU Pink Sheet Credit: 25% (\$19,556).
 20. T. Landers (PI), with 19 Co-PI’s including J.P. Havlicek, “Inter-Modal Containerized Freight Security: FY 06 Allocation,” Oklahoma Department of Transportation, \$2,083,151, 7/1/06-6/30/07. OU Pink Sheet Credit: 6% (\$124,989).
 21. J.P. Havlicek (PI), J.J. Sluss, Jr., M.P. Tull, and T. Runolfsson, “OU Mobile Data Collection Project (CDL),” State of Oklahoma, Highway Safety Office, \$105,277, 3/1/06-9/30/06. OU Pink Sheet Credit: 25% (\$26,319).
 22. J.J. Sluss, Jr. (PI), J.P. Havlicek, M.P. Tull, and T. Runolfsson, “Intelligent Transportation System (ITS) Engineering and Integration Services,” Oklahoma Department of Transportation, \$225,000, 10/1/05-9/30/06. OU Pink Sheet Credit: 25% (\$56,250).
 23. J.P. Havlicek (PI), M.P. Tull, and J.J. Sluss, Jr., “SAFE-T: State-Wide Analysis for Enhancing Transportation,” State of Oklahoma, Highway Safety Office, \$50,000, 10/1/05-9/30/06. OU Pink Sheet Credit: 33% (\$16,667).
 24. R. Mc Pherson (PI), J.J. Sluss, Jr., J. Snow, J.P. Havlicek, J. Basara, M. Wolfenbarger, and C. Friebich, “Clarus Weather System Design,” Mixon/Hill, Inc. (prime contractor; flow-through from U.S. DoT – FHWA), \$411,769, 6/1/05-2/28/07. OU Pink Sheet Credit: 10% (\$41,177).
 25. J.P. Havlicek (PI), J.J. Sluss, Jr., M.P. Tull, and T. Runolfsson, “OU Mobile Data Collection System Pilot Project,” State of Oklahoma, Highway Safety Office, \$208,000, 4/25/05-3/31/06. OU Pink Sheet Credit: 25% (\$52,000).
 26. J.P. Havlicek (PI) and J.J. Sluss, Jr., “University of Oklahoma Crash Reporting and Analysis

- System (FMCSA Supplement),” State of Oklahoma, Highway Safety Office, \$75,000, 1/1/05-9/30/05. OU Pink Sheet Credit: 50% (\$37,500).
27. J.P. Havlicek (PI) and J.J. Sluss, Jr., “University of Oklahoma Crash Reporting and Analysis System,” State of Oklahoma, Highway Safety Office, \$50,000, 10/1/04-9/30/05. OU Pink Sheet Credit: 50% (\$25,000).
 28. J.J. Sluss, Jr. (PI) and J.P. Havlicek, “Intelligent Transportation System Engineering and Integration Services,” Oklahoma Department of Transportation, \$222,356, 10/1/04-9/30/05. OU Pink Sheet Credit: 50% (\$111,178).
 29. J.P. Havlicek (PI) and G. Fan, “Integrated Detection, Tracking, Classification, and Learning for Dual-Band Infrared Imagery,” Department of Defense, Army Research Office, \$465,897, 7/1/04-6/30/07. OU Pink Sheet Credit: 100% (\$465,897).
 30. J.J. Sluss, Jr. (PI) and J.P. Havlicek, “Design and Integration of ITS (Intelligent Transportation Systems) Project in Oklahoma,” Oklahoma Department of Transportation, \$164,500, 10/1/03-9/30/04. OU Pink Sheet Credit: 50% (\$82,250).
 31. J.P. Havlicek (PI) and J.J. Sluss, Jr., “A Statewide Crash Reporting and Analysis System,” State of Oklahoma, Highway Safety Office, \$50,000, 10/1/03-9/30/04. OU Pink Sheet Credit: 50% (\$25,000).
 32. J.J. Sluss, Jr. (PI) and J.P. Havlicek, “Design and Integration of ITS (Intelligent Transportation Systems) Project in Oklahoma (Year 0),” Oklahoma Department of Transportation, \$41,000, 7/1/03-9/30/03. OU Pink Sheet Credit: 50% (\$20,500).
 33. J.J. Sluss, Jr. (PI), J.P. Havlicek, and S. Radhakrishnan, “Development of a 511 Traveler Information Program Deployment Plan for Oklahoma,” Oklahoma Department of Transportation, \$50,000, 1/1/03-6/30/04. OU Pink Sheet Credit: 33% (\$16,500).
 34. J.P. Havlicek (PI) and J.J. Sluss, Jr., “A Statewide Accident Reporting and Analysis System,” Oklahoma Transportation Center, \$30,000, 1/1/03-9/30/03. OU Pink Sheet Credit: 50% (\$15,000).
 35. J.P. Havlicek (PI) and J.J. Sluss, Jr., “ITS Features for Enhanced Highway Safety in Work Zones,” State of Oklahoma, Highway Safety Office, \$50,000, 10/1/02-9/30/03. OU Pink Sheet Credit: 50% (\$25,000).
 36. J.J. Sluss, Jr. (PI) and J.P. Havlicek, “Design and Integration of ITS (Intelligent Transportation Systems) Project in Oklahoma,” Oklahoma Department of Transportation, \$145,000, 6/18/02-9/30/03. OU Pink Sheet Credit: 50% (\$72,500).
 37. J.E. Fagan (PI), J.P. Havlicek, and G.R. Schaumburg, “Determining the Required Navigational Performance of the GPS, WAAS, and LAAS Systems for Precision Simple and Complex Approaches and the Development of Models for the Prediction of the Operational Performance of these Navigation Systems,” Federal Aviation Administration, \$545,000, 5/1/02-6/30/03. OU Pink Sheet Credit: 30% (\$163,500).
 38. J.J. Sluss, Jr. (PI), J.P. Havlicek, and S. Radhakrishnan, “Oklahoma Statewide ITS Strategic Plan and ITS/CVO Plan,” Federal Highway Administration/Oklahoma Department of Transportation subcontract; prime contractor: P.B. Farradyne, Inc., \$32,692, 3/1/02-3/31/03. OU Pink Sheet Credit: 33% (\$10,788).
 39. J.E. Fagan (PI), J.P. Havlicek, and G.R. Schaumburg, “Determining the Required Navigational Performance of the GPS, WAAS, and LAAS Systems for Precision Simple and Complex Approaches and the Development of Models for the Prediction of the Operational Performance of these Navigation Systems in a Wide Variety of Aircraft (Global Positioning System Wide and Local Area Augmentation System),” Federal Aviation Administration, \$240,000, 2/1/00-6/30/02. OU Pink Sheet Credit: 30% (\$72,000).
 40. J.P. Havlicek (PI), “Decentralized Image Retrieval for Education \ (DIRECT\),” National Science Foundation subcontract; prime contractor: University of Virginia, PI: S.T. Acton, \$63,171, 1/1/02-12/31/03. OU Pink Sheet Credit: 100% (\$63,171).
 41. J.P. Havlicek (PI) and J.J. Sluss, Jr., “System Development and Testing for ITS,” State of Oklahoma, Highway Safety Office, \$50,000, 10/1/01-9/30/02. OU Pink Sheet Credit: 50% (\$25,000).
 42. M.P. Tull (PI), J.P. Havlicek, J.J. Sluss, Jr., and J. Cheung, “Artificial Intelligence Based Forecasting,” Lucent Technologies, \$39,943, 1/1/01-5/31/01. OU Pink Sheet Credit: 37% (\$14,779).
 43. P. Pulat (PI), J.J. Sluss, Jr., J.P. Havlicek, S. Radhakrishnan, and S.A. Moses, “Design and

- Evaluation of a Hierarchical Highway Network Structure and a Decision Support System with Surveillance Information to Enhance Business Partnerships in the E-Marketplace,” National Science Foundation, \$100,001, 8/15/00-8/14/01. OU Pink Sheet Credit: 20% (\$20,000).
44. J.P. Havlicek (PI) and J.J. Sluss, Jr., “System Development, Integration, and Component Testing for Oklahoma City’s Intelligent Transportation System,” State of Oklahoma Highway Safety Office, \$50,000, 10/1/00-9/30/01. OU Pink Sheet Credit: 50% (\$25,000).
 45. M.P. Tull (PI), J.J. Sluss, Jr., J.P. Havlicek, and S. Radhakrishnan, “Artificial Intelligence Based Inventory and Forecasting,” Lucent Technologies, \$248,428, 1/1/00-12/31/00. OU Pink Sheet Credit: 33% (\$81,981).
 46. J.P. Havlicek (PI) and J.J. Sluss, Jr., “System Development, Integration, and Component Testing for Oklahoma City’s Intelligent Transportation System,” State of Oklahoma Highway Safety Office, \$50,001, 10/1/99-9/30/00. OU Pink Sheet Credit: 50% (\$25,000).
 47. J.J. Sluss, Jr. (PI) and J.P. Havlicek, “An Intelligent Transportation System for Oklahoma City,” State of Oklahoma Department of Transportation, \$80,000, 7/1/99-8/15/00. OU Pink Sheet Credit: 50% (\$40,000).
 48. J.E. Fagan (PI), J.P. Havlicek, J.J. Sluss, Jr., and G.R. Schaumburg, “A Proposal for Research to Determine the Required Navigational Performance of the GPS, WAAS, and LAAS Systems for Simple and Complex Approaches and the Development of Models for the Prediction of the Operational Performance of these Navigation Systems in a Wide Variety of Aircraft,” Federal Aviation Administration, \$866,300, 4/16/99-6/30/01. OU Pink Sheet Credit: 30% (\$259,890).
 49. M.P. Tull (PI), J.J. Sluss, Jr., and J.P. Havlicek, “Extended Artificial Intelligence Based Forecasting and Inventory Planning Models,” Lucent Technologies, \$232,754, 1/1/99-12/31/99. OU Pink Sheet Credit: 33.3% (\$77,507).
 50. J.J. Sluss, Jr. (PI) and J.P. Havlicek, “System Architecture Design for Oklahoma City’s Intelligent Transportation System,” State of Oklahoma Department of Transportation, \$49,776, 5/13/98-10/31/98. OU Pink Sheet Credit: 50% (\$24,888).
 51. M.P. Tull (PI), J.J. Sluss, Jr., J.P. Havlicek, V.E. DeBrunner, L.S. DeBrunner, S.C. Lee, and S. Radhakrishnan, “Artificial Intelligence Based Forecasting and Inventory Planning Models,” Lucent Technologies, \$229,298, 11/1/97-12/31/98. OU Pink Sheet Credit: 21% (\$48,153).

Total External Funding: \$9,584,906

Total Attributable to J.P. Havlicek (OU Pink Sheet Credit): \$3,207,870

► **Invited Lectures:**

1. J. P. Havlicek, “Multidimensional AM-FM Models with Image Processing Applications,” School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN, November 22, 2002.
2. J. P. Havlicek, “Image Texture Retrieval Using Joint Amplitude-Frequency Modulation Models,” Dept. Electrical and Computer Engineering, University of Virginia, Charlottesville, VA, July 22, 2002.
3. J. P. Havlicek, “Modulation Models for Image Processing and Machine Vision,” Dept. Electrical Engineering, The Ohio State University, Columbus, OH, March 31, 1998.
4. J. P. Havlicek, “Modulation Models for Image Processing and Machine Vision,” School of Electrical & Computer Engineering, Oklahoma State University, Stillwater, OK, March 26, 1998.
5. J. P. Havlicek, “Wideband Frequency Excursions in Multicomponent AM-FM Models,” School of Electrical & Computer Engineering Colloquium Seminar Series, the University of Oklahoma, Norman, OK, September 18, 1997.
6. J. P. Havlicek, “AM-FM Image Models,” IEEE Oklahoma City Section meeting, Oklahoma City, OK, March 20, 1997.
7. J. P. Havlicek, “AM-FM Image Models,” University of Oklahoma IEEE Student Branch meeting, Norman, OK, February 13, 1997.
8. J. P. Havlicek, “AM-FM Image Models,” School of Electrical & Computer Engineering, the University of Oklahoma, Norman, OK, July 18, 1996.

9. J. P. Havlicek, "AM-FM Image Analysis," Dept. Electrical Engineering, University of Washington, Seattle, WA, May 14, 1996.
10. J. P. Havlicek, "AM-FM Image Analysis," Dept. Electrical Engineering, The Pennsylvania State University, University Park, PA, April 22, 1996.

Publications

A. Archival Journal Papers:

1. X. Fan, G. Fan, and J.P. Havlicek, "Generative models for maneuvering target tracking," *IEEE Trans. Aerospace, Elect. Sys.*, submitted Jun. 2007, revised Jun. 2008, accepted Nov. 2008.
2. Y. Zhai, M. Yeary, J. Havlicek, and G. Fan, "A new centralized sensor fusion-tracking methodology based on particle filtering for power-aware systems," *IEEE Trans. Instrumentation, Measurement*, vol. 57, no. 10, pp. 2377-2387, Oct. 2008.
3. V. DeBrunner, J.P. Havlicek, T. Przebinda, and M. Özaydın, "Entropy-based uncertainty measures for $L^2(\mathbb{R}^n)$, $\ell^2(\mathbb{Z})$, and $\ell^2(\mathbb{Z}/N\mathbb{Z})$ with a Hirschman optimal transform for $\ell^2(\mathbb{Z}/N\mathbb{Z})$," *IEEE Trans. Signal Proc.*, vol. 53, no. 8, pp. 2690-2699, Aug. 2005.
4. S.T. Acton, D.P. Mukherjee, J.P. Havlicek, and A.C. Bovik, "Oriented texture completion by AM-FM reaction-diffusion," *IEEE Trans. Image Proc.*, vol. 10, no. 6, pp. 885-896, Jun. 2001.
5. J.P. Havlicek and P.C. Tay, "Determination of the number of texture segments using wavelets," *Electron. J. Diff. Eqns.*, vol. Conf. 07, 2001, pp. 61-70, <http://ejde.math.swt.edu/conf-proc/07/toc.html>. Also published in *Proc. 16th Conf. Appl. Math.*, Edmond, OK, Feb. 23-24, 2001, pp. 61-70.
6. J.P. Havlicek, D.S. Harding, and A.C. Bovik, "Multidimensional quasi-eigenfunction approximations and multicomponent AM-FM models," *IEEE Trans. Image Proc.*, vol. 9, no. 2, pp. 227-242, Feb. 2000.
7. J.P. Havlicek, D.S. Harding, and A.C. Bovik, "Multicomponent multidimensional signals," *Multidimensional Syst. and Signal Proc.*, vol. 9, no. 4, invited paper, pp. 391-398, Oct. 1998.
8. J.P. Havlicek, "The evolution of modern texture processing," *Elektrik, Turkish Journal of Electrical Engineering and Computer Sciences*, vol. 5, no. 1, special issue on image processing, pp. 1-28, 1997.
9. A.C. Bovik, J.P. Havlicek, M.D. Desai, and D.S. Harding, "Limits on discrete modulated signals," *IEEE Trans. Signal Proc.*, vol. 45, no. 4, pp. 867-879, Apr. 1997.
10. J.P. Havlicek, D.S. Harding, and A.C. Bovik, "The mutli-component AM-FM image representation," *IEEE Trans. Image Proc.*, special issue on nonlinear image processing, vol. 5, no. 6, pp. 1094-1100, Jun. 1996.
11. J.P. Havlicek, J.C. McKeeman, and P.W. Remaklus, "Networks of low-earth orbit store-and-forward satellites," *IEEE Trans. Aerospace and Elect. Sys.*, vol. 31, no. 2, pp. 543-554, Apr. 1995.
12. J.P. Havlicek, G.R. Katz, and J.C. McKeeman, "Even length median filters in optimal signal processing," *Electron. Letters*, vol. 28, no. 13, pp. 1258-1260, Jun. 18, 1992.
13. J.P. Havlicek, K.A. Sarkady, G.R. Katz, and J.C. McKeeman, "Fast efficient median filters with even length windows," *Electron. Letters*, vol. 26, no. 20, pp. 1736-1737, Sep. 27, 1990.

B. Book Chapters:

1. G. Fan, V. Venkataraman, L. Tang, and J.P. Havlicek, "On Boosted and Adaptive Particle Filters for Affine-Invariant Target Tracking in Infrared Imagery," in *Augmented Vision Perception in Infrared: Algorithms and Applied Systems* (Advances in Pattern Recognition), R.I. Hammoud, ed., Springer-Verlag, London, 2009, pp. 441-466.
2. J.P. Havlicek, P.C. Tay, and A.C. Bovik, "AM-FM Image Models: Fundamental Techniques and Emerging Trends," in *Handbook of Image and Video Processing, 2 ed.*, A.C. Bovik, ed., Elsevier Academic Press, Burlington, MA, 2005, pp. 377-395.

3. M.S. Pattichis, J.P. Havlicek, S.T. Acton, and A.C. Bovik, "Multidimensional AM-FM Models with Image Processing Applications," in *Advances in Image Processing and Understanding: A Festschrift for Thomas S. Huang*, A.C. Bovik, C.W. Chen, and D. Goldgof, ed., Series in Machine Perception and Artificial Intelligence, vol. 52, World Scientific Publishing, Singapore, 2002, pp. 277-305.
4. M.P. Tull, J.J. Sluss, Jr., and J.P. Havlicek, "Product Demand Forecasting Using Genetic Programming," in *Fuzzy Engineering Expert Systems with Neural Network Applications*, A.B. Badiru and J.Y. Cheung, John Wiley & Sons, New York, 2002, pp. 274-281.
5. J.P. Havlicek and A.C. Bovik, "Image Modulation Models," in *Handbook of Image and Video Processing*, A.C. Bovik, ed., Communications, Networking, and Multimedia Series by Academic Press, San Diego, 2000, pp. 305-316.
6. J.P. Havlicek, A.C. Bovik, and D. Chen, "AM-FM Image Modeling and Gabor Analysis," in *Visual Information Representation, Communication, and Image Processing*, C.W. Chen and Y. Zhang, ed., Optical Engineering Series by Marcel Dekker, Inc., New York, 1999, pp. 343-385.

C. Refereed and Invited Conference Papers:

1. Chuong T. Nguyen, Patrick A. Campbell, and Joseph P. Havlicek, "FM Filters for Modulation Domain Image Processing," in *Proc. IEEE Int'l. Conf. Image Proc.*, Cairo, Egypt, Nov. 7-11, 2009, paper no. 2562, to appear.
2. Colin M. Johnston, Nicholas A. Mould, and Joseph P. Havlicek, "Multichannel dual domain infrared target tracking for highly evolutionary target signatures," in *Proc. IEEE Int'l. Conf. Image Proc.*, Cairo, Egypt, Nov. 7-11, 2009, paper no. 2562, to appear.
3. B.H. Kilani, E. Vorakitolan, J.P. Havlicek, M.P. Tull, and A.R. Stevenson, "Disbributed ITS control and the Oklahoma vritual TMC," in *Proc. 12th Int'l. IEEE Conf. Intel. Transportation Syst.*, St. Louis, MO, Oct. 3-7, 2009, to appear.
4. J.R. Junger, J.P. Havlicek, R.D. Barnes, and M.P. Tull, "Prediction aggregation of remote traffic microwave sensors speed and volume data," in *Proc. 12th Int'l. IEEE Conf. Intel. Transportation Syst.*, St. Louis, MO, Oct. 3-7, 2009, to appear.
5. Colin M. Johnston, Nick Mould, Joseph P. Havlicek, and G. Fan, "Dual Domain Auxiliary Particle Filter with Integrated Target Signature Update," in *Proc. 6th Joint IEEE Int'l. Workshop Object Tracking, Class., in and Beyond the Visible Spectrum*, in conjunction with the 2009 IEEE Computer Soc. Conf. Comput. Vision, Pattern Recog., Miami, FL, Jun. 20-25, 2009 (6 pages), to appear.
6. V. Venkataraman, G. Fan, X. Fan, and Joseph P. Havlicek, "Appearance learning by adaptive Kalman filters for FLIR tracking," in *Proc. 6th Joint IEEE Int'l. Workshop Object Tracking, Class., in and Beyond the Visible Spectrum*, in conjunction with the 2009 IEEE Computer Soc. Conf. Comput. Vision, Pattern Recog., Miami, FL, Jun. 20-25, 2009 (8 pages), to appear.
7. C.T. Nguyen and J.P. Havlicek, "AM-FM image filters," in *Proc. IEEE Int'l. Conf. Image Proc.*, San Diego, CA, Oct. 12-15, 2008, pp. 789-792.
8. N.A. Mould, C.T. Nguyen, C.M. Johnston, and J.P. Havlicek, "Online consistency checking for AM-FM target tracks," in *Proc. SPIE/IS&T Conf. Computational Imaging VI*, C.A. Bouman, E.L. Miller, and I. Pollak, ed., *SPIE* v. 6814, Jan. 26-31, 2008, pp. 681413-1 – 681413-12.
9. C.T. Nguyen, R.A. Sivley, and J.P. Havlicek, "First results in perceptually-based AM-FM image filtering," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Santa Fe, NM, Mar. 24-26, 2008, pp. 77-80.
10. N.A. Mould, C.T. Nguyen, and J.P. Havlicek, "Infrared target tracking with AM-FM consistency checks," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Santa Fe, NM, Mar. 24-26, 2008, pp. 5-8.
11. Y. Wang, L.S. DeBrunner, J.P. Havlicek, and D. Zhou, "Iterative radix-8 multiplier structure based on a novel real-time CSD recoding," in *Proc. 41st IEEE Asilomar Conf. Signals, Syst., Comput.*, Pacific Grove, CA, Nov. 4-7, 2007, to appear.
12. H. Thai, V. DeBrunner, L.S. DeBrunner, J. Havlicek, K. Mish, K. Ford, and A. Medda, "Deterministic-stochastic subspace identification for bridges," in *Proc. 2007 IEEE Statistical Signal Proc. Workshop*, Madison, WI, Aug. 26-29, 2007, pp. 749-753.

13. C.T. Nguyen, J. Havlicek, and M. Yeary, "Modulation domain template tracking," in *Proc. 4th Joint IEEE Int'l. Workshop Object Tracking, Class., in and Beyond the Visible Spectrum*, in conjunction with the *2007 IEEE Computer Soc. Conf. Comput. Vision, Pattern Recog.*, Minneapolis, MN, Jun. 17-22, 2007 (8 pages).
14. R.A. Sivley and J.P. Havlicek, "Perfect reconstruction AM-FM image models," in *Proc. IEEE Int'l. Conf. Image Proc.*, Atlanta, GA, Oct. 8-11, 2006, pp. 2125-2128.
15. C.T. Nguyen and J.P. Havlicek, "Modulation domain features for discriminating infrared targets and backgrounds," in *Proc. IEEE Int'l. Conf. Image Proc.*, Atlanta, GA, Oct. 8-11, 2006, pp. 3245-3248.
16. Y. Zhai, M. Yeary, J. -C. Noyer, J. Havlicek, S. Nemati, and P. Lanvin, "Visual target tracking using improved and computationally efficient particle filtering," in *Proc. IEEE Int'l. Conf. Image Proc.*, Atlanta, GA, Oct. 8-11, 2006, pp. 1757-1760.
17. G. Fan, V. Venkataraman, L. Tang, and J. Havlicek, "A comparative study of boosted and adaptive particle filters for affine-invariant target detection and tracking," in *Proc. 3rd Joint IEEE Int'l. Workshop Object Tracking, Class., in and Beyond the Visible Spectrum*, in conjunction with the *2006 IEEE Computer Soc. Conf. Comput. Vision, Pattern Recog.*, New York, NY, Jun. 17-22, 2006, p. 138 (8 pages).
18. J.P. Havlicek, C.T. Nguyen, and M. Yeary, "Modulation domain infrared target models," in *Targets and Backgrounds XII: Characterization and Representation*, W.R. Watkins and D. Clement, ed., *SPIE v. 6239*, May 4, 2006, pp. 62390D-1 – 62390D-11.
19. J.P. Havlicek, C.T. Nguyen, G. Fan, and V.B. Venkataraman, "Integration of a dual-band IR data acquisition system using low-cost PV320 cameras," in *Infrared Technology and Applications XXXII*, B.F. Andersen, G.F. Fulop, and P.R. Norton, ed., *SPIE v. 6206*, May 18, 2006, pp. 62061U-1 – 62061U-9.
20. K. Suri and J.P. Havlicek, "Phase algorithm for blocking artifact reduction in reconstructions from analysis-only AM-FM models," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Denver, CO, Mar. 26-28, 2006, pp. 6-10.
21. R.A. Sivley and J.P. Havlicek, "A spline-based framework for perfect reconstruction AM-FM models," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Denver, CO, Mar. 26-28, 2006, pp. 198-202.
22. Y. Wang, L.S. DeBrunner, J.P. Havlicek, and D. Zhou, "Signal exclusive adaptive average filter for impulse noise suppression," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Denver, CO, Mar. 26-28, 2006, pp. 51-55.
23. R.C. Huck, J.P. Havlicek, J.J. Sluss, Jr., and A.R. Stevenson, "A low-cost distributed control architecture for intelligent transportation systems deployment in the State of Oklahoma," in *Proc. 8th Int'l. IEEE Conf. Intel. Transportation Syst.*, Vienna, Austria, Sep. 13-16, 2005, pp. 919-924.
24. P.C. Tay and J.P. Havlicek, "JPEG 2000 scalar quantization using an optimally frequency localized modulated lapped transform," in *Proc. IEEE Int'l. Conf. Image Proc.*, Genoa, Italy, Sept. 11-14, 2005, vol. I, pp. 93-96.
25. R.A. Sivley and J.P. Havlicek, "Multidimensional phase unwrapping for consistent APF estimation," in *Proc. IEEE Int'l. Conf. Image Proc.*, Genoa, Italy, Sept. 11-14, 2005, vol. II, pp. 458-461.
26. Y. Zhai, M. Yeary, J.P. Havlicek, J.-C. Noyer, and P. Lanvin, "Visual tracking using sequential importance sampling with a state partition technique," in *Proc. IEEE Int'l. Conf. Image Proc.*, Genoa, Italy, Sept. 11-14, 2005, vol. III, pp. 876-879.
27. Y. Zhai, M. Yeary, V. DeBrunner, J.P. Havlicek, and O. Alkhoul, "Image restoration using a hybrid combination of particle filtering and wavelet denoising," in *Proc. IEEE Int'l. Conf. Image Proc.*, Genoa, Italy, Sept. 11-14, 2005, vol. II, pp. 790-793.
28. N. Kitiyanan and J.P. Havlicek, "Modulation domain reference point detection for fingerprint recognition," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Lake Tahoe, NV, Mar. 28-30, 2004, pp. 147-151.
29. D. Zhou, V. DeBrunner, and J.P. Havlicek, "A spatially selective filter based on the undecimated wavelet transform that is robust to noise estimation error," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Lake Tahoe, NV, Mar. 28-30, 2004, pp. 162-166.
30. P.C. Tay and J.P. Havlicek, "Frequency implementation of discrete wavelet transforms," in *Proc. IEEE Southwest Symp. Image Anal. & Interp.*, Lake Tahoe, NV, Mar. 28-30, 2004,

- pp. 167-171.
31. H. Wen, J. Havlicek, and J. Fagan, "B-value research for FAA LAAS station integrity and fault detection," in *Proc. ION 2004 Nat. Tech. Meeting*, San Diego, CA, Jan. 26-28, 2004, pp. 817-822.
 32. G. Mu, J. Fagan, and J.P. Havlicek, "A new position domain algorithm to improve WAAS availability and continuity while maintaining integrity," in *Proc. ION 2004 Nat. Tech. Meeting*, San Diego, CA, Jan. 26-28, 2004, pp. 145-156.
 33. J.P. Havlicek, J. Tang, S.T. Acton, R. Antonucci, and F.N. Ouandji, "Modulation domain texture retrieval for CBIR in digital libraries," in *Proc. 37th IEEE Asilomar Conf. Signals, Syst., Comput.*, Pacific Grove, CA, Nov. 9-12, 2003, vol. 2, pp. 1580-1584.
 34. P.C. Tay and J.P. Havlicek, "Joint uncertainty measures for maximally decimated M-channel prime factor cascaded wavelet filter banks," in *Proc. IEEE Int'l. Conf. Image Proc.*, Barcelona, Spain, Sept. 14-17, 2003, vol. 1, pp. 1033-1036.
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 40. T.B. Yap, J.P. Havlicek, and V. DeBrunner, "Bayesian segmentation of AM-FM texture images," in *Proc. 35th IEEE Asilomar Conf. Signals, Syst., Comput.*, Pacific Grove, CA, Nov. 4-7, 2001, vol. 2, pp. 1156-1160, (*invited paper*).
 41. C. Zhong and J.P. Havlicek, "LDPC codes for robust transmission of images over wireless channels," in *Proc. 35th IEEE Asilomar Conf. Signals, Syst., Comput.*, Pacific Grove, CA, Nov. 4-7, 2001, vol. 1, pp. 797-800.
 42. N. Zray, J. Havlicek, S. Acton, and M. Pattichis, "Active contour segmentation guided by AM-FM dominant component analysis," in *Proc. IEEE Int'l. Conf. Image Proc.*, Thessaloniki, Greece, Oct. 7-10, 2001, vol. 1, pp. 78-81.
 43. T.B. Yap, T. Tangsukson, P.C. Tay, N.D. Mamuya, and J.P. Havlicek, "Unsupervised texture segmentation using dominant image modulations," in *Proc. 34th IEEE Asilomar Conf. Signals, Syst., Comput.*, Pacific Grove, CA, Oct. 29-31, 2000, vol. 2, pp. 911-915 (*invited paper*).
 44. V. DeBrunner, L. DeBrunner, J. Havlicek, and M. Tull, "Introduction to digital signals and filtering: implementing DSP First at the University of Oklahoma," in *Proc. 9th IEEE DSP Workshop*, Hunt, TX, Oct. 15-18, 2000 (*invited paper*) (no paper proceedings – electronic only).
 45. J.P. Havlicek, P.C. Tay, and J.J. Sluss, Jr., "Signals and systems: a consistent, unified approach," in *Proc. 30th ASEE/IEEE Frontiers in Education Conf.*, Kansas City, MO, Oct. 18-21, 2000, , vol. 2 pp. F4E/1-F4E/6.
 46. T. Tangsukson and J.P. Havlicek, "AM-FM image segmentation," *Proc. IEEE Int'l. Conf. Image Proc.*, Vancouver, Canada, Sep. 10-13, 2000, vol. 2, pp. 104-107.
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E. Theses:

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2. J.P. Havlicek, "Median filtering for target detection in an airborne threat warning system," *M.S. thesis, Virginia Tech*, 1988.

► Short Vita:

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