

Marios S. Pattichis

image and video Processing and Communication Lab (ivPCL)
Dept. of Electrical Engineering and Computer Engineering
The University of New Mexico, Albuquerque, NM 87131-0001, USA
pattichi@unm.edu
Tel: (505) 277-0486; Fax: (505) 277-1439
ivpcl.unm.edu

Education

Ph.D., Computer Engineering, The University of Texas at Austin, 1998
M.S.E., Electrical Engineering, The University of Texas at Austin, 1993
B.A., Mathematics, The University of Texas at Austin, 1991
B.Sc., Computer Sciences, (minor in EE), The University of Texas at Austin, 1991

Professional experience

6/2017-Present Associate Chair, Dept. of Electrical and Computer Engineering, UNM.
7/2012-Present Professor, Dept. of Electrical and Computer Engineering, UNM
1/2012-9/2015 Area Chair, Computer Engineering Program, Dept. of Electrical and Computer Engineering, UNM
7/2007-6/2012 Associate Professor, Dept. of Electrical and Computer Engineering, UNM
9/2007-6/2012 Associate Professor (non-voting faculty), Dept. of Radiology, UNM
9/2006-2007 Adjunct Assistant Professor, Dept. of Radiology, University of New Mexico
9/2000-6/2007 Assistant Professor, Dept. of ECE, University of New Mexico
9/2003-2/2005 Visiting Assistant Professor, Dept. of Computer Science, The University of Cyprus (required return to home country for US CASP (scholarship) program)
9/1999-9/2000 Research Assistant Professor, Dept. of ECE, University of New Mexico
8/1998-8/1999 Visiting Assistant Professor, Dept. of EECS, Washington State University
6/1998-7/1998 Post-Doctoral Fellow, Dept. of ECE, The University of Texas at Austin

Primary areas of active research interests

- Educational video analysis to understand student learning
- Mathematical and statistical representations for image and video processing and communications
- Biomedical and space image processing methods and applications
- Dynamically reconfigurable systems for image and video processing and communications
- Research in teaching digital image and video processing to middle school students from under-represented groups

Honors

2017 Founder of ClearStream Technologies, Finalist for Creative Business Cup, USA.
2017 UNM STC Innovation Award
2016 Lawton-Ellis Award, Dept. of Electrical and Computer Engineering.
2016 UNM STC Innovation Award
2015 UNM STC Innovation Award
2014 UNM STC Innovation Award

- 2014 AFRL Summer Faculty Fellow
- 2012 AFRL Summer Faculty Fellow
- 2010 Silver Zia Award from Santa Fe Public School System (co-recipient with ECE Department, cited for my work on teaching electronics at Larragoite Elementary School)
- 2006 Best paper award (co-author), *3rd IFIP Conference on Artificial Intelligence Applications and Innovations (AIAI06)*
- 2006 Senior Member of IEEE
- 2006 UNM School of Engineering Harrison Faculty Excellence Award
- 2003 Recognized by Xilinx Corporation for Contributions to Undergraduate ECE Education
- 2003 Teacher of the Year Award, Dept. of Electrical and Computer Engineering, UNM
- 1991 High honors in Computer Sciences, The University of Texas at Austin
- 1991 Special honors in Computer Sciences, The University of Texas at Austin
- 1991 High honors in Mathematics, The University of Texas at Austin
- 1987-1991 Full Scholar of Cyprus-America Scholarship Program (CASP) to support undergraduate studies at the University of Texas at Austin (US AID program and Fulbright Commission of Cyprus).

Patents

1. "System and methods for motion estimation in digital videos using Amplitude-Modulation Frequency-Modulation (AM-FM) Model," **Marios S. Pattichis**, P. A. Rordiguez-Valderrama, and Victor Manuel Murray Herrera, *US patent filed on 06/02/2017*.
2. "System and Methods for the Computation of the Forward and Inverse Discrete Periodic Radon Transform on CPUs and GPUs", Inventors: Cesar Carranza, Daniel Llamocca, and **Marios S. Pattichis**, US Patent application published on Dec. 13, 2018. Pending Patent acknowledges NSF CNS1422031.
3. "System and Methods for Computing 2-D Convolutions and Cross-correlations," Inventors: Cesar Carranza, Daniel Llamocca, and **Marios S. Pattichis**, US Patent application published on Dec. 13, 2018. Patent acknowledges NSF CNS1422031.
4. "System and Methods for Joint and Adaptive Control of Rate, Quality, and Computational Complexity for Video Coding and Delivery," Inventors: **Marios S. Pattichis**, Yuebing Jiang, Cong Zong, Gangadharan Esakki, Venkatesh Jatla, and Andreas Panayides, US Patent application published on Aug. 2nd, 2018. Patent acknowledges NSF CNS1422031. Licensed to ClearStream Technologies, LLC.
5. "System and Methods for Dynamic Management of Hardware Resources," Inventors: **Marios S. Pattichis**, Yuebing Jiang, and Daniel Llamocca, US Patent 9,542,198 B2 granted on January, 10th, 2017. Licensed to ClearStream Technologies, LLC.
6. "System And Methods For Computing Forward and Inverse Discrete Periodic Radon Transform," Inventors: Cesar Carranza, Daniel Llamocca, and **Marios S. Pattichis**, US Patent US10049469B2, granted 08/14/2018.
7. "System and methods for video image processing," Inventors: Timothy Perez, Yuebing Jiang, and **Marios S. Pattichis**, US Patent 9,451,161, *granted on 2016-09-20*.
8. "System and Methods for Dynamic Management of Hardware Resources," Inventors: **Marios S. Pattichis**, Yuebing Jiang, and Daniel Llamocca, U.S. Patent 9,111,059, approved on Aug. 18th, 2015. Licensed to ClearStream Technologies, LLC (2017). Also, licensed to Fluidviews, LLC (2017).
9. "System and Methods of Regularized Optimization For Matrix Factorization And Image and Video Reconstruction," Inventors: Paul Rodriguez-Valderrama, **Marios S. Pattichis**, and Victor Manuel Murray-Herrera, U.S. Patent 8,908,992 B1, approved on Dec. 9th, 2014.
10. "System and Methods of Amplitude-Modulation Frequency-Modulation (AM-FM) Demodulation for Image and Video Processing," Victor Manuel Murray Herrera, **Marios S. Pattichis**, Peter Soliz, Carla Paola Agurto Rios and Herbert T. Davis III, U.S. Patent 8,515,201 B1, approved on Aug. 20th, 2013, biomedical applications licensed to VisionQuest Biomedical, LLC.

Invention Disclosures

11. “Fast Discrete-Decision Making Algorithms Based on Optimal Computation,” **Marios S. Pattichis**, invention disclosure to STC, May 14, 2013.
12. “Novel Motion Estimation Method,” Inventors: Victor Manuel Murray-Herrera, Paul Rodriguez-Valderrama, and **Marios S. Pattichis**, *Provisional Patent Filed* on June 30th, 2011 (full patent application not filed).

Affiliations

- Configurable Space Microelectronics Innovation & Applications Center (COSMIAC, renamed from FPGA Mission Assurance Center (FMAC)), Board member and Co-PI (one of two Co-PIs) to the proposal that funded the Center at UNM, (2007-2012)
- UNM Center for Biomedical Engineering, General Affiliate, School of Engineering, UNM
- UNM Department of Radiology, School of Medicine (non-voting faculty member)
- UNM Junior Researcher Strategic Committee (2008)
- UNM Cancer Research and Treatment Center (CRTC) Group (2002-2008)
- Department of Computer Science, The University of Cyprus (2003-2004, 2008)
- UNM School of Medicine/School of Engineering Collaboration Group (2002)
- UNM Biomedical Physics Group (2002)
- Cyprus Institute of Neurology and Genetics (1990-2000)

Society memberships

- IEEE (senior member)
- IEEE Signal Processing Society
- IEEE Engineering in Medicine and Biology Society
- IEEE Computer Society
- IEEE SP/COM Albuquerque Chapter, Vice-President (2011-present)
- American Association of University Professors (AAUP, 1999-present)

Editorial service

- Senior Associate Editor, *IEEE Transactions On Image Processing*, October 1st, 2018 – October 1st, 2021.
- Senior Associate Editor, *IEEE Signal Processing Letters*, September 13th, 2015 – September 13th, 2018.
- Associate Editor, *IEEE Transactions on Image Processing*, October 2010-October 2014.
- Guest Editor, “Guest Editorial to Special Issue on Biomedical Monitoring Technologies,” *International Journal of Monitoring and Surveillance Technologies Research (IJMSTR)*, Parts 1 and 2, vol. 1, no. 4, October-December, 2013.
- Guest Editor, *Special Issue on Biomedical Informatics, IEEE Transactions on Information Technology in Biomedicine*, (2011).
- Guest Editor, *Special Issue on Biomedical Signal Processing and Analysis, Biomedical Signal Processing and Control* (Elsevier), (2011).
- Guest Editor, *Special Issue on Computational Intelligence in Medical Systems, IEEE Transactions on Information Technology in Biomedicine*, September 2009.
- Associate Editor, *IEEE Transactions on Industrial Informatics*, July 2009-March 2011.

- Editorial Board, *International Journal of Experimental and Computational Biomechanics* (IJEBCB), 2009-2011.
- Associate Editor for *Pattern Recognition* (2005-2010)

Human research certification

2009 Completed PI Human Research Certification, NIH.

2002 Completed Human Research Review Committee training course and test at UNM.

RESEARCH

Active research collaborations

- Air-Force Research Laboratory (AFRL), Albuquerque, New Mexico
- Vascular Non-invasive Screening and Diagnostic Centre (VSNDCC), London, UK
- Vascular Screening and Diagnostic Centre, Nicosia, Cyprus
- Mathematical Modeling and Analysis, Center for Nonlinear Sciences, Los Alamos National Laboratory
- Medical Informatics Laboratory, Department of Computer Science, The University of Cyprus, Nicosia, Cyprus

Active and completed sponsored research (only UNM awarded amounts are shown)

1. *NSF Supplemental Funds for Broadening Participation of Latina/o Students in Engineering Using an Integrated Mathematics, Engineering and Computing Curriculum in Authentic, Out-of-School Environments*. Lead Principal Investigator: Sylvia Celedon-Pattichis. Co-PIs: Drs. Carlos LópezLeiva and Marios S. Pattichis. Amount requested: \$208,048 from the National Science Foundation-Innovative Technology Experiences for Students and Teachers (ITEST) and STEM+Computing. Duration of Project: September 1, 2018 to August 31, 2019. Status: Funded.
2. *NSF Supplemental Funds for Broadening Participation of Latina/o Students in Engineering Using an Integrated Mathematics, Engineering and Computing Curriculum in Authentic, Out-of-School Environments*. Lead Principal Investigator: Sylvia Celedon-Pattichis. Co-PIs: Drs. Carlos LópezLeiva and Marios S. Pattichis. Amount requested: \$24,000 from the National Science Foundation-Innovative Technology Experiences for Students and Teachers (ITEST) and STEM+Computing. Duration of Project: September 1, 2018 to August 31, 2019. Status: Funded.
3. *NSF EAGER: Computer-Assisted Video Analysis Methods for Understanding Underrepresented Student Participation and Learning in Collaborative Learning Environments*, \$299,999, PI: **Marios S. Pattichis**. Co-PIs: Sylvia Celedon-Pattichis and Carlos LopezLeiva, NSF STEM+C, 9/1/18-8/31/20.
4. *NSF ITEST: Broadening Participation of Latina/o Students in Engineering Using an Integrated Mathematics, Engineering and Computing Curriculum in Authentic, Out-of-School Environments*, \$1,419,118 (with two supplemental awards), PI: Sylvia Celedon-Pattichis. Co-PIs: **Marios S. Pattichis** and Carlos LopezLeiva, NSF ITEST, 9/1/16 – 8/31/19.
5. *NSF CSR:Small: Dynamically Reconfigurable Architectures for Time-varying Image Constraints (DRASTIC) Based on Local Modeling and User Constraint Prediction*, \$459,870, PIs: **Marios S. Pattichis** and Daniel Llamocca, NSF AWD 1422031, 10/01/14 – 10/01/17.
6. *Expert Feature Extraction from Digital Images*, PI: **Marios S. Pattichis**, Honeywell Corp., 05/01/2014 - 09/30/2014.
7. *Advancing Out-of-School Learning in Mathematics and Engineering (AOLME)*, PIs: LopezLeiva, C.A., **Pattichis, M.S.**, and Celedon-Pattichis, S., 2013 College of Education at UNM Research

- initiative, ~\$40K and \$8K matching funds from School of Engineering at UNM, June 2013 - May 2014, awarded.
8. *Cellular Elements for Ensemble Based Programmable Matter*, \$34,942 (UNM portion), **AFRL STTR** (Grant number AF11-BT26), 05/01/2012 – 12/31/2012.
 9. *Real-time Image Quality Assessment for Digital Fundus Images*, \$202,893, M.S. Pattichis, **NIH STTR Phase II sub-award to UNM** (Grant Number 42EY018971-02A1), 9/1/11 – 8/19/13.
 10. *Advancing New Mexico Science and Engineering Education Through Student and Teacher Education in Digital Audio, Image, and Video Processing*, \$87,750, PIs: M.S. Pattichis, S.C. Pattichis, C. LopezLeiva, **UNM support for Post-Doctor Fellow Position**, FY12-FY13.
 11. *Tier 1 Interdisciplinary Summer Research Program: Out-of-School Learning in Mathematics & Engineering*, (~\$48,000), PIs: C. Lopez and M.S. Pattichis, funded from the **UNM College of Education and the School of Engineering**, 06/01/2012 – 05/01/2013,
 12. *Role-specific Laparoscopic Imaging Feasibility Study*, \$22,464, PI: T. Perez, Collaborator: M.S. Pattichis (support for ECE student, Y. Jiang), **UNM RAC**, 03/01/2012 – 03/01/2013.
 13. *Real-Time Reconfigurable Systems for Space Applications*, \$2,563,577. Lead PIs: C. Christodoulou, M.S. Pattichis. **AFRL Award #FA9453-09-C-0309**, 11/24/2008-6/15/2015.
 14. *FMAC Support Activity for Advanced Electronic Materials, Devices and Circuits for Space Electronics*, \$5,059,324. Note that FMAC has been renamed to COSMIAC. Co-PIs: C. Christodoulou and M.S. Pattichis, **AFRL Award #FA9453-0802-0259**, 08/21/2008 – 07/31/2013.
 15. *Stroke Risk Stratification Through Plaque Motion Analysis of Longitudinal Carotid Ultrasound*, (\$200,000 total, \$74,142 for UNM), Co-PIs: S. Barriga and M.S. Pattichis. **NIH SBIR Phase-I, Recovery Act Limited Competition: Small Business Catalyst Awards for Accelerating Innovative Research (R43)**, 08/16/2010–08/15/2011.
 16. *Diabetic Retinopathy Image Analysis*, \$277,418, PI: M.S. Pattichis, **NIH RC3 Bridge Program and NIH SBIR Phase II** sub-awards to UNM from VisionQuest Biomedical, 7/1/2009 - 12/31/2011.
 17. *Diabetic Retinopathy Image Analysis*, \$29,978, PI: M.S. Pattichis, NIH sub-award to UNM from **NIH SBIR Phase II** awarded to VisionQuest Biomedical, 10/1/08–9/30/09.
 18. *Diabetic Retinopathy Image Analysis*, \$107,100, PI: M.S. Pattichis, NIH sub-award to UNM from **NIH SBIR Phase II** awarded to VisionQuest Biomedical, 08/19/08–08/17/09.
 19. *Design, Implementation and Dissemination of Multidisciplinary online Java Digital Signal Processing (J-DSP) Software Development*, \$12,000. UNM PI: M.S. Pattichis, **NSF Phase 3 Award # 0817596**, Performance Site to NSF collaborative multi-University, multidisciplinary project, 08/01/2008-08/01/2011.
 20. *Reconfigurable Parallel Computer Architectures for Space Applications*, \$2.4 million. Lead PI: M.S. Pattichis, Co-PIs: C. Christodoulou and H. Pollard, **AFRL Award #FA9453-06-C-0211**, 02/01/05 – 02/28/12.
 21. *Continuous-Scale Image & Video Search*, PI: M.S. Pattichis, \$75,000. **DARPA seed funding**, 09/15/2007 – 05/15/2008. The funding was executed as a subcontract to the *Reconfigurable Parallel Computer Architectures for Space Applications* contract.
 22. *FMAC Support Activity at the University of New Mexico*, \$478,995. Lead PI: C. Christodoulou, Co-PI: M.S. Pattichis, **AFRL**, 06/01/2007-09/30/2008.
 23. *Education and Research in FPGAs for Space Applications*, \$59,962. Lead PI: C. Christodoulou, Co-PIs: M.S. Pattichis and H. Pollard, **AFRL**, 06/02/06-02/28/07.
 24. *New Technology for Space Applications*. \$50,000. Lead PI: C. Christodoulou, Co-PIs: M.S. Pattichis and H. Pollard, **ATK**, 10/1/05-12/30/05.
 25. *Signal and Image Processing for Modeling and Simulation in Biomedical Applications*, \$20,000, PI: Marios S. Pattichis, **Orion International Technologies, Inc**, 8/23/05 - 5/31/06.
 26. *Spatiotemporal Video Analysis for Biomedical Imaging*, \$20,000, PI: M.S. Pattichis, **Kestrel Corporation**, 8/23/04 - 5/31/05.
 27. *Machine Intelligence and Simulation*, \$56,873, PIs: C. Abdallah, G. Heileman, and M.S. Pattichis, **Honeywell**, 3/04/04 - 9/30/04.

28. *Signal Detection in Retinal Videos*, \$20,534, PI: Marios S. Pattichis, *Kestrel Corporation*, 8/25/03 - 5/30/04.
29. *Wireless Education (WED2003): Hands-on Education Services and R&D, and ChipsNSalsa Gateway*. ~\$100,000, Co-PIs: C. Abdallah, C. Christodoulou, R. Jordan, M.S. Pattichis, C. Pedregal, and L. Padilla, Hewlett Packard, 9/2003 – 8/2004.
30. *Longitudinal Chest X-ray and CT-scan Lung Nodule Detection and Analysis*. \$25,000, PIs: M.S. Pattichis and D. James, *UNM Cancer Research and Treatment Center*, 9/2002 - 8/2003.
31. *Implementation and Modernization of EDK and MicroBlaze Lab Requirements*. \$34,781, PI: M.S. Pattichis, Xilinx Corporation, 1/1/2003 – 12/31/2003.
32. *Laser Hardening*. \$98,736, Co-PIs: C. Christodoulou and M.S. Pattichis, Ball Aerospace, 5/01/2001 - 3/06/2002.
33. *Wireless Education (WED2002): Hands-on Education Services and R&D*. \$127,260, Co-PIs: C. Abdallah, C. Christodoulou, R. Jordan, and M.S. Pattichis, Hewlett Packard, 9/2002 – 8/2003.
34. *Computer Assisted Chest Radiograph Reader I & II*. \$76,299, UNM PI: M.S. Pattichis, Collaborator with Kestrel Corporation, *NIH SBIR Phase-II*, 10/1/2000 - 5/31/2003.
35. *Optical Imaging Device of the Retinal Function*. \$42,984, UNM PI: M.S. Pattichis, Collaborator with Kestrel Corporation, *NIH SBIR Phase-II*, 10/01/2000 - 5/31/2003.

Equipment support (total for UNM ECE: \$321,382)

1. *ECE Lab support*. \$13,546, Xilinx Corp support for workshops, June, 2006.
2. *ISTEC Lab support*. \$239,749, Co-PIs: R. Jordan and M.S. Pattichis, Xilinx Corporation, August 2005 (<http://www.unm.edu/news/Aug05Releases/05-08-10istec.htm>).
3. *ECE Lab support*. \$1733, Xilinx Corporation, 2004.
4. *ECE Lab support*. \$400, Xilinx Corporation, 2004.
5. *ECE Lab support*. \$1733, Xilinx Corporation, 2004.
6. *ECE Lab Support*. \$305,703, PI: M.S. Pattichis, equipment, software, and monetary support for EECE lab development, Xilinx Corporation, 09/2000–1/15/2003.

Journal editorials

- J1. Loizou, C., Morega, M., Kyriacou, E., Pasca, S., Petroudi, S., Bamidis, P., **Pattichis, M.S.**, and Pattichis, C.S. “Guest Editorial to Special Issue on Biomedical Monitoring Technologies,” *International Journal of Monitoring and Surveillance Technologies Research (IJMSTR)*, Parts 1 and 2, vol. 1, no. 4, pp. October-December 2013.
- J2. Pattichis, C.S., Bamidis, P.D., Christodoulou, C., Kyriakou, E., **Pattichis, M.S.**, Mitsis, G.D., and Pitris, C., “Editorial for Special Issue on Biomedical Signal Processing and Analysis,” *Biomedical Signal Processing and Control*, vol. 6, no. 3, pp. 217-218, 2011.
- J3. Pattichis, C.S., Schizas, C.N., E., Kyriakou, E., Fotiadis, D. I., **Pattichis, M.S.**, and Bamidis, P.D., “Guest Editorial: Introduction to the Special Issue on Citizen Centered e-Health Systems in a Global Healthcare Environment: Selected Papers from ITAB 2009,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 15, no. 1, pp. 3-10, January 2011, PMID: 21172757.
- J4. Pattichis, C.S., Schizas, C.N., **Pattichis, M.S.**, Micheli-Tzanakou, E., Kyriakou, E., and Fotiadis, D. I., “Guest Editorial: Introduction to the Special Section on Computational Intelligence in Medical Systems,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 13, no. 5, pp. 667-672, September 2009.

Journal papers (published, accepted, or to appear)

- J5. Wallace, S., Arge, C.N., **Pattichis, M.S.**, Hock-Mysliwiec, R.A., and Henney, C.J., “Estimating Total Open Heliospheric Magnetic Flux,” *Solar Physics*, vol. 294, no. 2, 19 pages, in press, 2019.

- J6. Panayides, A., **Pattichis, M.S.**, Leandrou, S., Pitris, C., Constantinidou, A., and Pattichis, C.S., "Radiogenomics for Precision Medicine With A Big Data Analytics Perspective," *IEEE Journal of Biomedical and Health Informatics*, in press, 2019.
- J7. Antoniou, Z., Panayides, A.S., Pattichis, C.S., and **Pattichis, M.S.**, "Real-Time Adaptation to Time-Varying Constraints for Medical Video Communications," *IEEE Journal of Biomedical and Health Informatics*, vol. 22, no. 4, pp. 1177-1188, July, 2018.
- J8. Jiang, Y. and **Pattichis, M.S.**, "A Dynamically Reconfigurable Architecture System for Time-Varying Image Constraints (DRASTIC) for Motion JPEG," *Journal of Real-time Image Processing*, vol. 14, no. 2, pp. 395-411, 2018.
- J9. Carranza, C., Llamocca, D., and **Pattichis, M.S.**, "Fast 2D Convolutions and Cross-Correlations Using Scalable Architectures," *IEEE Transactions on Image Processing*, vol. 26, no. 5, pp. 2230-2245, May 2017.
- J10. Silva, R.F., Plis, S.M., Sui, J., **Pattichis, M.S.**, Adali, T., and Calhoun, V.D., "Blind Source Separation for Unimodal and Multimodal Brain Networks: A Unifying Framework for Subspace Modeling," *IEEE Journal of Selected Topics in Signal Processing*, vol. 10, no. 7, pp. 1134-1149, October, 2016.
- J11. Carranza, C., Llamocca, D., and **Pattichis, M.S.**, "Fast and Scalable Computation of the Forward and Inverse Discrete Periodic Radon Transform," *IEEE Transactions on Image Processing*, vol. 25, no. 1, pp. 119-133, Jan. 2016.
- J12. Murray, V., **Pattichis, M.S.**, Llamocca, and Lyke, J., "Field Programmable Wiring Systems," invited, *Proceedings of IEEE*, special issue on *Reconfigurable Systems: Advanced Applications and Technologies*, vol. 103, no. 7, pp. 1159-1180, July 2015.
- J13. Agurto, C., Yu, H., Murray, V., **Pattichis, M.S.**, Nemeh, S., Barriga, S., and Soliz, P., "A Multiscale Decomposition Approach to Detect Abnormal Vasculature in the Optic Disc," *Computer Graphics and Image Processing*, vol. 42, pp. 137-149, July 2015.
- J14. Neofytou, M.S., Tanos, V., **Pattichis, M.S.**, Pattichis, C.S. and Kyriacou, E.C., "Computer Aided Diagnosis in Hysteroscopic Imaging," *IEEE Journal of Biomedical Health Informatics*, vol. 19, no. 13, pp. 1129-1136, May 2015
- J15. Panayides, A.S., **Pattichis, M.S.**, Loizou, C.P., Pantziaris, M., Constantinides, A.G., and Pattichis, C.S., "An Effective Ultrasound Video Communication System Using Despeckle Filtering and HEVC," *IEEE Journal of Biomedical and Health Informatics*, vol. 19, no. 2, pp. 668-676, March 2015.
- J16. Saqib, F., Dutta, A., Plusquellic, J., Ortiz, P., and **Pattichis, M.S.**, "Pipelined Decision Tree Classification Accelerator Implementation in FPGA (DT-CAIF)," *IEEE Transactions on Computers*, vol. 64, no. 1, pp. 280-285, Jan. 2015.
- J17. Llamocca, D. and **Pattichis, M.S.**, "Dynamic Energy, Performance, and Accuracy Optimization and Management for Separable 2-D Filtering for Digital Video Processing," *ACM Transactions on Reconfigurable Technology and Systems (TRETTS)*, vol. 7, no. 4, article 30, 30 pages, Jan. 2015.
- J18. Agurto, C., Murray, V., Yu, H., Wigdahl, J., **Pattichis, M.S.**, Nemeth, S., Barriga, S., and Soliz, P., "A Multiscale Optimization Approach to Detect Exudates in the Macula," *IEEE Journal of Biomedical and Health Informatics*, vol. 18, no. 4, pp. 1328-1336, 2014.
- J19. Llamocca, D., **Pattichis, M.**, "A Self-Reconfigurable Platform for the Implementation of 2D Filterbanks with Real and Complex-valued Inputs, Outputs, and Filter Coefficients", *VLSI Design*, vol. 2014 (2014), Article ID 651943, 24 pages, <http://www.hindawi.com/journals/vlsi/2014/651943/>.
- J20. Loizou, C.P., Murray, V., **Pattichis, M.S.**, Pantziaris, M., Nicolaidis, A.N., and Pattichis, C.S., "Despeckle Filtering for Multiscale Amplitude-Modulation Frequency-Modulation (AM-FM) Texture Analysis of Ultrasound Images of the Intima-Media Complex," *International Journal of Biomedical Imaging*, vol. 2014 (2014), Article ID 518414, 13 pages, <http://www.hindawi.com/journals/ijbi/2014/518414/>.

- J21. Llamocca, D., Murray, V., Jiang, Y., Pattichis, M., Lyke, J., and Avery, K., "A Scalable, Open-Source Architecture for Real-Time Monitoring of Adaptive Wiring Panels," *AIAA Journal of Aerospace Information Systems*, vol. 11, no. 6, pp. 344-358, 2014.
- J22. Panayides, A., **Pattichis, M.S.**, and Pattichis, C.S., "M-Health Systems Use Diagnostically Driven Medical Video Technologies," (*invited*), *IEEE Signal Processing Magazine*, vol. 30, no. 6, pp. 163-172, November 2013.
- J23. Celedón-Pattichis, S., LópezLeiva, C. A., **Pattichis, M. S.**, & Llamocca, D., "An interdisciplinary collaboration between computer engineering and mathematics / bilingual education to develop a curriculum for underrepresented middle school students," *Cultural Studies in Science Education*, vol. 8, no. 4, pp. 873-887, December 2013.
- J24. Panayides, A., Antoniou, Z., Mylonas, Y., **Pattichis, M.S.**, Pitsillides, A., Constantinides, A.G., Pattichis, C.S., "High-Resolution, Low-delay, and Error-resilient Medical Ultrasound Video Communication Using H.264/AVC Over Mobile WiMAX Networks," *IEEE Journal of Biomedical and Health Informatics*, pp. 619-628, May 2013.
- J25. Murray, V., Llamocca, Lyke, J., Avery, K., Jiang, Y., and **Pattichis, M.S.**, "Cell-based Architecture for Adaptive Wiring Panels: A First Prototype," *Journal of the American Institute of Aeronautics and Astronautics*, vol. 10, no. 4, pp. 187-208, April 2013.
- J26. Llamocca, D. and **Pattichis, M.S.**, "A Dynamically Reconfigurable Pixel Processor System Based on Power/Energy-Performance-Accuracy Optimization," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 23, no. 3, pp. 488-502, March 2013.
- J27. Jeromin, O.M., **Pattichis, M.S.**, and Calhoun, V.D., "Optimal Compressed Sensing Reconstructions of fMRI using Deterministic and Stochastic Sampling Geometries," *Biomedical Engineering Online*, vol. 11, no. 25, 36 pages, 2012.
- J28. Jeromin, O.M. and **Pattichis, M.S.**, "Multiscale Sampling Geometries and Methods for Deterministic and Stochastic Reconstructions of Magnitude and Phase Spectra of Satellite Imagery" *IEEE Transactions on Geosciences and Remote Sensing*, vol. 50, no. 10, pp. 3678-3692, Oct. 2012.
- J29. Kyriacou, E., Petroudi, S., Pattichis, C.S., **Pattichis, M.S.**, Griffin, M., Kakkos, S., and Nicolaidis, A., "Prediction of High Risk Asymptomatic Carotid Plaques Based on Ultrasonic Image Features," Special issue on "Atherosclerotic Cardiovascular Health Informatics: Risk Screening and Intervention," *IEEE Transactions on Information Technology in Biomedicine*, vol. 16, no. 5, pp. 966-973, 2012.
- J30. Yu, H., Barriga, E.S., Agurto, C., Echegaray, S., **Pattichis, M.S.**, Bauman, W., and Soliz, P., "Fast Localization and Segmentation of Optic Disc in Retinal Images Using Directional Matched Filtering and Level Sets," *IEEE Transactions on Information Technology in Biomedicine*, vol. 16, no. 4, pp. 644-657, July 2012.
- J31. Christodoulou, C.I., Kaplanis, P.A., Murray, V., **Pattichis, M.S.**, Pattichis, C.S., and Kyriakides, T., "Multi-Scale AM-FM Analysis for the Classification of Surface Electromyographic Signals," *Journal of Biomedical Signal Processing and Control*, vol. 7, no. 3, pp. 265-269, 2012.
- J32. Murray, V., **Pattichis, M.S.**, Barriga, E.S., and Soliz, P., "Recent Multiscale AM-FM Methods in Emerging Applications in Medical Imaging," *EURASIP Journal on Advances in Signal Processing (Springer)*, vol. 2012, no. 1, 23 pages, 2012.
- J33. Lambrou, A., Papadopoulos, H., Kyriacou, Pattichis, C.S., **Pattichis, M.S.**, Gammerman, A., and Nicolaidis, A., "Evaluation of the Risk of Stroke With Confidence Predictions Based on Ultrasound Carotid Image Analysis," invited to Special Issue on Selected Papers from AIAI 2010, *International Journal on Artificial Intelligence Tools*, vol. 21, no. 4, 1240016, 18 pages, 2012.
- J34. Agurto, C., Barriga, S., Murray, V., Nemeth, S., Crammer, R., Bauman, W., Zamora, G., **Pattichis, M.S.**, and Soliz, P., "Automatic Detection of Diabetic Retinopathy and Age-Related Macular Degeneration in Digital Fundus Images," *Investigative Ophthalmology and Visual Science*, vol. 52, no. 8, pp. 5862-5871, July 2011, PMID: 21666234.
- J35. Hoffman, C. and **Pattichis, M.S.**, "A High-Speed Dynamic Partial Reconfiguration Controller Using Direct Memory Access Through a Multiport Memory Controller and Overclocking with Active

- Feedback,” *International Journal of Reconfigurable Computing*, vol. 2011, Article ID 439072, 10 pages, 2011.
- J36. Vera, A.G., **Pattichis, M.S.**, and Lyke, J., “A Dynamic Dual Fixed Point Arithmetic Architecture for FPGAs,” *International Journal of Reconfigurable Computing*, vol. 2011, Article ID 586865, 19 pages, 2011.
- J37. Panayides, A., **Pattichis, M.S.**, Pattichis, C.S., Loizou, C., and Pitsillides, A., “A Tutorial for Emerging Wireless Medical Video Transmission Systems,” *IEEE Antennas & Propagation Magazine*, vol. 53, no. 2, pp. 43-50, April 2011.
- J38. Panayides, A., **Pattichis, M.S.**, Pattichis, C.S., Loizou, C.P., Pantziaris, M., and Pitsillides, A., “Atherosclerotic Plaque Ultrasound Video Encoding, Wireless Transmission, and Quality Assessment Using H.264,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 15, no. 3, pp. 387-397, May 2011, PMID: 21233053.
- J39. Sergio, M., **Pattichis, M.S.**, and Barriga, E.S., “A Review of Motion Estimation Methods for Non-Invasive Ultrasound Motion and Emerging Strain Imaging Methods of Carotid Artery Plaques,” *International Journal of Experimental and Computation Biomechanics*, vol. 1, no. 4, pp. 359-380, 2011.
- J40. Ramachandran, J., **Pattichis, M.S.**, Scuderi, L.A., and Baba, J.S., “Tree Image Growth Analysis Using Instantaneous Phase Modulation,” *EURASIP Journal on Advances in Signal Processing*, Special Issue: Recent Advances in Theory and Methods for Non-stationary Signal Analysis, vol. 2011, Article ID 518602, 22 pages, 2011.
- J41. Loizou, C.P., Murray, V., **Pattichis, M.S.**, Pantziaris, M., and Pattichis, C.S., “Multiscale Amplitude-Modulation Frequency-Modulation (AM-FM) Analysis of Ultrasound Images of the Intima and Media Layers of the Carotid Artery,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 15, no. 2, pp. 178-188, 2011, PMID 20889436.
- J42. Barriga, E.S., **Pattichis, M.S.**, Ts’o, D., Abramoff, M., Kardon, R., Kwon, Y. and Soliz, P., “Independent Component Analysis using Prior Information for Signal Detection in a New Functional Imaging Systems of the Retina,” *Medical Image Analysis*, vol. 15, no. 1, pp. 35-44, February 2011, PMID 20655800.
- J43. Yu, H., **Pattichis, M.S.**, Agurto, C., and Goens, M. Beth, “A 3D Freehand Ultrasound System for Multi-view Reconstructions from Sparse 2D Scanning Planes,” *Biomedical Engineering Online*, vol. 10, no. 7, 22 pages, Jan. 2011, PMID 21251284.
- J44. Loizou, C.P., Murray, V., **Pattichis, M.S.**, Seimenis, I., Pantziaris, M., and Pattichis, C.S., “Multiscale Amplitude-Modulation Frequency-Modulation (AM-FM) Texture Analysis of Multiple Sclerosis in Brain MRI Images,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 15, no. 1, pp. 119-129, Jan. 2011, PMID 21062681.
- J45. Llamocca, D., **Pattichis, M.S.**, and Vera, G.A., “Partial Reconfigurable FIR Filtering System Using Distributed Arithmetic,” vol. 2010, 14 pages, *International Journal of Reconfigurable Computing*, vol. 2010, Article ID 357978, 14 pages, doi:10.1155/2010/357978.
- J46. Kyriacou, E., Pattichis, C.S., **Pattichis, M.S.**, Loizou, C.P., Christodoulou, C., Kakkos, S. and Nicolaidis, A., “A Review of Non-invasive Ultrasound Image Processing Methods in the Analysis of Carotid Plaque Morphology for the Assessment of Stroke,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 14, no. 4, pp. 1027-1038, July 2010, PMID 20378477.
- J47. Meyer-Baese, U., Vera, A., Meyer-Baese, A., **Pattichis, M.** and Perry, R., “An Undergraduate Course and Laboratory in Digital Signal Processing with Field Programmable Gate Arrays,” *IEEE Transactions on Education*, vol. 53, no. 4, pp. 638-645, Nov. 2010.
- J48. Murray, V., Rodriguez, P. and **Pattichis, M.S.**, “Multi-scale AM-FM Demodulation and Reconstruction Methods with Improved Accuracy,” *IEEE Transactions on Image Processing*, vol. 19, no. 2, pp. 1138-1152, May 2010, PMID: 20071260.
- J49. Agurto, C., Murray, V., Barriga, E., Murillo, S., **Pattichis, M.S.**, Davis, H., Russell, S.R., Abramoff, M.D., and Soliz, P., “Multiscale AM-FM Methods for Diabetic Retinopathy Lesion Detection,”

- IEEE Transactions on Medical Imaging*, vol. 29, no. 2, pp. 502-512, February 2010, PMID: 20129850.
- J50. Kief, C. J., **Pattichis, M.S.**, Pollard, L.H., Vera, G.A. and Parra, J.E., "An XUP-UNM Educational Platform – A Dual FPGA Platform for Reconfigurable Logic," *Computer Applications in Engineering Education*, Wiley Interscience, vol. 17, no. 2, pp. 232-239, June 2009.
- J51. Loizou, C.P., Pantziaris, M., **Pattichis, M.S.**, Kyriakou, E. and Pattichis, C.S., "Ultrasound Image Texture Analysis of the Intima and Media Layers of the Common Carotid Artery and its Correlation with Age and Gender," invited from conference paper presentation in IEEE BIBE 2008, *Computerized Medical Imaging and Graphics* (Elsevier), vol. 33, no. 4, pp. 317-324, June 2009, PMID: 19304453.
- J52. **Pattichis, M.S.**, Soliz, P. and Cacoullou, T., "New Models for Region of Interest Reader Classification Analysis in Chest Radiographs," *Pattern Recognition, Special Issue of Digital Image Processing and Pattern Recognition Techniques for the Detection of Cancer*, (doi: 10.1016/j.patcog.2008.09.021), vol. 42, no. 6, pp. 1058-1066, June 2009.
- J53. Kyriacou, E., **Pattichis, M.S.**, Pattichis, C.S., Mavrommatis, A., Christodoulou, C.I., Kakkos, S. and Nicolaidis, A., "Classification of Atherosclerotic Carotid Plaques Using Morphological Analysis on Ultrasound images," (a best conference paper award) *invited* in special issue on Emerging Artificial Intelligence Applications and Innovations: Papers from AIAI 2006, *Journal of Applied Intelligence*, Springer, vol. 30, no. 1, pp. 3-23, February 2009.
- J54. Neofytou, M.S., Tanos, V., **Pattichis, M.S.**, Pattichis, C.S., Kyriacou, E.C., and Koutsouris, D.D., "A standardized protocol for texture feature analysis of endoscopic images in gynaecological cancer," *Biomedical Engineering OnLine*, 6:44, 44 pages, doi:10.1186/1475-925X-6-44, Nov 2007, PMID: 18047655.
- J55. Kyriacou, E.C., Pattichis, C.S., Karaolis, M.A., Loizou, C.P., Christodoulou, C.I., **Pattichis, M.S.**, Kakkos, S., and Nicolaidis, A., "An Integrated System for Assessing Stroke Risk," *IEEE Engineering in Medicine and Biology Magazine*, Special Issue on Image, Signal and Distributed Data Processing for Networked e-Health Applications, vol. 26, no. 5, pp. 43-50, Sept.-Oct. 2007, PMID: 17941322.
- J56. Barriga, E. S., **Pattichis, M. S.**, Ts'o, D., Abramoff, M., Kardon, R., Kwon, Y., and Soliz, P., "Spatiotemporal independent component analysis for the detection of functional responses in cat retinal images," *IEEE Transactions on Medical Imaging*, vol. 26, pp. 1035-1045, Aug. 2007, PMID: 17695124.
- J57. Kern, J. and **Pattichis, M.S.**, "Robust multispectral image registration using mutual information models", *IEEE Transactions on Geosciences and Remote Sensing*, vol. 45, no. 5, pp. 1494-1505, May 2007.
- J58. **Pattichis, M.S.** and Bovik, A.C., "Analyzing image Structure by multidimensional frequency Modulation," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 29, no. 5, pp. 753-766, May 2007, PMID: 17356197.
- J59. Kyriacou, E., **Pattichis, M.S.**, Pattichis, C.S., Panayides, A., and Pitsillides, A., "m-Health e-Emergency Systems: Current Status and Future Directions," *invited* in *IEEE Antennas and Propagation Magazine*, vol. 49., no. 1, pp. 216-231, Feb. 2007.
- J60. "Educational Uses of FPGAs," D. Bouldin, Ed., short (<1 page) *invited article* describing UNM's labs, cites authors: **M.S. Pattichis**, H. Pollard., J. Parra, A. Vera, A., and C. Kief as "driving Personnel," *IEEE Circuits and Devices Magazine*, pp. 4, Sept/Oct 2004.
- J61. Pattichis, C.S., Kyriacou, E., Voskarides, S., **Pattichis, M.S.**, Istepanian, R., and Schizas, C.N. "Wireless Telemedicine Systems: An Overview," *invited* in *IEEE Antennas and Propagation Magazine*, vol. 44, no. 2, pp. 143-153, April 2002.
- J62. Lee, S., **Pattichis, M.S.**, and Bovik, A.C. "Foveated Video Quality Assessment," *IEEE Transactions on Multimedia*, vol. 4, no. 1, pp. 129-132, March 2002.

- J63. Lee, S., **Pattichis, M.S.**, and Bovik, A.C., “Foveated Video Compression with Optimal Rate Control,” *IEEE Transactions on Image Processing*, vol. 10, no. 7, pp. 977-992, July 2001, PMID: 18249671.
- J64. **Pattichis, M.S.**, Panayi, G., Bovik, A.C., and Shun-Pin, H., “Fingerprint Classification Using an AM-FM Model,” *IEEE Transactions on Image Processing*, vol. 10, no. 6, pp. 951-954, June 2001.
- J65. **Pattichis, M.S.**, Bovik, A.C., Havlicek, J.W., and Sidiropoulos, N.D., “Multidimensional Orthogonal FM Transforms,” *IEEE Transactions on Image Processing*, vol. 10, no. 3, pp. 448-464, March 2001, PMID: 18249634.
- J66. **Pattichis, M.S.**, Pattichis, C.S., Avraam, M., Bovik, A.C., and Kyriakou, K. “AM-FM Texture Segmentation in Electron Microscopic Muscle Imaging,” *IEEE Transactions on Medical Imaging*, vol. 19, no. 12, pp. 1253-1258, December 2000, PMID: 11212374.
- J67. Sidiropoulos, N.D., **Pattichis, M.S.**, Bovik, A.C., and Havlicek, J.W., “COPERM: Transform-Domain Energy Compaction by Optimal Permutation,” *IEEE Transactions on Signal Processing*, vol. 47, no. 6, pp. 1679-1688, June 1999.
- J68. Pattichis, C.S., and **Pattichis, M.S.**, “Time-Scale Analysis of Motor Unit Action Potentials,” *IEEE Transactions on Biomedical Engineering*, vol. 46, no. 11, pp. 1320-1329, November 1999.

Select medical journal publications

- J69. Soliz, P., Pattichis C.S., **Pattichis M.S.**, James D., and Ketai, L., “Texture analysis of opacity profusion in chest radiographs of miners with pneumoconiosis,” *American Journal of Respiratory & Critical Care Medicine*, 2002; 165:A529 (short (<1 page) journal publication of conference abstract).
- J70. **Pattichis, M.S.**, Soliz, P., Pattichis, C., James, D., Ketai, L. “Computer assisted morphological analysis of opacities on the International Labor Organization standard radiographs for the pneumoconioses,” *American Journal of Respiratory and Critical Care Medicine*, 2002; 165:A530 (short (<1 page) journal publication of conference abstract).

Journal papers that are in review or pending submission

1. Jatla, V., **Pattichis, M.S.**, and Arge, C.N., “Image Processing Methods for Coronal Hole Segmentation, Matching, and Map Classification,” In review, *IEEE Transactions On Image Processing*.
2. Ulloa, A., **Pattichis, M.S.**, vanMaanen, D.P., Jing, L., Patel, A.A., Stough, J.V., Haggerty, C.H., and Fornwalt, B.K., “Interpretable Neural Networks for Predicting Mortality Risk using Multi-modal Electronic Health Records,” In review, *IEEE Journal in Biomedical and Health Informatics*.
3. Stone, V., and **Pattichis, M.S.**, “Motion-based decomposition of digital video,” in preparation.
4. Kyriacou, E.C., **Pattichis, M.S.**, Murray, V., Petroudi, S., Nicolaides, A., and Pattichis, C.S., “Prediction of High Risk Asymptomatic Ultrasound Imaging Carotid Plaques Based on Multiscale Amplitude-Modulation Frequency-Modulation (AM-FM) Texture Features,” in preparation.
5. Carranza, C., Murray, V., Pattichis, M.S., and Barriga, E.S., “Multiscale AM-FM Decompositions with GPU acceleration for Diabetic Retinopathy Screening,” in preparation.
6. Murillo, S., and **Pattichis, M.S.**, “No-reference Blind Optimization for Motion Estimation,” in preparation.

Books/Proceedings

- B1. **Pattichis, M.S.**, General Chair, *2008 IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa-Fe, New Mexico, March 2008.

Book chapters

1. LópezLeiva, C., Celedón-Pattichis, S., & **Pattichis, M. S.** (in press). Participation in the Advancing Out-of-School Learning in Mathematics and Engineering (AOLME) project: Supporting middle school Latinas' bilingual and STEM identities. In B. Polnick & B. Irby (Eds.), *Women of color in STEM: Navigating the waters of public schools*. Charlotte, NC: Information Age Publishing.
2. LópezLeiva, C. A., **Pattichis, M. S.**, & Celedón-Pattichis, S. (in press). Modelling and Programming of Digital Video: A source for the Integration of Mathematics, Engineering, and Technology. To appear in P. Drake, B. Doig, & W. Roth (Eds.), *Monograph of Topic Study Group 22 of the 13th International Congress of Mathematics Education (ICME)*, Hamburg, Germany.
3. LópezLeiva, C., Celedón-Pattichis, S., **Pattichis, M. S.**, & Morales Flores, J. (2017). Teaching and learning binary number systems for computational thinking: Underrepresented students accessing high-quality STEM practices. In A. Fernandes, S. Crespo, & M. Civil (Eds.), *Access and equity: Promoting high-quality mathematics in grades 6-8* (pp. 89-103). Reston, VA: National Council of Teachers of Mathematics, 2017. Acknowledges NSF Award CNS-1422031 for DRASTIC and NSF Award #1613637.
4. Kyriacou, E., Constantinides, P., Pattichis, C.S., **Pattichis, M.S.**, and Panayides, A., “eEmergency Healthcare Informatics,” Chapter 64, Ed. by J. D. Bronzino and D.R. Peterson, *Biomedical Signals, Imaging, and Informatics, 4th Ed.*, CRC Press, 2015.
5. Christodoulou, C.I., Kyriacou, E., **Pattichis, M.S.**, and Pattichis, C.S., “Plaque Feature Extraction,” Ed. by A. Nicolaides, K. Beach, E. Kyriakou and C.S. Pattichis, Chapter 14 in *Ultrasound and Carotid Bifurcation Atherosclerosis*, Springer, pp. 223-246, 2012.
6. Kyriacou, E., Christodoulou, **Pattichis, M.S.**, Pattichis, C.S., and Kakkos, S., “Plaque Classification,” Ed. by A. Nicolaides, K. Beach, E. Kyriakou and C.S. Pattichis, Chapter 15 in *Ultrasound and Carotid Bifurcation Atherosclerosis*, Springer, pp. 247-262, 2012.
7. Murillo, S., and **Pattichis, M.S.**, “Motion Estimation of Carotid Artery Plaques,” Ed. by A. Nicolaides, K. Beach, E. Kyriakou and C.S. Pattichis, Chapter 21 in *Ultrasound and Carotid Bifurcation Atherosclerosis*, Springer, pp. 355-378, 2012.
8. Kyriacou, E., Christodoulou, C.I., Loizou, C., **Pattichis, M.S.**, Pattichis, C.S., Kakkos, S. and Nicolaides, A., “Assessment of Stroke by Analyzing Carotid Plaque Morphology,” Chapter XI, in *Handbook of Research on Advanced Techniques in Diagnostic Imaging and Biomedical Applications*, Ed. T.P. Exarchos, A. Papadopoulos, D.I. Fotiadis, 21 pages, Chapter 11, IGI Global, PA, USA, ISBN: 978-1-60566, 2009.
9. Neofytou, M.S., Pattichis, C.S., Tanos, V., **Pattichis, M.S.** and Kyriacou, E.C., “Quantitative Analysis of Hysteroscopy Imaging in Gynaecological Cancer,” Chapter XII, in *Handbook of Research on Advanced Techniques in Diagnostic Imaging and Biomedical Applications*, Ed. T.P. Exarchos, A. Papadopoulos, D.I. Fotiadis, 16 pages, Chapter 12, IGI Global, PA, USA, ISBN: 978-1-60566, 2009.
10. Panayides, A., **Pattichis, M.S.**, Pattichis, C.S., Loizou, C.P., Pantziaris, M., and Pitsillides, A., “Towards Diagnostically Robust Medical Ultrasound Video Streaming Using H.264,” *Biomedical Engineering*, Ed. By A. Alexandre Barros De Mello, IN-TECH, Vienna, Austria, pp. 219-237, 2009.
11. Pattichis, C.S., Schnorrenberg, F., Tsapatsoulis, Schizas, C.N., **Pattichis, M.S.**, Kyriacou, E., “A Biopsy Analysis Support System for the Detection and Classification of Breast Cancer Nuclei,” in *Emerging Technology in Breast Imaging and Mammography*, Ed. J. Suri, R. M. Rangayan and S. Laxminarayan, American Scientific Publishers, CA, USA, pp. 441-462, 2008.
12. Pattichis, C.S., Kyriacou, E., Christodoulou, C., **Pattichis, M.S.**, Loizou, C., Pantziaris, M., and Nikolaides, A., “Cardiovascular: Ultrasonic Imaging in Vascular Cases,” invited chapter in *Wiley Encyclopedia of Biomedical Engineering*, Ed. M. Akay, Wiley, (DOI: 10.1002/9780471740360.ebs1322), 12 pages, 2006.
13. Vieyres, P., Poisson, G., Triantafyllidis, G., **Pattichis, M.**, and Kontaxakis, G., "Future Challenges and Recommendations on Echography Systems and Services," in *M-Health: Emerging Mobile Health Systems*, Ed. R.H. Istepanian, S. Laxminarayan, and C.S. Pattichis, pp. 509-514, 2006.

14. **Pattichis, M. S.**, "Future Challenges and Recommendations", Signal, Image, and Video Compression for e-Health Applications section, in *M-Health: Emerging Mobile Health Systems*, Ed. R.H. Istepanian, S. Laxminarayan, and C.S. Pattichis, pp. 365-370, 2006.
15. **Pattichis, M. S.**, "Section Overview", Signal, Image, and Video Compression for e-Health Applications Section, in *M-Health: Emerging Mobile Health Systems*, Ed. R.H. Istepanian, S. Laxminarayan, and C.S. Pattichis, pp. 273-276, 2006.
16. Rodriguez, P. V., **Pattichis, M.S.**, Goens, M.B., and Abdallah, R., "Object-based Ultrasound Video Processing for Wireless Transmission in Cardiology," chapter in *M-Health: Emerging Mobile Health Systems*, Ed. R.H. Istepanian, S. Laxminarayan, and C.S. Pattichis, pp. 491-508, 2006.
17. **Pattichis, M.S.**, Cai, S., Pattichis, C.S., and Abdallah, R., "An Overview of Digital Video Compression for Mobile Health Systems," chapter in *M-Health: Emerging Mobile Health Systems*, Ed. R.H. Istepanian, S. Laxminarayan, and C.S. Pattichis, Springer, pp. 345-364, 2006.
18. Kyriacou, E., **Pattichis, M.S.**, Christodoulou, C., Pattichis, C.S., Kakkos, S. Griffin, M., and Nicolaidis, A., "Ultrasound imaging in the analysis of carotid plaque morphology for the assessment of stroke," invited chapter in *Plaque Imaging: Pixel To Molecular*, IOS Press, Ed. J.S. Suri, C. Yuan, D.L. Wilson, and S. Laxminarayan, pp. 241-275, 2005.
19. Christodoulou, C., Pattichis, C.S., Kyriacou, E., **Pattichis, M.S.**, Pantziaris, M., and Nikolaidis, A., "Ultrasound Imaging in the Assessment of Carotid Plaque Morphology," invited chapter in *Medical Image Analysis Methods*, CRC Press, Ed. L. Costaridou, pp. 87-135, 2005.
20. Pattichis, C.S., Kyriacou, E., Voskarides, S., **Pattichis, M.S.**, Istepanian, R., and Schizas, C.N., "Wireless Telemedicine Systems: An Overview," invited chapter in *Telemedicine in Practice*, En Plo Publishers, Greece, Ed. M.Perdikouri, P. Giovanas, D. Papadogiannis, pp. 149-169, 2005.
21. Christodoulou, C., Kyriacou, E., **Pattichis, M.S.**, Pattichis, C.S., and Nicolaidis, A., "A Comparative Study of Morphological and other Texture Features for the Characterization of Atherosclerotic Carotid Plaques," *Computer Analysis of Images and Patterns, Lecture Notes in Computer Science (LNCS2756)*, 10th International Conference, CAIP 2003, Ed. by N. Petkov, and M. Westenberg, Springer Verlag, Groningen, The Netherlands, pp. 503-511, August 25-27, 2003.
22. **Pattichis, M.S.** and Bovik, A.C., "Latent Fingerprint Analysis using an AM-FM Model," invited chapter in *Automatic Fingerprint Recognition Systems*, Springer Verlag, pp. 317-338, 2003.
23. **Pattichis, M.S.**, Havlicek, J.P., Acton, S.T., and Bovik, A.C., "Multidimensional AM-FM models with image processing applications," pp. 277-306, in *Advances in Image Processing and Understanding: A Festschrift for Thomas S Huang*, Singapore: World Scientific Publishing, 2002.
24. Pattichis, C.S., Schnorrenberg, F., Schizas, C.N., **Pattichis, M.S.** and Kyriacou, K., "A Modular Neural Network System for the Analysis of Nuclei in Histopathological Sections," chapter in *Computational Intelligence Processing in Medical Diagnosis*, Ed. L.C. Jain, Physica-Verlag, pp. 291-322, 2002.
25. Pattichis, C.S., Christodoulou, C., **Pattichis, M.S.**, and Middleton, L.T., "MUAP Signal Processing with Artificial Neural Networks," chapter in *Recent Advances in Clinical Neurophysiology*, Ed. J. Kimura and H. Shibasaki, Elsevier Science B. V., pp. 373-377, 1996.

Conference papers

1. Shi, W., **Pattichis, M.**, Celedón-Pattichis, S., and LópezLeiva, C., "Dynamic Group Interactions in Collaborative Learning Videos," *2018 Asilomar Conference on Signals, Systems, and Computers*, in press, 2018.
2. LópezLeiva, C., Celedón-Pattichis, S., Demir, I., Lecea Yanguas, J. A., & **Pattichis, M. S.** (2018), "Attitude scale results of student confidence over time: Participation in an integrated mathematics/computer programming curriculum," in Conference Proceedings of the *International Colloquium on Languages, Cultures, Identity in School and Society*, Soria, Spain, 2018.
3. Carranza, C., **Pattichis, M.S.**, and Llamocca, D., "Fast and Parallel Computation of the Discrete Periodic Radon Transform on GPUs, Multicore CPUs and FPGAs," *25th IEEE International Conference on Image Processing (ICIP)*, pp. 4158-4162, 2018.

4. Jacoby, A., **Pattichis, M.**, Celedón-Pattichis, S., and LópezLeiva, C., “Context-sensitive Human Activity Classification in Collaborative Learning Environments,” *IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 141-144, 2018.
5. Shi, W., **Pattichis, M.**, Celedón-Pattichis, S., and LópezLeiva, C., “Robust Head Detection in Collaborative Learning Environments using AM-FM Representations,” *IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 65-68, 2018.
6. Stubbs, S., **Pattichis, M.**, and Birch, G., “Interactive Image and Video Classification using Compressively Sensed Images,” *2017 Asilomar Conference on Signals, Systems, and Computers*, pp. 2038-2041, 2017.
7. Esakki, G., Jatla, V., and **Pattichis, M.**, “Adaptive High Efficiency Video Coding Based on Camera Activity Classification,” *2017 Data Compression Conference*, p. 438, 2017.
8. Panayides, A., Pattichis, C., and **Pattichis, M.**, “The Potential of Big Data Medical Video Analytics in Healthcare,” to appear, *2017 IEEE International Conference on Biomedical and Health Informatics*, 2017.
9. Pattichis, C.S., Kyriacou, E., Loizou, C., Petroudi, S., **Pattichis, M.**, Christodoulou, C., Pantziaris, M., and Nicolaides, A., “Ultrasound Video Analysis of Carotid Plaque Morphology for the Assessment of Stroke,” to appear, *2017 IEEE International Conference on Biomedical and Health Informatics*, 2017.
10. **Pattichis, M. S.**, Celedón-Pattichis, S., & LópezLeiva, C. A., “Teaching image and video processing using middle school mathematics and the Raspberry Pi,” in Special Session on Advances in Signal Processing Education, *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, New Orleans, Louisiana, pp. 6349-6353, 2017.
11. Murray, V., Dasso, A. Rodriguez, P.V., and **Pattichis, M.S.**, “A 2D Amplitude-Modulation Frequency-Modulation Representation for Motion Estimation,” 4 pages, *2016 IEEE Andescon Andean Council International Conference*, Arequipa, October 19 - 21, 2016.
12. Panayides, A., Pattichis, C.S., and **Pattichis, M.S.**, “The Promise of Big Data Technologies and Challenges for Image and Video Analytics in Healthcare,” *2016 Asilomar Conference on Signals, Systems, and Computers*, pp. 1278-1282, 2016.
13. Eilar, C., Jatla, V., **Pattichis, M. S.**, Celedón-Pattichis, S., & LópezLeiva, C. A., “Distributed Video Analysis for the Advancing Out of School Learning in Mathematics and Engineering Project,” *2016 Asilomar Conference on Signals, Systems, and Computers*, pp. 571-575, 2016.
14. Antoniou, Z.C, Panayides, A.S., Pantziaris, M., Constantinides, A.G., Pattichis, C.S., and **Pattichis, M.S.**, “Dynamic Network Adaptation For Real-Time Medical Video Communication,” *XIV, in Proc. of XIV Mediterranean Conference on Medical and Biological Engineering and Computing, Medicon'16*, Springer International Publishing, Paphos, Cyprus, 31st Mar.-02 Apr., pp. 1093-1098, 2016.
15. Esakki, G., Jatla, V., and **Pattichis, M.S.**, “Optimal HEVC Encoding Based on GOP Configurations,” *IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, pp. 25-28, 2016.
16. LopezLeiva, C., Celedon-Pattichis, S., and **Pattichis, M.S.**, “Integrating mathematics, engineering and technology through mathematics modeling and video representations,” *13th International Congress on Mathematical Education*, Hamburg, Germany, 2016.
17. Murray, V., Rodriguez, P., Noriega, M., Dasso, A. and **Pattichis, M.S.**, “2D Amplitude-Modulation Frequency-Modulation - based Method for Motion Estimation,” *6th IEEE Latin American Symposium on Circuits and Systems (LASCAS)*, 4 pages, 2015.
18. Jiang, Y., Zong, C., **Pattichis, M.S.**, “Scalable HEVC Intra Frame Complexity Control Subject to Quality and Bitrate Constraints,” invited, *3rd IEEE Global Conference on Signal & Information Processing*, Orlando, Florida, pp. 290-294, 2015.
19. Kyriacou, E., Vogazianos, P., Christodoulou, C., Loizou, C., Petroudi, S., **Pattichis, M.S.**, Pantziaris, M., Nicolaides, A., Pattichis, C., and Panayides, A., “Prediction of the Time Period of Stroke Based

- on Ultrasound Image Analysis of Initially Asymptomatic Carotid Plaques,” pp. 334-337, EMBC 2015.
20. Antoniou, Z., Stavrou, S., Panayides, A.S., Kyriacou, E., Constantinides, A., **Pattichis, M.S.**, Spanias, A., and Pattichis, C.S., “Adaptive Emergency Scenery Video Communications using HEVC for Responsive Decision Support in Disaster Incidents,” pp. 173-176, IEEE EMBC 2015.
 21. Petroudi, S., Constantinou, I., **Pattichis, M.S.**, Tziakouri, C., Marias, K., and Pattichis, C.S., “Evaluation of Spatial Dependence Matrices on Multiscale Instantaneous Amplitude for Mammogram Classification,” *6th European Conference of the International Federation of Medical and Biological Engineering (MBEC 2014)*, pp. 156-159, 2015.
 22. Murray, V., Rodriguez, P., and **Pattichis, M.S.**, “2D Instantaneous Frequency-based Method for Motion Estimation using Total Variation,” *IEEE GlobalSIP*, pp. 1009-1013, Dec. 3-5, 2014.
 23. Panayides, A., Constantinides, A., Kyriacou, E., **Pattichis, M.S.**, and Pattichis, C.S., “Adaptive Real-time HEVC Encoding of Emergency Scenery Video,” *4th International Conference on Wireless Mobile Communication and Healthcare, MobiHealth 2014*, p. 217, Nov. 3-5, 2014.
 24. **Pattichis, M.S.**, Hock, R., Jatla, V., Henney, C., Arge, C., “Detecting Coronal Holes for Solar Activity Modeling,” *2014 Asilomar Conference on Signals, Systems, and Computers*, pp. 89-93, 2014.
 25. Nguyen, C., Havlicek, J., Fan, G., Caulfield, J., and **Pattichis, M.S.**, “Robust Dual-Band MWIR/LWIR Infrared Target Tracking,” *2014 Asilomar Conference on Signals, Systems, and Computers*, pp. 78-83, 2014.
 26. Panayides, A., **Pattichis, M.S.**, Spanias, A., Constantinides, A.G., and Pattichis, C.S., “Effective, Real-time Ultrasound Video Communications Over HSPA Networks Using Despeckle Filtering,” 1 page, *36th IEEE EMBC*, 2014.
 27. Arbabshirani, M.R., **Pattichis, M.S.**, and Calhoun, V., “Detecting Volumetric Changes in fMRI Connectivity Networks in Schizophrenia Patients,” *36th IEEE EMBC*, pp. 726-729, 2014.
 28. Ulloa, A., Rodriguez, P., Liu, J., Calhoun, V., and **Pattichis, M.S.**, “A Quasi-Local Method for Instantaneous Frequency Estimation with Application to Structural Magnetic Resonance Images,” *36th IEEE EMBC*, pp. 1477-1480, 2014.
 29. Ulloa, A., Liu, J., Vergara, V.M., Chen, J., Calhoun, V., and **Pattichis, M.S.**, “Three-Way Parallel Independent Component Analysis for Imaging Genetics Using Multi-Objective Optimization,” *36th IEEE EMBC*, pp. 6651-6654, 2014.
 30. Constantinou, I., **Pattichis, M.S.**, Tziakouri, C., Pattichis, C.S., and Petroudi, S., “AM-FM Multiscale Instantaneous Amplitude Evaluation for Mammographic Density Classification,” *Medical Image Understanding and Analysis (MIUA)*, pp. 271-276, 2014.
 31. Carranza, C., Llamocca, D., and **Pattichis, M.S.**, “A Scalable Architecture For Implementing The Fast Discrete Periodic Radon Transform For Prime Sized Images,” *2014 IEEE International Conference on Image Processing*, Paris, France, pp. 1208-1212, 2014.
 32. Jiang, Y., Llamocca, D., **Pattichis, M.S.**, and Esakki, G., “A Unified and Pipelined Hardware Architecture for Implementing Intra Prediction in HEVC,” *2014 IEEE Southwest Symposium on Image Analysis and Interpretation*, San Diego, California, April, pp. 29-32, 2014.
 33. Carranza, C., Llamocca, D., and **Pattichis, M.S.**, “The Fast Discrete Periodic Radon Transform for prime sized images: Algorithm, architecture, and VLSI/FPGA implementation,” *2014 IEEE Southwest Symposium on Image Analysis and Interpretation*, San Diego, California, April, pp. 169-172, 2014.
 34. Panayides, A., **Pattichis, M.S.**, and Pattichis, C.S., “High Efficiency Video Coding (HEVC) for Reproducible Medical Ultrasound Video Diagnosis,” *2013 Asilomar Conference on Signals, Systems, and Computers*, (invited), 1117-1121, 2013.
 35. Jiang, Y., Esakki, G., and **Pattichis, M.S.**, “Dynamically Reconfigurable Architecture System for Time-varying Image Constraints (DRASTIC) for HEVC intra encoding,” *Asilomar Conference on Signals, Systems, and Computers*, (invited), pp. 1112-1116, 2013.

36. Jiang, Y. and **Pattichis, M.S.**, “A Dynamically Reconfigurable Deblocking Filter for H.264/AVC Codec,” *2012 Asilomar Conference on Signals, Systems, and Computers*, (invited), pp. 2189-2193, 2013.
37. Constantinou, I.P., **Pattichis, M.S.**, and Pattichis, C.S., “Multiscale AM-FM Image Reconstructions Based on Elastic Net Regression and Gabor Filterbanks,” *2013 Asilomar Conference on Signals, Systems, and Computers*, pp. 1985-1989, 2013.
38. Constantinou, I., Neofytou, M., **Pattichis, M.S.**, and Pattichis, C.S., “A Comparison of Color Correction Algorithms for Endoscopic Cameras,” *13th IEEE International Conference on BioInformatics and BioEngineering (BIBE)*, 4 pages, 2013.
39. Petroudi, S., Constantinou, I., Tziakouri, C., **Pattichis, M.S.**, and Pattichis, C.S., “Investigation of AM-FM Methods for Mammographic Breast Density Classification,” *13th IEEE International Conference on BioInformatics and BioEngineering (BIBE)*, 4 pages, Nov. 2013.
40. Panayides, A., **Pattichis, M.S.**, Constantinides, C.G., and Pattichis, C.S., “M-Health Medical Video Communication Systems: An Overview of Design Approaches and Recent Advances,” *IEEE EMBC 2013*, pp. 7253-7256, 2013.
41. Panayides, A., Loizou, C.P., **Pattichis, M.S.**, Kyriacou, E., Schizas, C.N., and Pattichis, C.S., “Ultrasound Video Despeckle Filtering for High-Efficiency Video Compression for M-Health Systems,” *2013 CIWSP Workshop (in honor of the 70th birthday of Prof. Constantinides)*, 4 pages, 2013.
42. Constantinou, I., **Pattichis, M.S.**, Tanos, V., Neofytou, M., and Pattichis, C.S., “An Adaptive Multiscale AM-FM Texture Analysis System with Application to Hysteroscopy Imaging,” *2012 IEEE 12th International Conference Bioinformatics and Bioengineering (BIBE)*, pp. 744-747, 2012.
43. Jiang, Y., Perez, T., **Pattichis, M.S.**, and Khan, B., “A Configurable System for Role-Specific Video Imaging During Laparoscopic Surgery,” *2012 IEEE 12th International Conference Bioinformatics and Bioengineering (BIBE)*, pp. 738-743, 2012.
44. Nasrabadi, H., **Pattichis, M.S.**, Nicolaidis, A.N., Griffin, M., Makris, G.C., Fisher, P., Kyriacou, E., and Pattichis, C.S., “Measurement of Motion of Carotid Bifurcation Plaques,” *2012 IEEE 12th International Conference Bioinformatics and Bioengineering (BIBE)*, pp. 506-511, 2012.
45. Panayides, A., Antoniou, Z., **Pattichis, M.S.**, and Pattichis, C.S., “The Use of H.264/AVC and the Emerging High Efficiency Video Coding Standard for Developing Wireless Ultrasound Video Telemedicine Systems,” *2012 Asilomar Conference on Signals, Systems, and Computers*, (invited), pp. 337-341, 2012.
46. Panayides, A., Antoniou, Z., **Pattichis, M.S.**, Pattichis, C. S., and Constantinides, A. G., “High Efficiency Video Coding for Ultrasound Video Communication in M-Health Systems,” *2012 IEEE EMBC*, pp. 2170-2173, 2012.
47. Agurto, C., Yu, H., Murray, V., **Pattichis, M.S.**, Barriga, S., Bauman, W., and Soliz, P., “Detection of Neovascularization in the Optic Disc Using an AM-FM Representation, Granulometry, and Vessel Segmentation,” *2012 IEEE EMBC*, pp. 4946-4949, 2012.
48. Llamocca, D., Carranza, C., and **Pattichis, M.S.**, “Dynamic Multiobjective Optimization Management of the Energy-Performance-Accuracy Space for 2-D Complex Filters,” *22nd IEEE International Conference on Field Programmable Logic and Applications (FPL)*, pp. 579-582, 2012.
49. Llamocca, D., **Pattichis, M.S.**, and Carranza, C., “A Framework for Self-Reconfigurable DCTs based on Multiobjective Optimization of the Power-Performance-Accuracy Space,” *2012 7th International Workshop on Communication-centric Systems-on-Chip (ReCoSoC)*, pp. 1-6, 2012.
50. Murray, V., Agurto, C., Barriga, S., **Pattichis, M.S.**, and Soliz, P., “Real-time Diabetic Retinopathy Patient Screening Using Multiscale AM-FM Methods,” accepted in *2012 IEEE International Conference on Image Processing*, in press, 2012.
51. Jiang, Y. and **Pattichis, M.S.**, “Dynamically Reconfigurable DCT Architectures Based on Bitrate, Power, and Image Quality Considerations,” *2012 IEEE International Conference on Image Processing*, in press, 2012.

52. Carranza, C., Murray, V., **Pattichis, M.S.**, and E. Simon Barriga, E.S., "Multiscale AM-FM Decompositions with GPU acceleration for Diabetic Retinopathy Screening," *2012 IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, pp. 121-124, 2012.
53. Agurto, C., Honggang Yu, H., Murray, V., **Pattichis, M.S.**, Barriga, S., and Soliz, P., "Detection of Hard Exudates and Red Lesions in the Macula Using a Multiscale Approach," *2012 IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, pp. 13-16, 2012.
54. Jiang, Y. and **Pattichis, M.S.**, "Dynamically Reconfigurable DCT Architecture for Maximum Image Quality Subject to Dynamic Power and Bitrate Constraints," *2012 IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, pp. 189-192, 2012.
55. Panayides, A., Antoniou, Z., Varveris, V., **Pattichis, M.S.**, Pattichis, C.S., and Kyriacou, E., "Abdominal Aortic Aneurysm Medical Video Transmission," *IEEE-EMBS International Conference on Biomedical and Health Informatics*, Hong Kong, Shenzhen, pp. 679-682, Jan. 2012.
56. Murillo, S., Murray, V., Loizou, C.P., Pattichis, C.S., **Pattichis, M.S.**, and Barriga, S., "Motion and deformation analysis of ultrasound videos with applications to classification of carotid artery plaques," in *SPIE Medical Imaging*, *SPIE DOI:10.1117/12.910981*, Feb. 2012.
57. Jiang, Y., and **Pattichis, M.S.**, "JPEG Image Compression Using Quantization Table Optimization Based on Perceptual Image Quality Assessment," *Proc. 45th Asilomar Conference on Signals, Systems and Computers*, Nov. 2011, Asilomar, Pacific Grove, California, pp. 225-229, 2011.
58. Murray, V.M., **Pattichis, M.S.**, and Soliz, P., "Multiscale Directional AM-FM Demodulation of Images Using a 2D Optimized Method," *IEEE International Conference on Image Processing (ICIP)*, pp. 249-252, 2011.
59. Petroudi, S., Loizou, C.P., **Pattichis, M.S.**, Pattichis, C.S., "A Fully Automated Method Using Active Contours for the Evaluation of the Intima-Media Thickness in Carotid US Images," *33rd Annual Conference of the IEEE Engineering in Medicine and Biology Society, IEEE EMBC'11*, pp. 8053-8057, 2011.
60. Kyriacou, E., Nicolaides, A., Pattichis, C.S., **Pattichis, M.S.**, Griffin, M., Kakkos, S., and Makris, G., "First and Second Order Statistical Texture Feature in Carotid Plaque Image Analysis: Preliminary Results from Ongoing Research," *33rd Annual Conference of the IEEE Engineering in Medicine and Biology Society, IEEE EMBC'11*, pp. 6655-6658, 2011.
61. Kyriacou, E., Constantinides, P., Pattichis, C.S., **Pattichis, M.S.**, and Panayides, A., "eEmergency Health care Information Systems," *33rd Annual Conference of the IEEE Engineering in Medicine and Biology Society, IEEE EMBC'11*, pp. 2501-2504, 2011.
62. Llamocca, D., Carranza, C., and **Pattichis, M.S.**, "Separable FIR Filtering in FPGA and GPU Implementations: Energy, Performance, and Precision Considerations," *21st Conference on Field Programmable Logic and Applications (FPL 2011)*, Chania, Crete, Greece, pp. 363-368, 2011.
63. Murray, V.M., Llamocca, D., Jiang, Y., Lyke, J., **Pattichis, M.S.**, Achramowicz, S., and Avery, K., "Cell-based Architecture for Adaptive Wiring Panels: A First Approach," *RS 2011 Reinventing Space Conference*, 2011.
64. Agurto Rios, C.P., Barriga, S., Murray, V.M., Murillo, S., **Pattichis, M.S.**, Zamora, G., Bauman, W.C., and Soliz, P., "Toward comprehensive detection of sight threatening retinal disease using a multiscale AM-FM methodology," *SPIE Medical Imaging*, 12 pages, February, 2011.
65. Yu, H., Barriga, S., Agurto Rios, C.P. Echegaray, E., **Pattichis, M.S.**, Zamora, G., Bauman, W.C., and Peter Soliz, P., "Fast localization of optic disc and fovea in retinal images for eye disease screening," *SPIE Medical Imaging*, 12 pages, February, 2011.
66. Loizou, C.P., Murray, V., **Pattichis, M.S.**, Pantziaris, M., Seimenis, I., and Pattichis, C.S., "AM-FM Texture Image Analysis in Multiple Sclerosis Brain White Matter Lesions", *Proc. of IFMBE*, vol. 29, pp. 446-449, 2010.
67. Christodoulou, C.I., Kaplanis, P.A., Murray, V., **Pattichis, M.S.**, and Pattichis, C.S., "Comparison of AM-FM Features with Standard Features for the Classification of Surface Electromyographic

- Signals," *XII Mediterranean Conference on Medical and Biological Engineering and Computing*, pp. 69-72, 2010.
68. Llamocca, D., and **Pattichis, M.S.**, "Real-time dynamically reconfigurable 2-D filterbanks, *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 181-184, 2010
 69. Loizou, C.P., Murray, V., **Pattichis, M.S.**, Pantziaris, M., and Pattichis, C.S., "AM-FM Texture Image Analysis in Brain White Matter Lesions in the Progression of Multiple Sclerosis", *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 61-64, 2010
 70. Rodriguez, P., Murray, V., and Pattichis, M.S., "A Regularized Optimization Approach for AM-FM Reconstructions," *Proc. Asilomar Conference on Signals, Systems and Computers*, pp. 219-221, Nov. 2010.
 71. Lambrou, A., Papadopoulos, H., Kyriacou, E.C., Pattichis, C.S., **Pattichis, M.S.**, Gammerman, A., and Nicolaidis, A.N., "Assesment of Stroke Risk Based on Morphological Ultrasound Image Analysis With Conformal Prediction", *Proc. 6th IFIP Conference on Artificial Intelligence Applications and Innovations*, AIAI 2010, pp. 146-153, Larnaca Cyprus, 6-7 Oct. 2010 (invited to special issue).
 72. Panayides, A., **Pattichis, M.S.**, Pattichis, C.S., Schizas, C.N., Spanias, A., and Kyriacou, E., "An Overview of Recent End-to-End Wireless Medical Video Telemedicine Systems using 3G," in *Proc. of 32nd Annual Conference of the IEEE Engineering in Medicine and Biology Society, IEEE EMBC'10*, Buenos Aires, Argentina, pp. 1045-1048, August 2010, PMID 21097209.
 73. Murray, V., Feucht, G.A., Lyke, J.C., **Pattichis, M.S.**, and Plusquellic, J., "Cell-based Architecture for Reconfigurable Wiring Manifolds," *American Institute of Aeronautics and Astronautics Conference: AIAA Infotech@Aerospace 2010*, Atlanta, Georgia, April 2010.
 74. Llamocca, D., **Pattichis, M.S.**, Vera, G.A., and Lyke, J.C., "Dynamic Partial Configuration through Ethernet Link," *American Institute of Aeronautics and Astronautics Conference: AIAA Infotech@Aerospace 2010*, Atlanta, Georgia, April 2010.
 75. Barriga, E.S., Murray, V., Agurto, C., **Pattichis, M.S.**, Bauman, W., Zamora, G., and Soliz, P., "Automatic System for Diabetic Retinopathy Screening Based on AM-FM, Partial Least Squares, and Support Vector Machines," *IEEE International Symposium on Biomedical Imaging*, pp. 1349-1352, 2010.
 76. Soliz, P., Davis, B., Murray, V., **Pattichis, M.**, Barriga, S., and Russell, S., "Toward Automatic Phenotyping of Retinal Images from Genetically Determined Mono and Dizygotic Twins Using Amplitude-Modulation Frequency-Modulation Methods," 12 pages, *SPIE Medical Imaging*, San Diego, California, Feb. 2010.
 77. Murillo, S., **Pattichis, M.**, Soliz, P., Loizou, C.P., and Pattichis, C.S., "Global Optimization for Motion Estimation with Applications to Ultrasound Videos of Carotid Artery Plaques," *Proc. SPIE Medical Imaging*, 12 pages, San Diego, California, Feb. 2010.
 78. Agurto, C., Barriga, S., Murray, V., **Pattichis, M.**, Davis, B., and Soliz, P., "Effects of Image Compression and Degradation on an Automated Diabetic Retinopathy Screening Algorithm," *Proc. SPIE Medical Imaging: Computer-Aided Diagnosis*, vol. 7624, pp. 76240H-1 – 76240H-9, 12 pages, San Diego, California, Feb. 2010.
 79. Panayides A., **Pattichis, M.S.**, and Pattichis, C.S., "Wireless Ultrasound Video Transmission for Stroke Risk Assessment: Quality Metrics and System Design," *International Workshop on Video Processing and Quality Metrics for Consumer Electronics*, (VPQM 2010), 6 pages, Scottsdale, Arizona, Jan. 2010.
 80. Llamocca, D., **Pattichis, M.S.**, and Vera, A., "A Dynamically Reconfigurable Platform for Fixed-Point Filters," *2009 International Conference on ReConFigurable Computing and FPGAs*, (ReConFig'09), pp. 332-337 (*invited for journal submission*), Cancun, Mexico, December 9-11, 2009.
 81. **Pattichis, M.S.**, Murray, V., "AM-FM Analysis over Spatially Bounded Domains with Applications in Medical Imaging," *9th International Conference on Information Technology and Applications in Biomedicine (ITAB'2009)*, Larnaca, Cyprus, Nov. 5-7, 2009.

82. Christodoulou, C.I., Kaplanis, P.A., Murray, V., **Pattichis, M.S.**, and Pattichis, C.S., "Classification of Surface Electromyographic Signals using AM-FM Features," *9th International Conference on Information Technology and Applications in Biomedicine (ITAB'2009)*, Larnaca, Cyprus, pp. 1-4, Nov. 5-7, 2009.
83. Murray, V., Barriga, E.S., Soliz, P., and **Pattichis, M.S.**, "Survey of AM-FM methods for Applications on Medical Imaging," accepted, *2009 Ibero-American Conference on Trends in Engineering Education and Collaboration (CITECI)*, Albuquerque, NM, Oct., 2009.
84. Llamocca, D., **Pattichis, M.S.**, and Vera, A., "A Dynamically Reconfigurable Parallel Pixel Processing System," *19th IEEE International Conference on Field Programmable Logic, (FPL 09)*, Czech Republic, pp. 462-466, 2009.
85. **Pattichis, M.S.**, "Multidimensional AM-FM Models and Methods for Biomedical Image Computing," invited, *34th IEEE Annual International Conference of the Engineering in Medicine and Biology Society*, pp. 5641-5644, Sept. 2-6, 2009.
86. Kyriakou, E., Pattichis, C.S. and **Pattichis, M.S.**, "An Overview of Recent Health Care Support Systems for eEmergency and mHealth Applications," invited to *34th IEEE Annual International Conference of the Engineering in Medicine and Biology Society*, pp. 1246-1249, Sept. 2-6, 2009.
87. Panayides, A., **Pattichis, M.S.**, Pattichis, C.S., Loizou, C.P., and Pitsillides, A., "Robust and Efficient Ultrasound Video Coding in Noisy Channels Using H.264," *34th IEEE Annual International Conference of the Engineering in Medicine and Biology Society*, pp. 5143-5146, Sept. 2-6, 2009, PMID: 19964858.
88. Vera, A., Llamocca, D., **Pattichis, M.S.** and Lyke, J., "A Dynamically Reconfigurable Computing Model for Video Processing Applications," invited in *Proc. 43rd Asilomar Conference on Signals, Systems and Computers*, pp. 327-331, Nov. 1st-4th, 2009.
89. Jeromin, O.M., and **Pattichis, M.S.**, "Reconstruction of Aerial Image from Fourier Spectral Samples Using Statistical Models," invited in *Proc. 43rd Asilomar Conference on Signals, Systems and Computers*, pp. 1397-1401, Nov. 1st-4th, 2009.
90. Murray, V., **Pattichis, M.S.**, and Soliz, P., "Retrieval and Classification of Pneumoconiosis Images Using Multi-scale AM-FM Methods," invited in *Proc. 43rd Asilomar Conference on Signals, Systems and Computers*, pp. 746-750, Nov. 1st-4th, 2009.
91. Llamocca, D., Vera, A., and **Pattichis, M.S.**, "A Dynamic Computing Platform for Image and Video Processing Applications," invited in *Proc. 42nd Asilomar Conference on Signals, Systems and Computers*, pp. 412-416, Nov. 1st-4th, 2009.
92. Ramamurthy, K., Spanias, A., Hinnov, L., Akujuobi, C., Stiber, M., **Pattichis, M.**, Doering, E., Pattichis, C., Thornburg, H., Papandreou-Suppappola, A., Spanias, P., Ayyanar, R., Campana, E., and Haag, S., "Work in Progress – Collaborative Multi-Disciplinary J-DSP Software Project," *39th ASEE/IEEE Frontiers in Education Conference*, pp. 1-2, Oct. 18-21, San-Antonio, Texas, 2009.
93. Barriga, E.S., Murray, V., Agurto, C., **Pattichis, M.S.**, Russell, S., Abramoff, M.D., Davis, H. and Soliz, P., "Multi-Scale AM-FM for lesion Phenotyping on Age Related Macular Degeneration," *22nd IEEE Symposium on Computer-Based Medical Systems*, pp. 1-5, Albuquerque, New Mexico, 2009.
94. Kyriacou, E., Pattichis, C.S., Jossif, A., **Pattichis, M.S.**, Paraskeva, L., Hoplaros, D., Kounoudes, A. and Vogiatzis, D., "A Wireless System for Monitoring of Children with Suspected Cardiac Arrhythmias," accepted in the *2nd International Conference on PErvasive Technologies Related to Assistive Environments (PETRA '09)*, 6 pages, Corfu, Greece, June 9-13, 2009.
95. Loizou, C.P., Murray, V., **Pattichis, M.S.**, Pantziaris, M., Nicolaidis, A.N. and Pattichis, C.S., "AM-FM Texture Image Analysis and Retrieval of the Intima and Media Layers of the Carotid Artery," accepted, *19th International Conference on Artificial Neural Networks*, Limassol, Cyprus, 2009.
96. Murray, V., **Pattichis, M.S.**, Davis, H., Barriga, E. and Soliz, P., "Multiscale AM-FM Analysis of Pneumoconiosis X-ray Images," *IEEE Int. Conf. on Image Processing*, pp. 4201-4204, Cairo, Egypt, 2009.
97. Christodoulou, C.I., Pattichis, C.S., Murray, V., **Pattichis, M.S.** and Nicolaidis, A., "AM-FM Representation for the Characterization of Carotid Plaque Ultrasound Images," in *Proc. 4th European*

- Congress of the International Federation for Medical and Biological Engineering*, Antwerp, Belgium, pp. 546-549, Nov. 23-27, 2008.
98. Kyriacou, E., Pattichis, C., **Pattichis, M.S.**, Jossif, A., Vogiatzis, D., Paraskeva, L. and Konstantinides A., "An M-health System for Continuous Monitoring of Children with Suspected Cardiac Arrhythmias," in *Proc. 4th European Congress of the International Federation for Medical and Biological Engineering*, Antwerp, Belgium, pp. 1325-1328, Nov. 23-27, 2008.
 99. Neofytou, M.S., Loizou, A., Pattichis, C.S., **Pattichis, M.S.** and Tanos, V., "Classification and Data Mining for Hysteroscopy Imaging in Gynaecology," in *Proc. 4th European Congress of the International Federation for Medical and Biological Engineering*, Antwerp, Belgium, pp. 918-922, Nov. 23-27, 2008.
 100. Jeromin, O.M., Calhoun, V.D. and **Pattichis, M.S.**, "Optimal Sampling Geometries for TV-Norm Reconstruction of fMRI Data," invited in *Proc. 42nd Asilomar Conference on Signals, Systems and Computers*, pp. 1397-1401, Oct. 26-29, 2008.
 101. Murray, V., **Pattichis, M.S.** and Soliz, P., "Analysis Methods for Retinal Image Characterization," invited in *Proc. 42nd Asilomar Conference on Signals, Systems and Computers*, pp. 664-668, Oct. 26-29, 2008.
 102. Agurto, C, Murillo, S., Murray, V., **Pattichis, M.S.**, Russell, S., Abramoff, M. and Soliz, P., "Detection and Phenotyping of Retinal Disease using AM-FM Processing for Feature Extraction," invited in *Proc. 42nd Asilomar Conference on Signals, Systems and Computers*, pp. 659-663, Oct. 26-29, 2008.
 103. Loizou, C.P., Pantziaris, M., Nicolaides A., Spanias, A., **Pattichis, M.S.** and Pattichis, C.S., "Ultrasound Imaging Media Layer Texture Analysis of the Carotid Artery," in *CD-ROM Proc. of the 8th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2008)*, Athens, Greece, pp. 1-6, Oct. 8-10, 2008.
 104. Neofytou, M.S., Pattichis, C.S., **Pattichis, M.S.**, Tanos, V., Kyriacou, E.C. and Schizas, C., "Color Multiscale Texture Classification of Hysteroscopy Images of the Endometrium," in *Proc. of 30th Annual International conference of the IEEE engineering in Medicine and Biology Society, (EMBS 2008)*, Vancouver, Canada, pp. 1226-1229, Aug. 20-24th, 2008 (**selected for Poster and Display Presentation**).
 105. Panayides, A., **Pattichis, M.S.** and Pattichis C.S., "Wireless Medical Ultrasound Video Transmission Through Noisy Channels," in *Proc. of 30th Annual International conference of the IEEE engineering in Medicine and Biology Society*, 20-24 August, Vancouver, Canada, pp. 5326-5329, Aug. 20-25th, 2008, PMID: 19163920.
 106. Kyriacou, E., Kounnoudes, T., Paraskeva, L., Konstantinides, A., Pattichis, C., Jossif, A., **Pattichis, M.S.** and Vogiatzis, D., "Continuous Monitoring of Children with Suspected Cardiac Arrhythmias," in *Proc. of eHealth 2008*, City University, London, 8 pages, Sept. 8-9th, 2008.
 107. Acton, S.T., Soliz, P., Russell, S. and **Pattichis, M.S.**, "Content Based Image Retrieval: The Foundation for Future Case-Based And Evidence-based Ophthalmology," in *Proc. IEEE International Conference on Multimedia & Expo*, Hannover, Germany, pp. 541-544, Jun. 23-26, 2008.
 108. Meyer-Bäse, Uwe, Vera, A., Meyer-Bäse, A., **Pattichis, M.S.** and Perry, R., "DSP with FPGAs: a Xilinx/Simulink-based course and laboratory", in *Proc of the SPIE. Independent Component Analyses, Wavelets, Unsupervised Nano-Biomimetic Sensors, and Neural Networks VI*. Edited by Szu, Harold H.; Agee, F. Jack., vol. 6979, pp. 697907-697907-12, May, 2008.
 109. Murray, V. and **Pattichis, M.S.**, "AM-FM Demodulation Methods for Reconstruction, Analysis and Motion Estimation in Video signals," *2008 IEEE Southwest Symposium on Image Analysis, and Interpretation*, Santa Fe, New Mexico, pp. 17-20, Mar., 2008.
 110. Soliz, P., Russell, S.R., Abramoff, M.D., Murillo, S., **Pattichis, M.** and Davis, H., "Independent Component Analysis for Vision-inspired Classification of Retinal Images with Age-related Macular Degeneration," *2008 IEEE Southwest Symposium on Image Analysis, and Interpretation*, Santa Fe, New Mexico, pp. 65-68, Mar. 2008.

111. Pattichis, C.S., Kyriacou, E.C., **Pattichis, M.S.**, Panayides, A., Mougiakakou, S., Pitsillides, A. and Schizas, C.N., "A Brief Overview of m-Health e-Emergency Systems," in *CD-ROM Proc. of the 6th International IEEE EMBS Special Topic Conference on Information Technology Application in Biomedicine*, (ITAB-2007), Tokyo, Japan, pp. 53-57, Nov. 8-11, 2007.
112. Murray, V., Murillo, S.E., **Pattichis, M.S.**, Loizou, C.P., Pattichis, C.S., Kyriacou, E. and Nicolaides, A., "An AM-FM model for Motion Estimation in Atherosclerotic Plaque Videos," invited in the *41st Asilomar Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, pp. 746-750, Nov. 4-7, 2007.
113. Murray, V., Rodriguez, P.V. and **Pattichis, M.S.**, "Robust Multiscale AM-FM Demodulation of Digital Images," in *Proc. 2007 IEEE International Conference on Image Processing (ICIP-2007)*, San Antonio, Texas, pp. I-465 - I-468, Sept. 16-19, 2007.
114. Kyriacou, E., Pattichis, C., **Pattichis, M.**, Jossif, A., Paraskeva, L., Konstantinides, A. and Vogiatzis, D., "An m-Health Monitoring System for Children with Suspected Arrhythmias," in *Proc. of the 29th Annual Intern. Conf. of the IEEE Engineering In Medicine and Biology Society*, (EMBS 2007), Lyon, France, pp. 1794-1797, Aug. 22-26, 2007.
115. Neofytou, M.S., Tanos, V., **Pattichis, M.S.**, Pattichis, C.S., Kyriacou, E.C. and Pavlopoulos, S., "Color Based Texture – Classification of Hysteroscopy Images of the Endometrium," in *Proc. of the 29th Annual Intern. Conf. of the IEEE Engineering In Medicine and Biology Society*, (EMBS 2007), Lyon, France, pp. 864-867, Aug. 22-26, 2007.
116. Vera, A., Llamocca, D., **Pattichis, M.**, Kemp, W., Shedd, W., Alexander, D. and Lyke, J., "Dose Rate Upset Investigations on the Xilinx Virtex IV Field Programmable Gate Arrays," in *Proc. 2007 IEEE Radiation Effects Data Workshop*, pp. 172-176, July, 2007.
117. Barriga, E.S., **Pattichis, M.S.**, Abramoff, M., T'so, D., Kwon, Y., Kardon, R and Soliz, P., "Independent component analysis for the detection of in-vivo intrinsic signals from an optical imager of retinal function," in *Proc. of Photonics West 2007*, San Jose, California, 12 pages, Jan., 2007.
118. Vera, G.A., Meyer-Baese, U., and **Pattichis, M.S.**, "An FPGA-based Rapid Prototyping Platform for Wavelet Coprocessors," in *Proc. of SPIE Defense & Security Symposium*, Orlando, Florida, vol. 6576, pp. 657615-1 - 657615-10, Apr., 2007.
119. Meyer-Baese, U., Vera, A., Meyer-Baese, A., **Pattichis, M.S.** and Perry, R., "Smart Altera Firmware for DSP with FPGAs," in *Proc. of SPIE Defense & Security Symposium*, Orlando, Florida, vol. 6576, pp. 65760T-1 – 65760T-11, Apr., 2007.
120. Meyer-Baese, U., Vera, G.A., Rao, S., Lenk, K. and **Pattichis, M.S.**, "FPGA Wavelet Processor Design using Language for Instruction-set Architectures (LISA)," in *Proc. of SPIE Defense & Security Symposium*, Orlando, Florida, vol. 6576, pp. 65760U-1 – 65760U-12, Apr., 2007.
121. Pattichis, C.S., Kyriacou, E., **Pattichis, M.S.**, Panayides, A., and Pitsillides, A., "A Review of m-Health e-Emergency Systems," in *CD-ROM Proc. of the 5th International IEEE EMBS Special Topic Conference on Information Technology in Biomedicine*, Ioannina, Greece, 6 pages, Oct., 2006.
122. Murillo, S.E., **Pattichis, M.S.**, Loizou, C., Pattichis, C.S., Kyriacou, E., Constantinides, A.N., and Nicolaides, A., "Atherosclerotic Plaque Motion Trajectory Analysis from Ultrasound Videos", in *CD-Rom Proc. of the 5th International IEEE EMBS Special Topic Conference on Information Technology in Biomedicine*, Ioannina, Greece, 5 pages, Oct., 2006.
123. Panayides, A., **Pattichis, M. S.**, Pattichis, C. S., and Pitsillides, A., "A Review of Error Resilience Techniques in Video Streaming, in *Proc. of ISYC 2006, International Conference On Intelligent Systems and Computing: Theory and Applications*, Ayia Napa, Cyprus, pp. 39-48, Jul., 2006.
124. Yu, H., **Pattichis, M.S.**, and Goens, M.B., "Robust Segmentation and Volumetric Registration in a Multi-view 3D Freehand Ultrasound Reconstruction System," invited to the *40th Asilomar Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, pp. 1978-1982, 2006.
125. Barriga, E., **Pattichis, M. S.**, Abramoff, M., Kardon, R., Kwon, Y., Ts'o D., and Soliz, P., "Spatiotemporal Independent Component Analysis for Retinal Images," invited to the *40th Asilomar*

- Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, pp. 1961-1965, 2006.
126. Murillo, S. E., **Pattichis, M. S.**, Loizou, C., Pattichis, C. S., Kyriacou, E., Constantinides, N., and Nicolaides, A., “Atherosclerotic Plaque Motion Analysis from Ultrasound Videos,” invited to the *40th Asilomar Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, pp. 836-840, 2006.
 127. Cacoullou, T. and **Pattichis, M. S.**, “Pneumoconiosis Revisited: Classifiers Viewed via ROC Curves and Logic Functions,” 8 pages, published in *Proc. of the 2006 Panhellenic Conference on Statistics*.
 128. Yu, H., **Pattichis, M.S.**, and Goens, M.B., “Robust Segmentation of Freehand Ultrasound Image Slices using Gradient Vector Flow Fast Geometric Active Contours,” in *Proc. of 2006 IEEE Southwest Symposium on Image Analysis and Interpretation*, Denver, Colorado, pp. 115-119, Mar. 26-28, 2006.
 129. Vera, A., Parra, J., Kief, C., **Pattichis, M.**, and Pollard, H., “Integrating Reconfigurable Logic in the First Digital Logic Course,” 6 pages, in *CD-ROM Proc. of 2006 ICEE Conference*, Puerto Rico, 2006.
 130. Meyer-Baese, U., Vera, A., Meyer-Baese, A., **Pattichis, M.S.**, Perry, R., “Discrete Wavelet Transform FPGA Design using Matlab/Simulink,” in *Proc. of SPIE Independent Component Analysis, Wavelets, Unsupervised Smart Sensors, and Neural Networks IV*, Orlando, Florida, 10 pages, 2006.
 131. Barriga, E.S., Ts’o, D.Y., **Pattichis, M.S.**, Kwon, Y.H., Kardon, R., Abramoff, M.D., and Soliz, P., “Detection of Low Amplitude, in-vivo Intrinsic Signals from an Optical Imager of Retinal Function,” *Proc. of SPIE Photonics West*, San Jose, California, vol. 6138, pp. 66-76, 2006 (**Finalist to the Pascal Rol award for best paper**).
 132. Neofytou, M.S., **Pattichis, M.S.**, Pattichis, C.S., Tanos, V., Kyriacou, E.C., and Koutsouris D.D., “Texture-based Classification of Hysteroscopy Images of the Endometrium, in *Proc. of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS’06)*, New York, pp. 3005-3008, Aug., 2006.
 133. Kyriacou, E., Pattichis, C.S., **Pattichis, M.S.**, Mavrommatis, A., Panagiotou, S., Christodoulou, C.I., Kakkos, S. and Nicolaides, A., “Classification of Atherosclerotic Carotid Plaques Using Gray Level Morphological Analysis on Ultrasound images”, in *Proc. of the 3rd IFIP Conference on Artificial Intelligence Applications and Innovations (AIAI06)*, Athens Greece, pp. 737-744, vol. 204, Jun. 7-9, Springer 2006 (**a best paper award, invited for Journal submission**).
 134. Jeromin, O., **Pattichis, M.S.**, Pattichis, C.S., Kyriacou, E., and Nicolaides, A., “Variogram Methods for Texture Classification,” in *Proc. of SPIE Medical Imaging*, San Diego, pp. 61440D-1 – 61440D-12, vol. 6144D, Feb., 2006.
 135. Yu, H., **Pattichis, M.S.**, and Goens, M.B., “Multi-view 3D Reconstruction with Volumetric Registration in a Freehand Ultrasound Imaging System,” in *Proc. of SPIE Medical Imaging*, pp. 45-56, vol. 6147, Feb., 2006.
 136. Cacoullou, T. and **Pattichis, M. S.**, “Classification Under a Multivariate Bernoulli: An Application to Pneumoconiosis”, in the *Proc. of the 2005 Panhellenic Conference on Statistics*, Rhodes, Greece, pp. 419-426, 2005.
 137. Neophytou, M., Pattichis, C, Tanos, V., **Pattichis, M.**, Kyriacou, E., and Koutsouris, D., “The Effect of Color Correction of Endoscopy Images for Quantitative Analysis in Endometrium,” published in *Proc. of 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Shanghai, China, pp. 3336-3339, Sept. 1-4, 2005.
 138. Kyriacou, E., **Pattichis, M.S.**, Christodoulou, C.I., Pattichis, C.S., Kakkos, S., and Nicolaides, A., “Multiscale Morphological Analysis of the Atherosclerotic Carotid Plaque,” published in *27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS)*, Shanghai, China, pp. 1626-1629, Sept. 1-4, 2005.

139. Yu, H., **Pattichis, M.S.**, and Goens, M.B., "A Robust Multi-view Freehand Three-dimensional Ultrasound Imaging System Using Volumetric Registration," in *Proc. IEEE International Conference on Systems, Man and Cybernetics*, The Big Island, Hawaii, pp. 3106-3111, vol. 4, Oct. 10-12, 2005.
140. Rodriguez, P. V. and **Pattichis, M.S.**, "New Algorithms for Fast and Accurate AM-FM Demodulation of Digital Images," *2005 IEEE International Conference on Image Processing (ICIP-2005)*, Genova, Italy, pp. 1294-1297, vol. 2, Sept. 11-14, 2005.
141. **Pattichis, M.S.**, Martin, G., and Pattichis, C.S., "A New Model for Image Variability due to the Scanning Process and its Effects on Texture Feature Analysis" (invited), published in CD-ROM proceedings of the *II Mediterranean Conference on Medical Physics: The Analog to Digital Migration of the Hospital Working Environment*, Limassol, Cyprus, 6 pages, Apr. 26-30, 2004.
142. Neophytou M.S., Pattichis C.S., **Pattichis M.S.**, Tanos V., Kyriacou E.C., Koutsouris D., "Multiscale Texture Feature Variability Analysis in Endoscopy Imaging Under Different Viewing Positions" (invited), published in CD-ROM proceedings of the *II Mediterranean Conference on Medical Physics: The Analog to Digital Migration of the Hospital Working Environment*, Limassol, Cyprus, 6 pages, Apr. 26-30, 2004.
143. Neophytou, M.S., Pattichis, C.S., Pattichis, M.S., Tanos, V., Kyriacou, E.C., Pavlopoulos, S., and Koutsouris, D.D., "Texture Analysis of the Endometrium during Hysteroscopy: Preliminary Results," *Proc. IEEE 26th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS 2004)*, pp. 1483-1486, vol. 1, Sept., 2004.
144. Martin, G. and **Pattichis, M.S.**, "The Characterization of Scanning Noise and Quantization on Texture Feature Analysis" (invited), *Proc. 6th IEEE Southwest Symposium on Image Analysis and Interpretation*, Lake Tahoe, Nevada, pp. 152-156, Mar., 2004.
145. Rodriguez, P. V. and **Pattichis, M.S.**, "Nested Random Phase Sequence Sets: A Link between AM-FM Demodulation and Increasing Operators with Application to Cardiac Image Analysis" (invited), *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Lake Tahoe, Nevada, pp. 196-200, Mar., 2004.
146. Kern, J.P., **Pattichis, M.S.**, and Stearns, S.D., "Registration of Image Cubes Using Multivariate Mutual Information," *Proc. 37th Asilomar Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, pp. 1645-1649, vol. 2, Nov., 2003.
147. Rodriguez, P. V., **Pattichis, M.S.**, and Goens, M.B., "M-mode Echocardiography Image and Video Segmentation based on AM-FM Demodulation Techniques," *Proc. IEEE 25th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS 2003)*, Cancun, Mexico, pp. 1176-1179, vol. 2, Sept., 2003.
148. Barriga, E.S., T'so, D.Y., **Pattichis, M.S.** and Soliz, P., "Independent Component Analysis for Processing of Retinal Responses to Patterned Stimuli," *Proc. IEEE 25th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS 2003)*, Cancun, Mexico, pp. 1006-1009, vol. 1, Sept., 2003.
149. Ourique, F., Licks, V., Jordan, R., and **Pattichis, M.S.**, "Automatic Segmentation of Scanning Electron Microscopy Images for Molecular Aggregation Profiling," *Proc. IEEE 25th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS 2003)*, Cancun, Mexico, pp. 702-705, vol. 1, Sept., 2003.
150. Rodriguez, P., Jordan, R., **Pattichis, M.S.**, and Goens, M.B., "Fast AM-FM Demodulation Image and Video Analysis Using Single Instruction Multiple Data (SIMD) Architectures," *Proc. IASTED International Conference on Signal Processing, Pattern Recognition and Applications, SPRA 2003*, Rhodes, Greece, pp. 230-233, Jun. 30 – Jul. 2, 2003.
151. Christodoulou, C.I., Kyriacou, E., **Pattichis, M.S.**, Pattichis, C.S., and Nicolaidis, A., "A Comparative Study of Morphological and other Texture Features for the Characterization of Atherosclerotic Carotid Plaques," *Proc. of the 10th International Conference on Computer Analysis of Images and Patterns*, Groningen, The Netherlands, pp. 503-511, Aug., 2003.

152. Barriga, E.S., Truitt, P.W., **Pattichis, M.S.**, T'so, D., Kwon, Y.H., Kardon, R.H., and Soliz, P., "Blind Source Separation in Retinal Videos," *Proc. of the SPIE Medical Imaging Conference*, San Diego, California, pp. 1591-1601, vol. 5032, Feb., 2003.
153. Thurgood, M.J., Jordan, R., Abdallah, C.T., and **Pattichis, M.S.**, "Fast Algorithms for Generating the Original and Symmetric PONS Matrices," presented in *10th Digital Signal Processing Workshop*, Pine Mountain, Georgia, Oct., 2002.
154. Christodoulou, C.I., Loizou, C., Pattichis, C.S., Pantziaris, M., Kyriakou, E., **Pattichis, M.S.**, Schizas, C.N., and Nicolaidis, A., "De-speckle Filtering in Ultrasound Imaging of the Carotid Artery," *IEEE 24th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS 2002)*, Houston, Texas, vol. 2, pp. 1027-1028, Oct., 2002.
155. Rodriguez, P. V. and **Pattichis, M.S.**, "Real-time AM-FM Analysis of Ultrasound Video," invited in the *45th IEEE Midwest Symposium on Circuits and Systems*, Tulsa, Oklahoma, vol. 1, pp. 216-219, Aug., 2002.
156. **Pattichis, M.S.**, Cacoullos, T., and Soliz, P., "Spatial Image Variability Analysis," invited in the *45th IEEE Midwest Symposium on Circuits and Systems*, Tulsa, Oklahoma, volume 1, pp. 224-227, Aug., 2002.
157. Ramachandran, J., **Pattichis, M.S.**, Soliz, P., and Wilson, M., "A Hierarchical Segmentation Model for the Lung and the Inter-costal Parenchymal Regions of Chest Radiographs," invited in the *45th IEEE Midwest Symposium on Circuits and Systems*, Tulsa, Oklahoma, volume 1, pp. 439-442, Aug., 2002.
158. Rodriguez, P. V., **Pattichis, M.S.**, and Jordan R., "Computational SIMD Framework: split-radix simd-fft algorithm, derivation, implementation and performance," published in *CD-Rom Proceedings of 14th International Conference on DSP (DSP 2002)*, Santorini, Greece, pp. 861-864, vol. 2, Jul., 2002.
159. Kyriakou, E., Voskarides, S., Pattichis, C.S., Istepanian, R., **Pattichis, M.S.** and Schizas, C.N., "Wireless Telemedicine Systems: A Brief Overview," in Proc. 4th International Workshop on Enterprise Networking and Computing in Healthcare Industry (HEALTHCOM 2002), Nancy, France, pp. 50-56, Jun., 2002.
160. Voskarides, S., Pattichis, C.S., Istepanian, R., Kyriacou, E., **Pattichis, M.S.** and Schizas, C.N., "Mobile Health Systems: A Brief Overview," in *Proceedings of SPIE AeroSense 2002: Digital Wireless Communications IV*, Ed. by R. M. Rao, S. A. Dianat, M. D. Zoltowski, Vol. 4740, Orlando, Florida, USA, pp. 124-131, Apr., 2002.
161. **Pattichis, M.S.**, Muralidharan, H., Pattichis, C.S., Soliz, P., "New Image Processing Models for Opacity Image Analysis in Chest Radiographs," invited in *5th IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, pp. 260-264, Apr., 2002.
162. Ramachandran, J., **Pattichis, M.S.**, and Soliz, P., "Pre-Classification of Chest Radiographs for Improved Active Shape Model Segmentation of Ribs," invited in *5th IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, pp. 188-192, Apr., 2002.
163. **Pattichis, M.S.**, Pattichis, C.S., Christodoulou, C.I., James, D., Ketai, L., and Soliz, P., "A Screening System for the Assessment of Opacity Profusion in Chest Radiographs of Miners with Pneumoconiosis," invited in *5th IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, pp. 130-133, Apr., 2002.
164. Pattichis, C.S., and **Pattichis, M.S.**, "Adaptive Neural Network Imaging in Medical Systems," invited in *Proc. of the 35th Asilomar Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, vol. 1, pp. 313-317, Nov., 2001.
165. Rodriguez V., P., and **Pattichis, M.S.**, "Adaptive Sampling and Processing of Ultrasound Images," invited in *Proc. of the 35th Asilomar Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, vol. 1, pp. 323-327, Nov., 2001.
166. Pattichis, C.S., **Pattichis, M.S.** and Micheli-Tzanakou, E., "Medical Imaging Fusion Applications: An Overview," invited in *Proc. of the 35th Asilomar Conference on Signals, Systems, and*

- Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, vol. 2, pp. 1263-1267, Nov., 2001.
167. Pattichis, C.S., Christodoulou, C.I., **Pattichis, M.S.**, Pantziaris, M., and Nicolaides, A., "An Integrated System for the Assessment of Ultrasonic Imaging Atherosclerotic Carotid Plaques," in *Proc. 2001 IEEE Int. Conf. on Image Processing 2001*, Thessaloniki, Greece, vol. 1, pp. 325-328, Oct., 2001.
 168. **Pattichis, M.S.**, Zhou, R., and Raman, B., "New Algorithms for Computing Directional Discrete Fourier Transforms," in *Proc. 2001 IEEE Int. Conf. on Image Processing*, Thessaloniki, Greece, vol. 3, pp. 322-325, Oct., 2001.
 169. Ray, N., Havlicek, J., Acton, S.T. and **Pattichis, M.S.**, "Active Contour Segmentation Guided by an AM-FM Dominant Component Analysis," in *Proc. 2001 IEEE Int. Conf. on Image Processing*, Thessaloniki, Greece, vol. 1, pp. 78-81, Oct., 2001.
 170. **Pattichis, M. S.**, Ramachandran, J., Wilson, M., Pattichis, C.S. and Soliz, P., "Optimal Scanning, Display, and Segmentation of the International Labor Organization (ILO) X-Ray Images Set for Pneumoconiosis," in *Proceedings of the 14th IEEE Symposium on Computer-Based Medical Systems*, Bethesda, MD, pp. 511-515, Jul., 2001.
 171. Soliz, P., **Pattichis, M.S.**, Ramachandran, J., and James, D.S., "Computer-assisted diagnosis of chest radiographs for pneumoconiosis," in *Proceedings of the SPIE Medical Imaging Conference*, San Diego, California, vol. 1, pp. 667-675, Feb., 2001.
 172. **Pattichis, M.S.**, Petropoulos, H., and Brooks, W.H., "MRI Brain Image Segmentation Using an AM-FM Model," invited in the 34th Asilomar Conference on Signals, Systems, and Computers, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, vol. 2, pp. 906-910, Nov., 2000.
 173. Pizano, C.E., Heileman, G.L., Abdallah, C.T. and **Pattichis, M.S.**, "Are Perfect Image Watermarking Schemes Possible?," invited in the *Proc. 10th IEEE Mediterranean Electromechanical Conference (MELECON 2000)*, Limassol, Cyprus, vol. 2, pp. 669-672, May 2000.
 174. **Pattichis, M.S.**, "Novel Algorithms for the Accurate, Efficient and Parallel Computation of Multidimensional, Regional Discrete Fourier Transforms," invited in the *Proc. of the 10th IEEE Mediterranean Electrotechnical Conference (MELECON 2000)*, Limassol, Cyprus, pp. 53-533 May, 2000.
 175. **Pattichis, M.S.**, "Least Squares FIR Filter Design Using Frequency Domain Piecewise Polynomial Approximations," published in the proceedings of *X European SignalProcessing Conference*, Tampere, Finland, Sept. 5-8, 2000.
 176. **Pattichis, M.S.**, Bovik, A.C., Havlicek, J.W., and Sidiropoulos, N.D., "On the Representation of Wideband Images Using Permutations for Lossless Coding," in *Proc. of IEEE Southwest Symposium on Image Analysis and Interpretation*, Austin, Texas, pp. 237-241, Apr., 2000.
 177. **Pattichis, M.S.**, Pattichis, C.S., Avraam, M., Bovik, A.C., and Kyriakou, K., "AM-FM Texture Segmentation in Electron Microscopic Muscle Imaging," invited in *Proc. of the 1999 IEEE International Conference on Acoustics, Speech and Signal Processing*, (ICASSP), Phoenix, Arizona, vol. 4, pp. 2331-2334, Mar., 1999.
 178. Sidiropoulos, N.D., **Pattichis, M.S.**, Bovik, A.C., and Havlicek, J.W., "COPERM: Transform-domain Energy Compaction by Optimal Permutation," in *Proc. of the 1998 IEEE International Conference on Acoustics, Speech and Signal Processing*, (ICASSP), Seattle, WA, vol. 6, pp. 3301-3304, 1998.
 179. Lee, S., **Pattichis, M.S.**, and Bovik, A.C., "Foveated Image/Video Quality Assessment in Curvilinear Coordinates", *Int. Workshop on Very Low Bitrate Video Coding 98*, pp. 189-192, Oct. 1998.
 180. Lee, S., **Pattichis, M.S.**, and Bovik, A.C., "Rate Control for Foveated MPEG/H.263 Video," in *Proc. IEEE Int. Conf. on Image Processing 98*, vol. 2, pp. 365-369, Oct., 1998.
 181. **Pattichis, M.S.**, Pattichis, C.S., Avraam, M., Bovik, A.C., and Kyriakou, K. "Non-Stationary Texture Segmentation in Electron Microscopy Muscle Imaging Using an AM-FM Model," in *CD-*

- ROM proceedings of the VIII Mediterranean Conference on Medical and Biological Engineering and Computing*, Limassol, Cyprus, Jun., 1998.
182. **Pattichis, M.S.**, Christodoulou, C., Pattichis, C.S., and Bovik, A.C., “Non-Stationary Texture Classification Using an AM-FM Model,” in *Proceedings of International Conference on Neural Networks*, Houston, Texas, vol. 3, pp. 1552-1557, Jun. 1997.
 183. **Pattichis, M.S.**, and A.C. Bovik, “AM-FM Expansions for Images,” in *Proc. European Signal Processing Conf.*, Trieste, Italy, Sept., 1996.
 184. Havlicek, J.P., **Pattichis, M.S.**, Harding, D.S., Christofides, A.C., and Bovik, A.C., “AM-FM Image Analysis Techniques,” in *Proc. of the IEEE Southwest Symposium on Image Analysis, and Interpretation*, San Antonio, Texas, pp. 195-200, Apr., 1996.
 185. Pattichis, C.S., **Pattichis, M.S.**, Schizas, C.N., “Wavelet Analysis of Motor Unit Action Potentials,” in *Proc. of Engineering in Medicine and Biology Society, 1996. Bridging Disciplines for Biomedicine, 18th Annual International Conference of the IEEE*, vol. 4, pp. 1493-1495, 1996.
 186. **Pattichis, M.S.**, and Bovik, A.C., “A Fluid Model for Texture Images,” in *Proc. Workshop on Image and Multidimensional Signal Processing*, Belize City, Belize, pp. 18-19, Mar., 1996.
 187. **Pattichis, M.S.**, and Bovik, A.C., “Multi-Dimensional Frequency Modulation in Texture Images,” in *Proc. International Conference on Digital Signal Processing*, Limassol, Cyprus, pp. 753-758, Jun., 1995.
 188. **Pattichis, M.S.**, and Bovik, A.C., “A Nonlinear Fluid Model for Describing Frequency Modulation of Image Orientations,” in *Proc. IEEE Workshop on Non-Linear Signal and Image Proc.*, Neos Marmaras, Halkidiki, Greece, pp. 198-201, Jun., 1995.
 189. **Pattichis, M.S.**, and Pattichis, C.S., “Fast Wavelet Transform in Motor Unit Action Potential Analysis,” in *Proc. Int. Conf. of the IEEE Engineering in Medicine and Biology Society*, San Diego, California, pp. 1225-1226, Oct., 1993.
 190. **Pattichis, M.S.**, and Bostick, F.X., “Fast Wavelet Transform Applications in Electromagnetics,” in *Proc. of the Int. Conf. on Digital Signal Processing*, Nicosia, Cyprus, pp. 106-111, July 1993.

Refereed conference presentations:

1. Panayides, A., **Pattichis, M.**, and Pattichis, C., “Quantitative Imaging for Precision Medicine,” presented in *IEEE Biomedical and Health Informatics*, 2018.
2. Celedón-Pattichis, S., LópezLeiva, C. A., Barraza, M., Vennard, L., Lecea Yanguas, J. A., **Pattichis, M. S.**, & Cavazos DeLa Rocha, I. L. (2018). *Bilingual middle school students learning to code with their teachers: Affordances and challenges*. Proposal submitted to the annual meeting of the National Association for Bilingual Education, Albuquerque, New Mexico.
3. Celedón-Pattichis, S., LópezLeiva, C. A., & **Pattichis, M. S.** (2017, Feb). *Teaching and learning number systems: Bilingual students accessing high quality STEM practices*. Accepted, National Association of Bilingual Education, Dallas, Texas.
4. LópezLeiva, C. A., & **Pattichis, M. S.**, & Celedón-Pattichis, S. (2016, July). *Integrating mathematics, engineering, and technology through mathematics modeling and video representations*. Presented at the International Congress on Mathematics Education, Hamburg, Germany.
5. DeMarco, S., Arge, C.N., **Pattichis, M.S.**, Hock, R., and Henney, C.J., “Methods for estimating total open heliospheric magnetic flux,” *2014 American Geological Union Fall Meeting*, San Francisco, Dec., 2014.
6. **Pattichis, M.S.**, Hock, R., Henney, C., Arge, C., DeMarch, S., Delgado, A.P., Darsey, C., and Jatla, V., “Identifying Coronal Holes: Can we learn any lessons from Computer Aided Diagnosis?,” invited presentation, *2014 Solar Heliospheric & Interplanetary Environment (SHINE)*, Telluride, Colorado, June 2014.
7. Celedón-Pattichis, S., LópezLeiva, C. A., **Pattichis, M.S.**, & Llamocca, D., “At first it was very hard, then it was fun”: Conjecturing a learning trajectory for underrepresented middle school students in mathematics and engineering,” In K. Gomez (Chair), *Creating contexts of pedagogical and curricular*

- support for non-English background students in mathematics and science.* Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, Pennsylvania, 2014
American Educational Research Association (AERA), April 2014.
8. LópezLeiva, C. A., Celedón-Pattichis, S., **Pattichis, M.S.**, & Llamocca, D., “Image representation in a middle school afterschool program,” *4th International Realistic Mathematics Education Conference*, Boulder, Colorado, 2013.
 9. LópezLeiva, C., Celedón-Pattichis, S., **Pattichis, M.S.**, & Llamocca, D., “Successes and challenges of supporting interactive learning in a mathematics and engineering afterschool program for middle school students,” *Annual meeting of the American Educational Research Association*, San Francisco, California, April, 2013.
 10. Celedón-Pattichis, S., LópezLeiva, C. A., **Pattichis, M. S.**, & Llamocca, D., “Advancing out-of-school learning in mathematics and engineering,” In J. Aguirre (Chair), *Learning to do math inside and outside of school—fostering productive mathematical practices and identity development for Latin@ youth*, *Scientific Research Symposium, Annual meeting of the Society for the Advancement of Chicanos and Native Americans in the Sciences*, San Antonio, Texas, October, 2013.
 11. LópezLeiva, C., & **Pattichis, M. S.**, “With our feet on the ground”: Affordances and challenges of developing an integrated STEM approach for Latina/o middle school students. In S. Celedón-Pattichis (Chair), *Making our voices heard: Negotiating the promises and challenges of STEM education for historically underrepresented youth*. Scientific Research Symposium presented at the annual meeting of the *Society for the Advancement of Chicanos and Native Americans in the Sciences*, Seattle, Washington, October, 2012.
 12. Murray, V., Llamocca, D., Yuebing, J., Lyke, J., **Pattichis, M.S.**, Achramowicz, S., and Keith A., “Adaptive Wiring Panels using Cell-based Architectures: A First Approach,” *Reconfigurable Systems Workshop*, Albuquerque, New Mexico, 2010.
 13. Murillo S, Zamora G., Barriga S., Nemeth S., Crammer R., Edwards A., Bauman W., Soliz P., **Pattichis M.**, “Low-Cost Super Resolution Retinal Imaging with Embedded Denoising: Quantitative and Qualitative Assessment of Reconstructed Images from a Scanning Laser Ophthalmoscope,” in the *2010 Meeting for Research in Vision and Ophthalmology*, ARVO 2010, *Investigative Ophthalmology and Visual Sciences*, Abstract number 1803.
 14. Barriga, E.S., Murray, V., Agurto, C., **Pattichis, M.S.**, Russel, S.R., and Soliz, P., “Automatic Computer-Based Grading for Age Related Maculopathy,” in the *2010 Meeting for Research in Vision and Ophthalmology*, ARVO 2010, *Investigative Ophthalmology and Visual Sciences*, Abstract number 1793.
 15. Agurto, C., Murray, V., Barriga, E.S., **Pattichis, M.S.**, Baumann, W., and Soliz, P., “Automatic Classification of Diabetic Retinopathy Photographs Using AM-FM,” in the *2010 Meeting for Research in Vision and Ophthalmology*, ARVO 2010, *Investigative Ophthalmology and Visual Sciences*, Abstract number 1795.
 16. Rodriguez, P., Murray, V., and **Pattichis, M.S.**, “A Basis Pursuit Approach for Multi-Scale AM-FM Reconstructions,” *SIAM Conference on Imaging Science*, Chicago, Illinois, April, 2010.
 17. Murray, V. and **Pattichis, M.S.**, “Adaptive Wiring Manifold,” ReSpace/MAPLD Conference, Albuquerque, 2010.
 18. Davis, H.T., Heileman, G., **Pattichis, M.S.**, Murillo, S., Barriga, E.S. and Soliz, P., “Real-time image quality feedback for fundus camera photography,” in the *2009 Meeting of the Association for Research in Vision and Ophthalmology*, ARVO 2009.
 19. Agurto, C., **Pattichis, M.S.**, Murillo, S., Murray, V., Abramoff, M.D., Russell, S.R., Barriga, E.S., Davis, H., Soliz, P., “Detection of Structures in the Retina Using AM-FM for Diabetic Retinopathy Classification,” in the *2009 Meeting of the Association for Research in Vision and Ophthalmology*, ARVO 2009.
 20. Barriga, E.S., Russell, S.R., **Pattichis, M.S.**, Murray, V., Murillo, S., Davis, H., Abramoff, M.D. and Soliz, P., “Relationship Between Visual Features and Analytically Derived Features in Non-Exudated

- AMD Phenotypes: Closing the Semantic Gap,” in the *2009 Meeting of the Association for Research in Vision and Ophthalmology*, ARVO 2009.
21. Kief, C., Suddarth, S., Christodoulou, C., **Pattichis, M.S.**, Pollard, H.E., “Educational Activities for the FPGA Mission Assurance Center,” in *Proc. 2008 ASEE Gulf-Southwest Annual Conference*, UNM, Albuquerque, New Mexico, March 26-28, 2008.
 22. Cacoullou, T. and **Pattichis, M.S.**, “Pneumoconiosis Revisited: Classifiers Viewed via ROC Curves and Logic Functions,” in *Proc. of International Conference of Statistical Models for Biomedical and Technical Systems (Biostat 2006)*, Limassol, Cyprus, May, 2006.
 23. **Pattichis, M.S.**, “AM-FM Analysis of Medical Images,” invited in Los Alamos National Laboratory Workshop on Image Analysis and Understanding Data from Scientific Experiments, Los Alamos, NM, December 2-6, 2002.
 24. Yu, H., **Pattichis, M.S.**, and Goens, M.B., “3-D Object Reconstruction using Tracking of Freehand Ultrasound,” invited in Los Alamos National Laboratory Workshop on Image Analysis and Understanding Data from Scientific Experiments, Los Alamos, NM, December 2-6, 2002.
 25. Cai, S. and **Pattichis, M.S.**, “Tumor Growth Image Analysis,” invited in Los Alamos National Laboratory Workshop on Image Analysis and Understanding Data from Scientific Experiments, Los Alamos, NM, December 2-6, 2002.
 26. Rodriguez, P. V. and **Pattichis, M.S.**, “Fast Computation of Multidimensional Discrete Fourier Transforms on Modern Single Instruction Multiple Data (SIMD) Architectures,” invited in Los Alamos National Laboratory Workshop on Image Analysis and Understanding Data from Scientific Experiments, Los Alamos, NM, December 2-6, 2002.
 27. Kyriacou, K., Schnorrenberg, F., Schizas, C.N., **Pattichis, M.S.**, Pattichis, C.S., *A Modular Neural Network System for the Analysis of Immunostained Nuclei in Histopathological Sections*, XIV Congress of the International Society of Diagnostic Quantitative Pathology, Oviedo (Spain), September 26-29, 2001.
 28. Pattichis, C., Schizas, C., Dimopoulos, Y., Samaras, G., Christodoulou, C., Karaolis, M., Pantziaris, M., **Pattichis, M.S.** and Nicolaides, A., *Evaluation of the Risk of Stroke by Telemedicine*, World Congress on Medical Physics and Biomedical Engineering, Scientific Session: *WE-A201-01* Telecom, Telemetry & High Speed Data Transmission, Track: 04, Medical Informatics and Biomedical Information Technology, Chicago, USA, July 23-28, 2000.
 29. Pattichis, C.S., **Pattichis, M.S.**, and Middleton, L.T., *The Wavelet Transform in MUAP Analysis*, Abstracts of Electromyography and Motor Control, The X International Congress of EMG, and Clinical Neurophysiology, Kyoto, Japan, vol. 97, no. 4, pp. S167, October 15-19, 1995.
 30. Middleton, L., Pattichis, C., Petronidas, D., Souropetis, M., Schizas, C., and **Pattichis, M.** *Numerical Pattern Recognition in the Automatic Analysis of Motor Unit Potentials: Technical Considerations*, IIIrd International Conference of Quantitative EMG, Larnaca, Cyprus, June 5-8, 1988.
 31. Pattichis, C., Spanias, A., **Pattichis, M.S.**, Souropetis, M., Petronidas, D., Schizas, C., and Middleton, L., *Linear Prediction analysis applied in EMG*, IIIrd International Conference on Quantitative EMG, Larnaca, Cyprus, June 5-8, 1988.

Technical Reports

1. Rodriguez, P., **Pattichis, M.S.** and Jordan, R., “Parallel Single Instruction Multiple Data (SIMD) FFT: Algorithm and Implementation,” HPCERC2003-002, January, 2003.
2. **Pattichis, M.S.** and Zhou, R., “A Novel Directional Approach for the Scalable, Accurate and Efficient Computation of Two Dimensional Discrete Fourier Transforms,” AHPCC2000-019 report, Fall 2000.
3. Pattichis, C.S. and **Pattichis, M.S.**, “Time-Scale Analysis of Motor Unit Action Potentials,” Technical Report TR-97-11, Department of Computer Science, University of Cyprus, September, 1997.

4. Sidiropoulos, N.D., **Pattichis, M.S.**, Bovik, A.C., and Havlicek, J.W., “COPERM: Transform-Domain Energy Compaction by Optimal Permutation,” Technical Report UT-CVIS-TR-97-002, Center for Vision and Image Sciences, The University of Texas at Austin, July, 1997.

Selected Website News Articles

1. “Featured Engineer: Interview with Dr. Pattichis.” EE Web. <https://www.eeweb.com/spotlight/interview-with-dr.-marios-pattichis>. Published on June 13th, 2016. Accessed July 20, 2016.

Selected invited talks (not including UNM talks or conference paper presentations)

1. S. Celedon-Pattichis, C. LopezLeiva, and M.S. Pattichis, “Interdisciplinary Collaborations Forum in Particular to National Science Foundation Projects,” UNM College of Education, Research Brown Bag, Dec. 2nd, 2017.
2. S. Celedon-Pattichis, C. LopezLeiva, and M.S. Pattichis, “Advancing Out-of-School Learning in Mathematics and Engineering (AOLME): Lessons Learned and Future Work,” UNM College of Education, Research Brown Bag, Dec. 9th, 2016.
3. M.S. Pattichis, “DRASTIC: Dynamic and fast architectures and algorithms for Image and Video Processing and Communications,” September 16th, UNM ECE graduate seminar, 2016.
4. M.S. Pattichis, “DRASTIC: Dynamic and fast architectures and algorithms for Image and Video Processing and Communications,” Sensor, Signal & Information Processing (SenSIP) Center, Ira A. Fulton School of Engineering, Arizona State University, May 11th, 2016.
5. M.S. Pattichis, “Multi-scale AM-FM Models with Applications in Medical Imaging,” Kios Research Center for Intelligent Systems and Networks, The University of Cyprus, July 16th, 2015.
6. M.S. Pattichis, “DRASTIC: Dynamically Reconfigurable Architecture Systems for Time-varying Image Constraints,” Universidad de Ingeniería y Tecnología (UTEC), Lima, Peru, September 9th, 2015.
7. M.S. Pattichis, “DRASTIC: Dynamically Reconfigurable Architecture Systems for Time-varying Image Constraints,” Imperial College, London, England, October 31st, 2014.
8. M.S. Pattichis, “DRASTIC: Dynamically Reconfigurable Architecture Systems for Time-varying Image Constraints,” Department of Computer Science, The University of Cyprus, October 23rd, 2014.
9. M.S. Pattichis, “DRASTIC: Dynamically Reconfigurable Architecture Systems for Time-varying Image Constraints,” UNM STC Technology Social, October 10th, 2014.
10. M.S. Pattichis, “DRASTIC: Dynamically Reconfigurable Architecture Systems for Time-varying Image Constraints,” IEEE EMBS/MRN 10th monthly talk, MRN, September 16th, 2014.
11. M.S. Pattichis, “Dynamically Reconfigurable Architectures for Time-Varying Image Constraints (DRASTIC),” Sensor, Signal & Information Processing (SenSIP) Center, Distinguished Lecturer Seminar Series, Ira A. Fulton School of Engineering, Arizona State University, Jan. 22, 2014.
12. M.S. Pattichis, “A Survey of Methods in Digital Image and Video Analysis,” October 18th, AFRL, Albuquerque, NM, 2011.
13. M.S. Pattichis, “The UNM ECE Graduate Program,” Pontificia Universidad Catolica del Peru, June 17th, 2010.
14. M.S. Pattichis, “Wireless Ultrasound Video Transmission and Analysis For Stroke Assessment,” Pontificia Universidad Catolica del Peru, June 16th, 2010.
15. M.S. Pattichis, “Dynamically Reconfigurable Systems,” Pontificia Universidad Catolica del Peru, June 15th, 2010.
16. M.S. Pattichis, “New Multidimensional AM-FM Signals and Systems with Applications in Biomedical Image Processing,” Arizona State University, January 5th, 2010.
17. M.S. Pattichis, “*Building and Analyzing Electronic Circuits for Elementary School Children*,” Larragoite Elementary School, Santa Fe, New Mexico, August 24th, 2009.
18. M.S. Pattichis, “*Dynamically Reconfigurable Systems for Image and Video Processing*,” presented for the Next Generation of Space Electronics Program, Air Force Research Laboratory, Albuquerque, New Mexico, August 11th, 2009.

19. M.S. Pattichis, “*Diagnostically Driven Image Processing for Emerging Software and Hardware Systems,*” presented at the Center for Nonlinear Studies, Los Alamos National Lab, June 4th, 2009.
20. M.S. Pattichis, “*Dynamically Reconfigurable Systems for Signal, Image and Video Processing,*” Xilinx Corp., Albuquerque, New Mexico, November 7th, 2008.
21. M.S. Pattichis, “*An Introduction to AM-FM Methods,*” Department of Ophthalmology and Visual Sciences, University of Iowa, September 10th, 2008.
22. M.S. Pattichis, “*Intelligent Image Processing,*” Summer School on Intelligent Systems, European Thematic Network for Doctoral Education in Computing, Nicosia, Cyprus, July 6th 2007.
23. M.S. Pattichis, “*Atherosclerotic Plaque Motion Analysis from Ultrasound Videos: Can we predict rupture?,*” presented at the Center for Nonlinear Studies, Los Alamos National Lab, June 19th, 2006.
24. M.S. Pattichis, “*AM-FM models with applications in medical image analysis,*” presented by the Dept of Electrical and Computer Engineering, the Dept. of Biomedical Engineering, and the Center for Perceptual Studies at the University of Texas at Austin, December 19th, 2005.
25. M.S. Pattichis, “*AM-FM models with applications in medical image processing,*” Oct. 13th, 2005, presented in the Data driven modeling and analysis speaker series, Los Alamos National Lab.

TEACHING

Courses (20 courses, 15 unique courses, 10 unique courses at UNM)

Taught at The University of New Mexico, Dept. of ECE, (since September 1999):

- ECE 101. An Introduction to Electrical and Computer Engineering (UG)
- ECE 213. Circuit Analysis II (UG)
- ECE 231. Intermediate Programming and Engineering Problem Solving (UG)
- ECE 238L. Computer Logic Design (UG regular and internet offerings)
- ECE 338L. Intermediate Logic Design (UG)
- ECE 314. Signals and Communications (UG)
- ECE 533. Digital Image Processing (GRAD)
- ECE 595.1. Medical Imaging (**new course number: ECE 510**)
- ECE 595.2. Advanced Topics in Image Processing (**new GRAD course number: ECE 633**)
- ECE 506 Optimization Theory (GRAD)
- ECE 539 Digital Signal Processing I (GRAD)

Taught at the University of Cyprus, Dept. of CS, (Sep 2003-Dec 2004, Oct 2008):

- EPL 445. Digital Image Processing (UG)
- EPL 033. An Introduction to Programming in C for Engineers (UG)
- EPL 121. Digital Systems (UG)
- EPL 231. Data Structures and Algorithms (UG)
- EPL 607. Visual Computing (GRAD)

Taught at Washington State University, Dept. of EECS, (September 1998 – August 1999):

- EE 304. An Introduction to Electrical Engineering (UG Circuits I)
- EE 321. Circuits II (UG)
- EE 314. Microprocessor Systems (UG)
- CptS 445. Digital Image and Video Processing (UG)
- CptS 251. Programming in C (UG)

Ph.D. graduates (Advisor)

1. Victor M. Stone, “Frequency Domain Decomposition of Digital Video Containing Multiple Moving Objects,” Ph.D. Dissertation, Fall 2018.

2. Cesar Carranza, "Fast and Scalable Architectures and Algorithms for the Computation of the Forward and Inverse Discrete Periodic Radon Transform with Applications to 2D Convolutions and Cross-Correlations," May 2016 (**with distinction**). He is currently an **Associate Professor** with Pontificia Universidad Catolica del Peru.
3. Yuebing Jiang, "Dynamically Reconfigurable Architectures and Systems for Time-varying Image Constraints (DRASTIC) for Image and Video Compression," May 2014 (**with distinction**). He is currently with Apple.
4. John Colby Hoffman, "A Dynamically Reconfigurable Parallel Processing Framework with Application to High-Performance Video Processing," Spring 2013. He is currently a **System Architect** with Raytheon.
5. Carla Agurto, "Detection and Classification of Diabetic Retinopathy Pathologies in Fundus Images," Fall 2012. She is currently a **Research Scientist** with IBM.
6. Daniel Llamocca, "Dynamically Reconfigurable Management of Energy, Performance, and Accuracy Applied to Digital Signal, Image, and Video Processing Applications," Spring 2012. He was a **Post-Doc** with the College of Education, UNM. He is currently an **Assistant Professor** at Oakland University.
7. Sergio Murillo, "Global Optimization Methods for Full-Reference and No-Reference Motion Estimation With Applications to Atherosclerotic Plaque Motion and Strain Imaging," Spring 2010. He is currently a **Research Engineer** with Vision Systems at Gentex Corporation. He is also an **Assistant Professor** associated with the Department of ECE at the University of New Mexico.
8. Oliver Jeromin, "Optimal Spectral Reconstructions from Deterministic and Stochastic Sampling Geometries using Compressive Sensing and Spectral Statistical Models," Summer 2009. He has been with Sandia National Laboratories and Gentex Corporation. He is currently **ADAS and Self-Driving Technical Specialist with Faraday Future**.
9. Victor Murray, "Multidimensional AM-FM Models with Applications," December 2008. He is currently a **Professor** and **Ex-Department Chair** of the Department of Electrical and Computer Engineering at Universidad de Ingenieria y Tecnologia, Lima, Peru. He is also **Research Associate Professor** with the Department of ECE at the University of New Mexico and **Visiting Scholar, SEAS, Harvard University**.
10. Janakiramanan Ramachandran, "Image Analysis of Wood Core Using Instantaneous Wavelength and Frequency Modulation," December 2008. He is currently a **Senior Data Scientist** with Apple.
11. Alonzo Vera, "A Dynamic Arithmetic Architecture: Precision, Power and Performance Considerations," May 2008. He is currently the **President at IDEAS Engineering & Technology**. He is also a **Research Assistant Professor** at UNM working at COSMIAC.
12. Hongang Yu. "A 3-D Multi-View Freehand Ultrasound Reconstruction System Using Volumetric Registration and Geometric Level Set Segmentation," December 2006. She held a 50% lecturer appointment with ECE and a 50% research scientist appointment with the Keck-UNM Small-Animal Imaging Lab at the School of Medicine at the University of New Mexico. She was a **Research Scientist** with VisionQuest Biomedical.
13. Eduardo S. Barriga, "Spatiotemporal Independent Component Analysis with Applications to Optical Imaging," Ph.D. in Electrical Engineering, August 2006. He was a lead software engineer, with Orion International Technologies. He was then appointed as a Research Assistant Professor with ECE at the University of New Mexico. He is currently the **President of VisionQuest -Rx, Inc**. He received the **2013 Outstanding Young Engineer by the IEEE Albuquerque Section**.
14. Paul Rodriguez V. "Fast and Accurate AM-FM Demodulation with Applications," Ph.D. in Electrical Engineering, August 2005. He was hired by the Mathematical Modeling and Analysis group at the Los Alamos National Laboratory. He is now a **Professor** with the Pontificia Universidad Catolica del Peru. He received the **2014 National Award for Scientific Production – Concytec (Peru) & Elsevier**. He is currently an **Associate Editor** of IEEE Transactions on Image Processing.

15. Jeff Kern, "Multispectral Image Registration using Mutual Information," Ph.D. (**with distinction**) in Electrical Engineering, May 2003. Jeff is a **distinguished member of the technical staff** at Sandia National Laboratories. He also served as a part-time instructor with the Department of ECE at the University of New Mexico.

M.Sc. graduates with thesis option (advisor)

1. Callie Darsie, "Hand Movement Detection in Collaborative Learning Environment Videos," Summer 2018. She is currently with Sandia National Laboratory.
2. Abigail Ruth Jacoby, "Context-Sensitive Human Activity Classification in Video Utilizing Object Recognition and Motion Estimation," Spring 2018. She is currently a Software Engineer at Numerica Corporation.
3. Wenjing Shi, "Human Attention Detection Using AM-FM Representations," Fall 2016. She is currently pursuing a Ph.D. at UNM.
4. Cody Wilson Eilar, "Distributed and Scalable Video Analysis Architecture for Human Activity Recognition Using Cloud Services," Fall, 2016. He is currently with Sandia National Laboratory.
5. Venkatesh Jatla, "Automatic Segmentation of Coronal Holes in Solar Images and Solar Prediction Map Classification," Fall, 2016. He is currently pursuing a Ph.D. at UNM.
6. Cong Zong, "Joint Control of Quality, Complexity, and Rate for HEVC Intra Mode," Summer, 2016. He is currently working at Dolby. He was funded through NSF.
7. Sebastian Westrom, "Representing Digital Images as Surfaces Using a Differential Geometric Model," May 2015. He is currently working for Honeywell in Albuquerque, NM.
8. Gangadharan Esakki, "Dynamic Switching of GOP Configurations in High Efficiency Video Coding (HEVC) Using Relational Databases for Multi-objective Optimization," Summer 2014. He is currently working towards his Ph.D. at UNM.
9. Cherish A. Franco, "Lesson Plan and Workbook for Introducing Python Game Programming to Support the Advancing Out-of-School Learning in Mathematics and Engineering (AOLME) Project," M.Sc. Thesis in Computer Engineering, Dec. 2013. She is currently with AFRL.
10. Alvaro Ulloa, "Am-fm analysis of structural and functional magnetic resonance images," M.Sc. Thesis, Electrical and Computer Engineering, May 2013. He is currently working towards his Ph.D. at UNM. **His M.Sc. Thesis in Statistics, related to current ivPCL research, received the Lee Award for the best 2016 student presentation, awarded by the Albuquerque chapter of the American Statistical Association.**
11. Paul E. Essenmacher, "A Real-Time, Reconfigurable System for Energy, Error-Resilient, and Scalable Lossless ECG Coding," M.Sc. Thesis in Computer Engineering, August 2011, UNM. He is currently with Sandia National Laboratories.
12. Colby Hoffman, "High-Speed Dynamic Partial Reconfiguration for Field Programmable Gate Arrays," M.Sc. Thesis in Computer Engineering, August 2009, UNM. He was with Xilinx Corporation. He is now with Raytheon. **His M.Sc. Thesis was nominated for the Xilinx Ross Freeman Award for Technical Innovation.**
13. Andrew Mihalik, "Optimal Digital Filter Design for Dispersed Signal Equalization," M.Sc. in Electrical Engineering, August, 2007. He is now with Sandia National Laboratories.
14. Benjamin Mar, "SIMD Pipelined Processor Implemented on an FPGA," M.Sc. in Electrical Engineering, August, 2007. He is now with Sandia National Laboratories. **Awarded the 2011 American Indian Science and Engineering Society (AISES) Most Promising Engineer or Scientist Award.**

15. Craig Kief, "XUP-UNM Educational Platform-Large Scale Prototyping Platform," M.Sc. in Electrical Engineering, May 2006. He is now **Deputy Director of the Configurable Space Microelectronics Innovation & Applications Center (COSMIAC)** at UNM.
16. Steve M. Drescher Jr., "Feature Extraction for Improved Efficacy and Precision of a Robust and Automatic Image Registration Method," M.Sc. in Electrical Engineering, August 2005. He is with Sandia National Laboratories.
17. Oliver Jeromin, "Variogram Methods for Texture Classification and Segmentation," M.Sc. in Electrical Engineering, August 2005. He continued for a Ph.D.
18. Rob Warrick, "Multisensor Multitarget Tracking Detected from Noisy Images with a Cumulative Track Score Method for Real time Applications," M.Sc. (**with distinction**) in Electrical Engineering, May 2005. He is with Sandia National Laboratories.
19. Harini Muralidharan. "Lossless Image Compression and Nodule Detection in Chest Radiographs," M.Sc. in Electrical Engineering, August 2003.
20. Janakiramanan Ramachandran, "Hierarchical Lung Image Segmentation," M.Sc. in Electrical Engineering (Computer Engineering), May 2003. He is currently a **Senior Research Scientist** at Aureon, New York, NY.
21. Balaji Raman, "Image Processing Algorithm Analysis for the Intel Pentium-III Architecture," M.Sc. in Electrical Engineering (Computer Engineering), December 2001. He is now with GE healthcare.

M.Sc. graduates with report option (advisor)

1. Jacylnn, J. Stubbs, "Fast Image Classification using Compressively Sensed Images," M.Sc. Report, ECE, Spring 2017. She is currently with Sandia National Labs.
2. Jorge Ramos Moukel, "Bibes: An Open Source Live Search of Publications in Javascript," M.Sc. Report, ECE, Fall 2016. He is currently at Apple.
3. Nishmitha Naveenchandra Kajekar, "Tutorial on Partial Reconfiguration of Image Processing Blocks using Vivado and SDK," M.Sc. Report, ECE, Spring 2016. She has been with LitePoint, Mangalore Robautonics Private Limited.
4. J. Pierre, "Monocular Visual Odometry for Mobile Robot Vision Estimation," M.Sc. Report, ECE, Fall 2015. He is currently with AFRL.
2. G. Sandine, "Image Classification with the Flat Norm," Summer 2015. He is currently working for a non-profit company associated with LANL.
3. H. Pavuluri, "Classification of Motion of Carotid Bifurcation Plaques," Spring 2015.
4. A. Delgado, "Selecting Solar Models by Matching Coronal Holes," Spring 2015. He is currently with NIST in Maryland.
5. H. Nasrabadi, "Measurement of Motion of Carotid Bifurcation Plaques," Dec. 2014. He is currently working towards a Ph.D. at UNM.
6. P. Ortiz, "A Scalable, Low, Power Implementation of the Chirp-Z Transform in an FPGA for Real-time Image Formation," M.Sc. report in ECE, May 2014. He is currently with Sandia National Lab.
7. Y. Jiang, "Dynamically Reconfigurable DCT Architectures Based on Bitrate, Power, and Image Quality Considerations," M.Sc. report in ECE, UNM, Dec. 2013.
8. C. Carranza, "GPU Acceleration for Multiscale AM-FM Decompositions for Diabetic Retinopathy Screening," M.Sc. report in ECE, UNM, Dec. 2012.
9. Kirk Bennett, "Diabetic Retinopathy Image Analysis," M.Sc. report in ECE, UNM, May 2012.

Current student supervision (advisor)

Ph.D. students

1. Wenjing Shi, "Video activity recognition," (ECE post-qualifying exam).
2. Alvaro Ulloa, " Electronic Health Record Data Processing for Multimodal Risk Prediction," Ph.D. Candidate. He is currently a Math and Computational Scientist at Geisinger.

3. Gangadharan Esakki, “Adaptive Video Encoding for Constrained Delivery,” Ph.D. Candidate.
4. Antonio Gomez, “Speaker Detection and Identification in Noisy Environments”, Ph.D. in ECE, UNM, started in Sept. 2012 (ECE pre-qualifying exam).
5. Venkatesh Jatla, “Dynamically Reconfigurable Methods in Video Image Analysis”, UNM (ECE post-qualifying exam). Venkatesh Jatla is an assistant director of ivPCL. He is currently working in solar image analysis, video analytics, and video compression.
6. Robert Bernard Kent, “Automatic Generation of Optimal Sorting Hardware”, UNM (ECE pre-qualifying exam). Bob is working in dynamically reconfigurable methods that can be used for video acceleration in heterogeneous architecture systems.

M.Sc. students

1. Mario Javier Esparza Perez, “Speech recognition in noisy environments,” M.Sc. Thesis candidate.
2. Jeff Love, “Drone video image analysis”.
3. Patrick Lopez, “Emotion Recognition in digital video”.
4. Luis Sanchez Tapia, “Sparse Convolutional Neural Networks for Hardware Implementations”.
5. Mark Louie, “A comparison of video activity recognition methods”.
6. Sravani Teeparthi, “Video analysis in the compressed domain”.
7. Phuong Nam Tran, “Large scale video analytics”.
8. Akash Patel, “A review of methods for video activity recognition”.

Undergraduate Students (class projects)

1. “A WebApp to Support Digital Video Database Analysis,” ECE 435 project, Fall 2015.
2. “Solar Image Analysis WebApp Redesign,” ECE 435 project, Fall 2015.
3. Jared Morris, “Solar WebApp”, Summer 2015 (supported by NSF STEP).

Undergraduate Students (honors project)

1. Rebecca E. Kreitinger, “ECE Honors Project: Cell Growth Identification,” Spring 2018.

Undergraduate Students (senior design teams)

5. Rebecca E. Kreitinger, “Classification of Talking in Video through Feature Detection and Optical Flow,” Fall 2018.
6. Sara Walton, Rachel Marianne Fulcher, Miguel Esteban Lujan, Edward Ireland-Jones, “Collaborative video annotation and video analysis,” 2018-2019.
5. Md Moshikul Azam, Matthew Foust, “A WebApp for Collaborative Solar Image Analysis: Extending CARINA,” 2015-2016.
5. Abby Jacoby and Alexander Kaberlein, “A WebApp to Support Digital Video Database Annotation,” 2015-2016.
6. Patrick Michael Lopez, Connor Ryan Dolan, Edward Sadzewicz, Cody Wayne Shell, and Jaclynn Javonna Wakley, “Collaborative Solar Image Annotation,” 2014-2015.
7. Robert Lear, Dominic Quintana, and Shujie Chen, “Solar Imaging,” 2013-2014.
8. Stephen Sanchez, John Montoya, and Kasseun Wodajo, “Solar Image Analysis,” 2012-2013.

Undergraduate Student Mentoring

- NSF Step program mentor, 2015-2017.

Undergraduate Students (AOLME Project, Spring 2017)

1. Elsa Janeth Martinez, LLSS.
2. Cesar Ornelas, ECE.
3. Kushal Patel, ECE.
4. Kelly Rael, ECE.
5. Windy Stephanie Slater, ECE.
6. Anthony Williams Rivera, ECE.
7. Scott Tarkul, HSC.
8. Irma Cavazos DeLaRocha, ECE.

Undergraduate Students (AOLME Project, Summer 2017)

1. Andres Alan Canedo-Zarazua, CS.
2. Irma Cavazos DeLaRocha, ECE.
3. Jacob Giese, ECE.
4. Rachel Fulcher, ECE.
5. Ronak Shah, Arch.
6. Mario Esparza Perez, ECE.
7. Nikita Purohit, Arch.
8. Scott Tarkul, HSC.

Undergraduate Students (AOLME Project, Fall 2017)

1. Windy Stephanie Slater, ECE.
2. Jacob Giese, ECE.

Graduate Students (AOLME Project, Summer 2017)

1. Alan Canedo-Zarazua, ECE.
2. Krithika Saravanan, CS.

Teachers (AOLME Project, 2017-2019)

1. Cheyenne Kolody (WMS)
2. Laura J. Vennard (WMS)
3. Margarita Barraza (PMS)
4. Liset Trigo (PMS)

Current research faculty funded

1. Andreas Panagidis, Research Assistant Professor, 10/01/14 – 10/01/17 (NSF DRASTIC).

Previous research faculty funded

1. D. Llamocca, Post-Doc, Department of Language, Literacy and Social Studies, Jan. 2012 – Jul. 2013.
2. V. Murray, Research Assistant Professor, UNM ECE, Jan. 2009 – Feb. 2012.

3. S. Barriga, Research Assistant Professor, UNM ECE.
4. H. Yu, Research Assistant Professor, UNM ECE.
5. C. Kief, Deputy Director, Configurable Space Microsystems Innovations & Applications Center, UNM, ECE Research Staff, 08/21/2008 - 07/31/2013 (AFRL FMAC grant).
6. A. Vera, ECE Research Assistant Professor, Jan. 2011 - .07/31/2013 (AFRL FMAC grant).

SERVICE

UNM service

- Associate Chair, Electrical and Computer Engineering, June 2017 – Now.
- Area Chair, Computer Engineering, January 2012-August 2015, September 2016 – June 2017.
- UNM IT Committee, 2016 – Now.
- Dean’s committee to explore the development of bioengineering CS program in SOE (2014-2015).
- P&T Committee, 2013-2014.
- Head, Faculty search committee, 2013.
- Computer Engineering representative in graduate committee (2011-2015)
- Computer engineering representative in undergraduate committee (2005-2013)
- Developed the embedded systems and DSP lab (funded by Xilinx in 2003, converted to research lab for ongoing research in reconfigurable computing)
- Developed and maintained state of the art logic design lab for ECE 238 Computer Logic Design Course (used in several workshops by Xilinx, 2000 - present)
- Developed state of the art advanced logic design lab for ECE 338 Intermediate Logic Design (used for Xilinx workshops in Summer 2006, Fall 2006)
- Undergraduate ad-hoc committee for electrical engineering, participation in re-defining the undergraduate electrical engineering degree at UNM, (2005).
- Supported general ECE lab with Xilinx software donations (2000-2008)
- Computer engineering and signals and systems undergraduate committees co-chairman, helped in curriculum design for Signals and Systems and Computer Engineering, worked on course content for: (i) ECE 238 Computer Logic Design course (to include VHDL material), (ii) ECE 314 Signals and Systems (renamed from Signals and Communications) and (iii) the proper introduction of Matlab into the programming courses, served 2000-2003.
- Organized ECE department presentations for East San Jose Elementary and Washington Middle School, May 2001.

Other UNM professional activities

- UNM medical imaging group (2010-2011)
- UNM graduate committee proposal for Ph.D. qualifying exam (2010-2012)
- UNM ECE publicity committee (2010-2011)
- UNM ECE promotion and tenure committee (2009-2013)
- UNM junior researcher strategic committee (2008)
- UNM ECE library liaison for ECE (2006–present)
- Computer Usage Committee (CUC) for ECE (2005–2006)
- UNM health sciences summit on health care, UNM SUB, December 5th, 2005.

- UNM CIRT, helped coordinate UNM Departments bring *Mathematica* to UNM (2008).
- Participated in meetings for defining and organizing Biomedical Physics graduate program (2002-2003).
- Participated in the DARPA ENCOMPASS exercise on July 12th, 2000.

Conference service

- **Session Chair:** *MP.P4: Linear and Non-linear Filtering I, IEEE International Conference on Image Processing*, 2018.
- **Technical Co-Chair**, *2018 IEEE Southwest Symposium of Image Analysis and Interpretation*
- Reviewer for *IEEE BHI 2018*.
- Reviewer for *IEEE EMBC 2017, 2018*.
- Reviewer, National Council of Teachers of Mathematics (NCTM) 2017.
- Reviewer, *IEEE ICASSP 2017*.
- **Technical program committee chair** for area *H. Speech, Image and Video Processing*, *Asilomar Conference on Signals, Systems, and Computers*, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, Nov. 1st – Nov. 4th, (Sponsored by the IEEE Signal Processing Society), Organized several sessions in this area, 2009 and 2016.
- Session Chair, *Big Data Analytics for Image and Video Processing, 2016 Asilomar Conference on Signals, Systems, and Computers*.
- Session Chair, *Speech and Image Analysis, 2016 Asilomar Conference on Signals, Systems, and Computers*.
- Webmaster, technical program committee, session chair, *2014, 2016, 2018 IEEE Southwest Symposium of Image Analysis and Interpretation*
- Electronic media chair, *Asilomar Conference on Signals, Systems, and Computers*, (2014, 2015, 2016, 2017, 2018)
- Reviewer for *MEDICON 2016, MELECON 2016, SSIAl 2016*.
- Reviewer for: *IEEE EMBC 2015, CAIP 2015, VISAPP 2016*.
- **Elected and serving as a board member** for *Asilomar Conference on Signals, Systems, and Computers*, (2014-2017, 2017-2020)
- Session chair, *Image Analysis, 2014 Asilomar Conference on Signals, Systems, and Computers*
- Reviewer, *IEEE BHI 2014, IEEE SSIAl 2014, IEEE BIBE 2014, IEEE HIC-POST 2014, IEEE EMBC 2014*.
- Electronic Media Chair, *2013-2017, Asilomar Conference on Signals, Systems, and Computers*.
- Session chair, *Image Analysis and Processing, 2013 Asilomar Conference on Signals, Systems, and Computers*.
- Session chair, *High Efficiency Video Coding (HEVC), 2013 Asilomar Conference on Signals, Systems, and Computers*.
- Reviewer, *6th International IEEE EMBS Conference on Neural Engineering*, 2013.
- Reviewer, *IEEE EMBC*, 2013.
- Reviewer, *IEEE BIBE*, 2012.
- Session chair, *Shape and Image Analysis, IEEE ICIP*, 2012.
- Reviewer, *Eusipco*, 2012.
- Session chair, *Image and Video Coding*, Asilomar 2012
- Local arrangements chair, technical program committee, session chair, *2012 IEEE Southwest Symposium on Image Analysis and Interpretation*

- Reviewer, *IEEE EMBS 2011*
- Reviewer, *IEEE ICIP 2010, IEEE ICIP 2011, IEEE ICIP 2013.*
- Organizing committee, *3rd and 4th Cyprus Workshop on Signal Processing and Informatics, 2010 and 2011.*
- Poster session co-chair, *Respace/MAPLD 2010.*
- Local arrangements chair, technical program committee, sessions chair, *2010 IEEE Southwest Symposium on Image Analysis and Interpretation*
- International program committee, *The 10th IEEE International Conference on Information Technology and Applications in Biomedicine, ITAB 2010, Corfu, Greece.*
- Technical program committee for *4th International Symposium on Communications, Control and Signal Processing, (IEEE Signal Processing Society sponsored), 2010.*
- Technical co-chair, Biomedical Imaging and Image Processing track, *The International Special Topic Conference on Information Technology in Biomedicine, (IEEE EMBS sponsored), 2009.*
- Referee, *31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2009*
- Reviewer, *IEEE International Conference on Image Processing, 2009.*
- Reviewer, *2009 IEEE International Symposium on Biomedical Imaging.*
- Reviewer, *the IEEE International Conference on Image Processing, 2008.*
- **General Chair**, *2008 IEEE Southwest Symposium on Image Analysis and Interpretation, (Sponsored by the IEEE Computer Society Technical Committee on Computational Medicine), 2008.*
- Technical program Co-chair for *Cyprus Workshop on Signal Processing and Informatics, 2008-2012.*
- Reviewer, *IEEE International Conference on Image Processing, 2007.*
- Technical Program Committee member, *IEEE International Conference on Systems, Man and Cybernetics, 2006.*
- **Technical program committee chair** for *D. Biomedical Signal and Image Processing, Fortieth Annual Asilomar Conference on Signals, Systems, and Computers, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, Oct. 29 – Nov. 1, (Sponsored by the IEEE Signal Processing Society), 2006. Organized several sessions in this area.*
- Session chair for *Image Acquisition, Rendering, and Visualization, 2006 IEEE Southwest Symposium on Image Analysis and Interpretation.*
- Technical program committee, *2006 IEEE Southwest Symposium on Image Analysis and Interpretation.*
- Publications chair, *2006 IEEE Southwest Symposium on Image Analysis and Interpretation, 2006.*
- Technical program committee member, *IEEE International Conference on Systems, Man and Cybernetics, 2005.*
- Technical program committee member, *IEEE International Conference on Image Processing, 2005.*
- Technical program committee member, *2004 IEEE Southwest Symposium on Image Analysis and Interpretation, 2004.*
- Reviewer, *IEEE International Conference on Image Processing, 2004.*
- Session chair for *TA2: Wavelets, Transforms, & Filterbanks, 2004 IEEE Southwest Symposium on Image Analysis and Interpretation, 2004.*
- Publicity chair, *2004 IEEE Southwest Symposium on Image Analysis and Interpretation, 2004.*

- Reviewer, *IEEE International Conference on Image Processing*, 2003.
- Chair for *Biomedical Signal and Image Processing* session, for the 45th *IEEE Midwest Symposium on Circuits and Systems*, Tulsa, Oklahoma, August 4-7, 2002.
- Chair for *Image Analysis II* session, for the 5th *IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, April 7-9, 2002.
- Local arrangements chair for the 5th *IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, April 7-9, 2002.
- Chair for special session on *Adaptive Techniques in Image Processing*, 35th Asilomar Conference on Signals, Systems, and Computers, Asilomar Hotel and Conference Grounds, Pacific Grove, CA, November, 2001.
- Technical program committee member and session chair for Image and Multidimensional Image Processing, the 10th *IEEE Mediterranean Electrotechnical Conference (MELECON 2000)*, Limassol, Cyprus, pp. 53-533 May 2000.

Journal reviewer service

- Reviewer for *IEEE Access* (2018).
- Reviewer for *EURASIP Journal on Advances in Signal Processing* (2018).
- Reviewer for *Biomedical Signal Processing and Control*, 2015, 2016, 2017.
- Reviewer for *Pattern Recognition* (2012, 2014, 2015, 2016, 2017)
- Reviewer for *IEEE Signal Processing Letters*, 2016.
- Reviewer for *IET Image Processing*, 2016.
- Reviewer for *Journal of Signal Processing Systems*, 2015.
- Reviewer for *IEEE Transactions on Multimedia*, 2015, 2016.
- Reviewer for *Electronics*, 2016.
- Reviewer for *Journal of Real-time Image Processing* (2008, 2009, 2013, 2014, 2016)
- Reviewer for *EURASIP Journal on Wireless Communications, and Networking*, 2015.
- Reviewer for *IEEE TVLSI*, 2015.
- Reviewer for *IEEE TBME*, 2015, 2016.
- Reviewer for *IEEE Trans. on Journal of Selected Topics in Applied Earth Observations and Remote Sensing* (2015, 2016)
- Reviewer for *IEEE Transactions on Circuits and Systems for Video Technology* (2013, 2015)
- Reviewer for *Sensors* (2013, 2014, 2015)
- Reviewer for *IEEE Geoscience and Remote Sensing Letters* (2012, 2015).
- Reviewer for *Journal of Electronic Imaging* (2015)
- Reviewer for *Journal of Systems Architecture* (2015)
- Reviewer for *Applied Sciences*, 2015.
- Reviewer for *IEEE Transactions on Geosciences and Remote Sensing* (2014)
- Reviewer for *IEEE Transactions on Medical Imaging* (2012, 2014, 2017, 2018)
- Reviewer for *IEEE Journal for Biomedical and Health Informatics* (2014)
- Reviewer for *IEEE Transactions on Neural Networks and Learning Systems* (2014)
- Reviewer for *Computational and Mathematical Methods in Medicine* (2014)
- Reviewer for *Mathematical Problems in Engineering* (2014)
- Reviewer for *Medical Engineering & Physics* (2013)
- Reviewer for *Magnetic Resonance in Medicine* (2013)
- Reviewer for *NeuroImage* (2013)
- Reviewer for *DSP* (2013)
- Reviewer for *IEEE Transactions on Industrial Electronics* (2013, 2014)

- Reviewer for *IEEE Transactions on Neural Networks and Learning Systems* (2013)
- Reviewer for *VLSI* (2012)
- Reviewer for *IEEE Transactions for Pattern Analysis and Machine Intelligence* (2010)
- Reviewer for *IEEE Geoscience and Remote Sensing Letters* (2010-present)
- Reviewer for *IEEE Transactions on Industrial Informatics* (2009-2011)
- Reviewer for *International Journal of Cardiovascular Imaging* (2009).
- Reviewer for *IEEE Transactions on Information Technology in Biomedicine* (2005 – present)
- Reviewer for *Optics Express* (2005)
- Reviewer for *IEEE Transactions on Biomedical Engineering* (2005, 2011, 2013, 2014)
- Reviewer for *IEEE Signal Processing Letters* (2005)
- Reviewer for *IEEE Transactions on VLSI Systems* (2005)
- Reviewer for *IEEE Transactions on Neural Networks* (2004 - present)
- Reviewer for *IEEE Transactions on Multimedia* (2004)
- Reviewer for *IEEE Transactions on Signal Processing* (1996 – present, 2013).
- Reviewer for *IEEE Transactions on Image Processing* (1996 - present).
- Reviewer for *Pattern Recognition* (2006-present)
- Reviewer for *Pattern Recognition Letters* (2009)
- Reviewer for *Annals of Biomedical Engineering* (2009)

Other professional service

- Canadian Institutes of Health Research (CIHR), late 2015.
- National Science Foundation Panelist (CISE), 2003, 2006, 2011, 2015.
- IEEE GlobalSip 2015, best paper award committee, 2015.
- Portuguese Foundation for Science and Technology, Proposal Reviewer, 2012.
- W.M. Keck Foundation Proposal Reviewer, 2011.
- National Institutes of Health (NIH) Review Panel, 2009.
- Co-chair for *W2: Medical Image Analysis, the II Mediterranean Conference on Medical Physics: The Analog to Digital Migration of the Hospital Working Environment*, Limassol, Cyprus, April 26-30, 2004.
- Section Editor for Signal and Image Processing Methods Section for *Wireless Health Systems for M-Health: Emerging Mobile Health Systems*, Ed. R.H. Istepanian, S. Laxminarayan, and C.S. Pattichis, published in 2005.

Public service

- Science Fair Judge, Longfellow Elementary, Albuquerque Public Schools, 2008-2012.
- Santa Fe Public Schools Presentations, 2009, 2010.
- Career Enrichment Center Presentations, 2008, 2009.

Ph.D. dissertation committee service at UNM (not including committee chair)

1. Y. Zhang, “Intelligent Computational Transportation,” Ph.D., Summer 2018, (Chair: Prof. Yin Yang).
2. Isaac Klickstein, Ph.D. Proposal, Mechanical Engineering, “Control of complex networks,” (Chair: Prof. Francesco Sorrentino).
3. Francisco Perez Venegas, “Detection and classification of vibrating objects in SAR images,” Ph.D. Proposal, ECE (Chair: Prof. B. Santhanam).
4. Claudia Garrido Martins, Ph.D. Proposal, “Assessment of Project Risks in Fast-Track Construction Projects,” Civil Engineering, (Chair: Prof. S. Bogus).

5. O. Agcaoglu, "New Approaches For Estimating Hemispheric Lateralization From Resting State FMRI Data With Relationship to Age, Gender, and Mental Disorders," Ph.D. ECE (Chair: Prof. V. Calhoun), Fall 2016.
6. B. Rashid, "Approaches for Capturing Time-varying Functional Network Connectivity With Application to Normative Development and Mental Illness," Ph.D. ECE (Chair: Prof. V. Calhoun), Fall 2016.
7. H. He, "Searching Neuroimaging Biomarkers in Mental Disorders with Graph and Multimodal Fusion Analysis of Functional Connectivity," Ph.D. ECE (Chair: Prof. V. Calhoun), August 2016.
8. N. Strisciuglio, "Bio-inspired algorithms for pattern recognition in audio and image processing," University of Groningen, Fall 2016, (Chair: N. Petkov). Awarded Cum Laude predicate for being in the top 5-10% in the field.
9. D. Olmstead, "Oblique Shock Wave Effects on Impulsively Accelerated Heavy Gas Column", ME UNM (Chair: R Truman), August 2015. This dissertation was awarded distinction.
10. Y. Wei, "Dynamic Generalized Extreme Value via Particle Filters," Math, UNM (Chair: Prof. G. Huerta), June 2015.
11. E. Nava, "Usage Management Enforcement in Cloud Computing Virtual Machines," Ph.D., ECE (Chair: Prof. G. Heileman), May 2015.
12. M. R. Arbabshirani, "Functional Network Connectivity in Human Brain and Its Applications in Automatic Diagnosis of Brain Disorders," Ph.D., ECE (Chair: Prof. V. Calhoun), July, 2014.
13. E. Castro, "Application of Multiple Kernel Learning on Brain Imaging for Mental Illness characterization," Ph.D., ECE (Chair: Prof. V. Calhoun), Dec. 2013.
14. J. Chen, "Parallel Independent Component Analysis with Reference for Imaging Genetics: A Semi-blind Multivariate Approach," Ph.D. (with distinction), ECE (Chair: Prof. V. Calhoun), Dec. 2013.
15. K. Liang, "Optimization Design for Multi-Domain Optical Network Provisioning and Survivability," Ph.D. dissertation, ECE (Chair: Prof. N. Ghani), July 2013.
16. F. Gu, "Survivable Cloud Networking Services," Ph.D. dissertation, ECE (Chair: Prof. N. Ghani), June 2013.
17. R. Kalyanam, "Application of Independent Component Analysis to Magnetic Resonance Spectroscopy," Ph.D. proposal, ECE (Chair: Prof. V. Calhoun), 2012.
18. R. Silva, "Extending JICA to Directly Model Multimodal Joint Distributions," Ph.D. proposal, ECE (Chair: Prof. V. Calhoun), 2012.
19. N. Xu, "Applications of Support Vector Machines in Electromagnetic Problems," Ph.D., ECE, Spring 2011 (Chair: Prof. Christodoulou).
20. L. Xu, "Independent Component Analysis for Structural Magnetic Resonance Imaging," Ph.D., ECE, Summer 2010 (Chair: Prof. V. Calhoun).
21. Xie (Kevin) Chongyang, "Advance Reservation in Distributed Computer Networks," Ph.D., ECE, Fall 2010 (Chair: Prof. N. Ghani).
22. M. Wang, "Capacitive Micromachined Ultrasonic Transducer Arrays for Blood Flow Ultrasound Doppler and Photoacoustic Imaging Applications," Ph.D., ECE, Summer 2010, (Chair: Prof. J. Chen).
23. T. Thach, "Information Similarity Metrics in Information Security and Forensics," Ph.D., ECE, Fall 2009.
24. S. Xia, "A Conceptual Framework for Visual Data Mining with Continuous Semantic Zooming," Ph.D., ECE, Summer 2009.
25. Q. Liu, "Multi-Domain Hierarchical Routing in DWDM Networks," Ph.D., ECE, Fall 2008.
26. J. Parra, "A Reconfigurable Multiprocessor Architecture For Space Missions: The AFRL-UNM HERC," Ph.D., ECE, Spring 2008.
27. J. Ricardo Otazo Torres, "Advanced Parallel Magnetic Resonance Imaging Methods with Applications to Spectroscopic Imaging," Ph.D., ECE, Fall 2007.
28. Y. Wang, "Enhanced Intelligent Image Classification Techniques with Remote Sensing Applications," Ph.D., ECE, Summer 2004.
29. J. Liu, "Human Cardiovascular Dynamics Identification, Simulation, and Applications,"

Ph.D., ECE, Summer 2004.

30. W. Abd-Almageed, "Active Contours Using Density Estimation with Applications to MRI Segmentation and Target Tracking," Ph.D., ECE, Spring 2004.
31. T. Song, "Intelligent Image Processing of MRI/fMRI Images," Spring, 2004.
32. M. Mowafi, "Design and Evaluation of a New System for Collaborative Virtual Environments," Ph.D., ECE, Summer 2003.
33. J. Greenfield, "A Perceptual Study of the Effects of Localized Sound in Increasing the Human Participation in Video Conferencing and Virtual Reality Environments," Ph.D., ECE, Summer 2003.
34. W. Luo, "Characterizing the Behavior of Open Address Hash Functions," Ph.D., ECE, Summer 2003.
35. S. Ma, "A Scalable Scheduled Video Delivery Paradigm," Ph.D., ECE, Summer 2003.
36. A. Martinez, "Two-Pass, Two-Antenna Target Parametric Estimation for Interferometric Synthetic Aperture Radar," Ph.D., ECE, Summer 2002.
37. R. Zhou, "Accurate and Reliable Numerical Simulations of Combustion Phenomena Using Complex Models," Ph.D., Mathematics, Summer 2001.

M.Sc. project committee service at UNM (not including committee chair)

1. S. Decker, "A Tutorial on Convolutional Neural Networks for Facial Keypoint Detection, Image Classification using Transfer Learning, and Semantic Segmentation," Spring 2017, (Chair: Prof. R. Jordan).
1. Shiqian Shen, "Recommendation System Based on Yelp Dataset," M.Sc. Project, Fall 2016, (Chair: W. Shu).
2. Uchenna Mark Ezeobi, "Meshless Deformations Based on Shape Matching," M.Sc. Project, December 2016, (Chair: Y. Yang).
3. Athul Balan, "Leveraging LwIP TCP stack in microblaze (Spartan 6) for implementation of HELP engine," M.Sc. project, Fall 2016, (Chair: J. Plusquellic).
4. C.J. Wilhelmi, "An Autonomously Learning Robotic Platform For Humanitarian Assistance And Disaster Relief," M.Sc. project, Spring 2016, (Chair: R. Fierro).
5. B. Evans, M.Sc. project, Fall 2015, (Chair: R. Jordan).
6. K.R. Knobel, "Assessing Linear Regression for Predicting Coronal Holes," Fall 2015, (Chair: S. Krisna).
7. R. Jaiswal, "A survey on Despeckling of Synthetic Aperture Radar Images, Spring 2015, (Chair: Assoc. Prof. B. Santhanam).
8. A. J. O. Ade-Bello, "Limitations and Capabilities of the Slanted Spectrogram Analysis Tool for SAR-Based Detection of Multiple Vibrating Targets," Summer 2014, (Chair: Assoc. Prof. B. Santhanam).
9. Rashid, B., "Dynamic Connectivity States Estimated from Rest fMRI Capture Differences in Schizophrenia, Bipolar Disorder, and Healthy Controls," Spring 2014, (Chair: Prof. V. Calhoun).
10. Agcaoglu, O., "Lateralization of Resting State Brain Networks with Age and Gender Effects," Spring 2014, (Chair: Prof. V. Calhoun).
11. V. Jacob, "A Survey of Cellular Technologies and Interference Mitigation Techniques," 2012, (Chair: Assoc. Prof. B. Santhanam).
12. R. Williams, "Low Earth Orbit Ionospheric Spectrum Analyzer (LEISA)," 2012, (Chair: Assoc. Prof. N. Ghani).
13. S. Keshavmurthy, "Fault Tolerant Systems in VLSI Circuits," 2012, (Chair: Assoc. Prof. P. Zarkesh-Ha).
14. J. Hundal, "Performance Evaluation of TCP Protocol in Satellite Networks," 2012, (Chair:

Assoc. Prof. N. Ghani).

M.Sc. thesis committee service at UNM (not including committee chair)

1. Manish Bhattarai, "Algorithm for Computational Imaging on a Real-Time Hardware," ECE Thesis, Fall 2017, (Chair: Prof. M. Hayat).
2. G. Parras, "A Frequency Domain Based Approach to Evaluating Manual Tracking Behavior in Parkinson's Disease." M.Sc., ECE Thesis, Fall 2016, (Chair: Prof. M. Oishi).
3. A.S. Vaidya, "Strengthening ZYNQ7000 Device Security Using ARM TrustZone," M.Sc., ECE Thesis, Summer 2015, (Chair: Prof. J. Plusquellic).
4. A. E. H. Samaniego, "GPGPU-Enabled Physics Based Deformed Simulation," M.Sc., ECE Thesis, Summer 2014, (Chair: Ass. Prof. Y. Yang).
5. D. Svenkeson, "Early Assessment of Brain Injury Patient Outcome Using a Transfer Function Approach," M.Sc. ECE Thesis, May 2014, (Chair: Ass. Prof. M. Oishi).
6. A. Linan Rodriguez, "Innovation Plaza: Improving Teaching and Learning in Engineering," M.Sc. Thesis, Dec. 2013, (Chair: Prof. R. Jordan).
7. A. Ghassemi, "Neural Processing in Criminal Psychopaths Using fMRI," 2012, (Chair: Prof. V. Calhoun).
8. Lei Xiao, "Edge-Aware Filters for Separable Irradiance in Global Illumination Rendering," Summer 2012, (Chair: Assist. Prof. Sen).
9. J. Aarestad, "Characterizing Within-Die and Die-To-Die Delay Variation Introduced by Process Variations and SOI History Effect," Spring 2011, (Chair: Assoc. Prof. J. Plusquellic).
10. I. Wilcox, "Analysis of Gradient Estimation and Quantization Effects on Optical Flow Algorithms," M.Sc. Thesis, Spring 2011, (Chair: Assoc. Prof. R. Jordan).
11. L. Martinez, "Agile Testing Methods for IC Radios," Fall 2010, (Chair: Assoc. Prof. R. Jordan).
12. M. Juarez, "On the Use of Independent Component Analysis & Functional Network Connectivity Analysis: Evaluation of Two Distinct Large-Scale Psychopathology Studies," Summer 2010, (Chair: Prof. V. Calhoun).
13. P. Palanisamy, "Global Energy Observatory System For Understanding, Visualizing and Analyzing Global Energy," M.Sc. report, Spring 2010, (Chair: Prof. N. Ghani).
14. G. Feucht, "Design & Control of a Cell-Based Architecture for Adaptive Wiring Manifolds," M.Sc., ECE, Spring 2010 (Chair: Prof. J. Plusquellic).
15. S. Arja, "Incorporation of Phase Changes in Functional Magnetic Resonance Imaging," M.Sc., ECE, Fall 2009.
16. A.R. Church, "An Iterative Algorithm for Simultaneous Suppression of Multiple Narrowband Interferers in Spread Spectrum Systems," M.Sc., ECE, Fall 2008.
17. E. Castro, "Recommender Systems Based on Collaborative Filtering," M.Sc., ECE, Fall 2008.
18. J. Krein, "Modeling Dynamic Susceptibility Enhanced MRI for Application in Angiogenesis," M.Sc., ECE, Summer 2007.
19. R. Peralta-Meza, "Interference and Power Control in Ad Hoc Wireless Networks," M.Sc., ECE, Summer 2007.
20. R. L. Hospelhorn, "Implementation of Steerable Pyramids with Hexagonal Sampling," M.Sc., CS, Fall 2006.
21. J. Farrow, "Customizable FPGA Hardware Based Sound Processing Unit," M.Sc., ECE, Fall 2006.
22. B.G. Henderson, "A Novel Method for Extrinsic Self-Calibration of Wide-Baseline Three-Dimensional Computer Vision Systems," M.Sc., ECE, Summer 2006.
23. E. Altunok, "Fuzzy and Possibility Methods for Damage Detection in Structural Health Monitoring," M.Sc., ECE, Summer 2006.
24. P. Davidson Jr., "Laser Extraction Using Spectral Estimation and Pulsing in Ambient Lighting Conditions," M.Sc., ECE, Fall 2005.
25. Y. Sun, "Real-time Virtual Classrooms Based on Application Layer," M.Sc., ECE, Fall 2005.

26. A. Franco, "Automated Classification of Concrete Components," M.Sc., ECE, Fall 2005.
J. Parra, "Design and Implementation of a Hardware Platform for a Reconfigurable Vector Coprocessor," M.Sc., ECE, Summer 2004.
27. Y. Xiao, "Development and Testing of a Graph Simulation Tool for Modeling Complex Neural Network Architectures," M.Sc., ECE, Summer 2003.
28. D. Vargas, "Circular Sections Constant Modulus Algorithm (CS-CMA)," M.Sc., ECE, Spring 2003.
29. H. Jerez, "The Chipsnsalsa Unified Portal-Gateway for Distributed Knowledge Objects," M.Sc., ECE, Fall 2002.
30. Y. Ding, "Improving Detector Performance in Watermarking Systems Using RBF Neural Networks," M.Sc., ECE, Summer 2002.
31. D. de Oliveira Ourique, "Image Watermarking to Improve the Information Payload and Robustness Against Noise Attacks," M.Sc., ECE, Summer 2002.
32. D. He, "Real-time Multiplexing of Variable Bit Rate Video Streams," Summer 2002.
33. M. J. Thurgood, "Derivation of a Closed Form for the Original PONS Matrix and Fast Algorithms for Generating the Original and Symmetric PONS Matrices," M.Sc., ECE, Spring 2002.
34. Y. Yang, "The effects of invisible watermarking on Satellite Image Classification," M.Sc., ECE, Fall 2001.
35. Y. Wu, "LabView Programming for Lithographic Applications," M.Sc., ECE, Spring 2001.
36. Z. Gao, "Autonomous Resonance Neural Networks in Autonomous Robotics," M.Sc., ECE, Fall 2000.
37. N. Prabhu, "Practical Parallel Algorithms for Cycle Detection in Planar Partitioned Digraphs," M.Sc., ECE, Fall 2000.
38. A. J. Matteucci, "Improved Digital Signal Processing for Hyperpectral Imaging of the Ocular Fundus," M.Sc., ECE, Fall 2000.
39. B. Gu, "A study of Bluetooth Technology," M.Sc., ECE, Fall 2000.
40. C.E. Pizano, "Deconstructing Digital Image Watermarking," M.Sc., ECE, ECE, Spring 2000.