Lori Mann Bruce, PhD

Associate Vice President and Dean of the Graduate School
Giles Distinguished Professor of Electrical and Computer Engineering
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EDUCATION

Ph.D., Electrical & Computer Engineering, The University of Alabama in Huntsville, 1996

M.S., Electrical Engineering, Georgia Institute of Technology, 1992

Biomedical Engineering Certificate Program - Georgia Tech/Emory Medical School, 1992

B.S.E., Electrical & Computer Engineering, The University of Alabama in Huntsville, 1991

PROFESSIONAL EXPERIENCE

Associate Vice President and Dean of the Graduate School, Mississippi State University, 2013-present

Associate Dean for Research and Graduate Studies, Bagley College of Engineering, Mississippi State University, 2008-2013

Director, Raspet Flight Research Laboratory, Mississippi State University, (Interim), 2010-2012

Associate Director of Geosystems Research Institute, Mississippi State University, 2006-2008

Professor of Electrical and Computer Engineering, 2006-present

Associate Professor, Mississippi State University, 2003-2006

Assistant Professor, Mississippi State University, 2000-2003

Assistant Professor, University of Nevada Las Vegas, 1996-2000

Graduate Researcher and University Instructor, The University of Alabama in Huntsville, 1995-1996

NSF Graduate Research Fellow, The University of Alabama in Huntsville, 1994-1995

NSF Graduate Research Fellow, Georgia Institute of Technology, 1992-1994

Teaching Assistant, Georgia Institute of Technology, 1991-19992

Technical Staff, U.S. Army Strategic Defense Command, 1987-1990

ADMINISTRATIVE EXPERIENCE

Associate Vice President and Dean of the Graduate School, 2013-present

As Dean, my responsibilities include providing academic leadership for and shared oversight of the more than 800 graduate faculty and approximately 3500 graduate and professional students participating in more than 150 graduate programs across campus. Responsibilities include

- graduate enrollment management - marketing programs, university-level marketing and recruitment campaigns, coordinating department and college-level recruitment activities, managing admissions, and maximizing enrollment yields;
- mentoring and training college-level and department-level graduate coordinators and graduate faculty;
- administering graduate academic policies;
- reviewing and approving students for graduation;
- overseeing the launching of new graduate programs and major modifications of existing programs;
- overseeing approximately 1200 graduate assistantships campus-wide;
- providing and/or coordinating professional development programs for graduate students; and
- providing financial assistance programs to academic departments and students, such as recruitment grants, student travel grants, and graduate fellowships.

One of my major focuses has been on graduate enrollment management, particularly for the non-distance programs, including new initiatives in building the brand and image of graduate education at MSU, development of new graduate programs within various departments across the university, strategically marketing programs, launching new student recruitment activities, and modernization of the university's graduate admissions processes. Accomplishing these goals required partnering with college deans, mentoring department heads and graduate coordinators, building consensus among the faculty, and managing an office of approximately 20 staff members. As a result, our graduate admission applications have increased by 10%, selectivity rates have improved by more than 9 percentage points, and graduate enrollment has increased by 3% (the first time enrollments have increased in 7 years) with an increase in new graduate students by 8%.

Associate Dean for Research and Graduate Studies, Bagley College of Engineering, Mississippi State University (2008-2013)

The Bagley College of Engineering at Mississippi State University is a research intensive college with approximately 2700 undergraduate students, 625 graduate students (300 MS and 325 PhD), 100 academic faculty, and 100 research faculty, post-docs, and research staff. The College houses 8 academic departments and approximately 10 research centers. NSF ranks the College in the top 10% of engineering colleges in the nation in terms of its annual research expenditures which exceed $70million (approximately $55million/year without subcontracts). As Associate Dean, my responsibilities include providing leadership and administrative management of all research, graduate programs, distance education programs, and industrial outreach and economic development activities.

Selected Accomplishments:

- Led the development of a research strategic plan for college, resulting in the selection of six research thrust areas for strategic college-level investments, including start-up packages, cost-share, infrastructure investments, and faculty working group funds. Example outcomes include coordinated investments and large scale proposal developments in two new areas: Big Data and unmanned aerial systems (UAS) – including chairing a UAS symposium (www.uas.msstate.edu).
- Successfully led college's research enterprise through transition from reliance on federal initiatives to majority competitive funding, while maintaining a ranking in the top 10% nationally by NSF.

- Represented Dean's office in hiring of twelve tenure-track faculty members, including five women (two of which are African American) and two African American males. Oversaw the funding of all start-up packages, including the coordination of funds from Dean's office, VP for Research, and Departments/Centers. Mentored junior faculty's establishment of research programs, with 5 NSF CAREER awards in past two years.
- Oversaw the college's industrial outreach and economic development activities, resulting in over $5.5 Billion in economic impact and more than 2,300 industrial jobs created or retained in Mississippi, as reported by NIST.
- Led college-wide graduate student recruitment efforts, fellowship application workshops, professional development workshops – resulting in college graduate enrollments increasing by 15% (545 to 625) and PhD graduation rates increasing by 100% from approximately 20/year to 45/year.
- Oversaw college's graduate fellowship program, including fundraising with development officers and selection/award of approximately 55 PhD fellowships per year.
- Oversaw college's distance learning programs, resulting in launch of 6 additional graduate distance programs and growth of distance enrollments by 100% (100 to 230) and a US News and World Report ranking of 12th nationally.
- Established the college's Distinguished Lecture Series, including lectures by Dr. Subra Suresh, Vannevar Bush Professor and Dean of Engineering, MIT and since named as Director of NSF, and Dr.Neil deGrasse Tyson, Frederick P. Rose Director of Hayden Planetarium, American Museum of Natural History and Host of Nova ScienceNOW.
- Established Think Big @ Mississippi State program, a college-wide innovation contest where student teams propose projects aligned with college's six research thrust areas. Winning teams receive up to $10,000 and faculty support to carryout projects.

Interim Director, Raspet Flight Research Laboratory (2010 – 2012)

The Raspet Flight Research Laboratory (RASPET) is a college-level research center, established in 1948, with a focus on low-speed aerodynamics, composites, and unmanned aerial systems (UAS). RASPET's infrastructure includes two large hangers (>80,000 square feet), composite storage and fabrication rooms, extensive machine shops, CNC machines, walk-in ovens, autoclaves, engine test cells, electronics shop, structural test area, and seven general aviation aircraft (six fixed-wing and one rotary wing), as well as multiple UAS, including two pilot-optional aircraft designed, prototyped, and flight tested for the U.S. Army. RASPET has full-time research and administrative staff and three part-time pilots. As Director, my responsibilities included providing leadership and administrative management of all research, teaching, and economic development activities at RASPET.

Associate Director, Geosystems Research Institute, Mississippi State University (2006 – 2008)

The Geosystems Research Institute (GRI) is a research leader in geospatial information systems, remote sensing, data/image visualization, data fusion, scientific modeling, and high performance computing with applications to coastal zone management, precision agriculture, and homeland security. GRI performs funded research for DHS, DOD, DOT, NASA, NOAA, NSF, USDA, USGS, and other state and local agencies and industry. While Associate Director of GRI, its external funding was approximately $28 million/year to support 75 active research projects involving more than 50 faculty and over 100 students and post-docs. GRI is a member of the university's High Performance Computing Collaboratory (HPC^2), housing and providing system administration for MSU's supercomputing clusters, regularly ranked in the top 20 most powerful academic computing sites in the U.S.

ACADEMIC HONORS & RECOGNITIONS

IEEE, Distinguished Lecturer (2016-present) – Selected by the Geoscience and Remote Sensing Society as one of 12 international Distinguished Lecturers, including only 5 from the US.

Mississippi State University, Giles Distinguished Professor (2012-present) – This is an honor bestowed on at most one professor each year by the President of the University.

International Conference Plenary Speaker, IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Tokyo, Japan (invited for 2015)

Alan Alda Center for Communicating Science, Selected for Participation in Summer Institute (2014)

IEEE Women in Engineering International Conference, selected as international representative for IEEE Geosciences and Remote Sensing Society (2014)

Mississippi State University Representative to the Southeastern Conference Academic Consortium's Leadership Development Program (2008-2009)

Mississippi State University, Faculty Leadership Program (2007-2008)

Bagley College of Engineering Researcher of the Year Award, MSU (2007)

Inducted into Engineering Alumni Academy at University of Alabama in Huntsville (2005)

Departmental Nominee for Mississippi State University Alumni Award for Outstanding Graduate Educator (2005)

Faculty Appreciation Award from student chapter of the National Society of Black Engineers (2003, 2005, 2008)

National Science Foundation Women in Engineering Leadership Institute, 1 of 30 selected nation-wide for participation in the program (2003)

Mississippi State University Nominee for the National Eta Kappa Nu Outstanding Junior Faculty Award (2003)

Outstanding Faculty Award from Tau Beta Pi - Nevada Beta Chapter (2000)

Outstanding Faculty Award from University of Nevada, Las Vegas Alumni Association (2000)

University of Nevada, Las Vegas Faculty Award for Academic Excellence and Student Focus (1998)

National Science Foundation - Graduate Research Fellowship (1992-1995)

PROFESSIONAL AFFILIATIONS

American Society for Engineering Education (ASEE)
Council for Advancement and Support of Education (CASE)
Council of Graduate Schools
IEEE Education Society
IEEE Engineering in Medicine and Biology Society
IEEE Geoscience and Remote Sensing Society
Society of Women Engineers
Order of the Engineer
Eta Kappa Nu
Phi Kappa Phi
Tau Beta Pi

PROFESSIONAL SERVICE

Chair of Education and Outreach, Conference Organizing Committee, 2017 IEEE International Geoscience and Remote Sensing Symposium to be held in Dallas-Fort Worth Texas (2013-present)

National Science Foundation Committee of Visitors, Co-chaired national review of NSF Graduate Education and Training Programs, including IGERT and GK12 (2014)

Chair-elect, Board of Directors, ASEE Engineering Research Council (ERC), 2012-2013, Board member (2009-2013)
Chair, ASEE ERC National Conference, Washington DC 2013
Co-Chair ASEE ERC National Conference, Washington DC 2012
Organizing Committee, ASEE ERC National Conference, Washington DC, 2010-2011

Board of Directors, Mississippi Chapter of AUVSI, 2011-2012
Chair, AUVSI Unmanned Aerial Systems Conference, May 2012
Member, Mississippi Statewide Task Force for Unmanned Aerial Systems, 2009-2011.

Chair, IEEE Geoscience and Remote Sensing Society's International Technical Committee on Data Fusion (2003 – 2005)
Co-Chair, IEEE International Data Fusion Contest (Denver 2006, Barcelona Spain 2007, Honolulu Hawaii 2010, Vancouver Canada 2011)
International Steering Committee Member, *HyperWave* Research Project Funded by The Federal Office for Scientific, Technical, and Cultural Affairs of Belgium (2004-2008)
NASA Remote Sensing Course Creation Fellow, GeoWorkforce Development Center, University of Mississippi (2002-2004)
Board Member, National Advisory Board for NSF-CRCD-CV Program (Combined Research and Curriculum Development in Computer Vision) (2001-2003)

Research Conference/Symposia Organizing and Technical Committees, as well as Technical Session Organizer/Chair

- IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Grenoble, France (2009), Reykjavik, Iceland (2010), Lisbon, Portugal (2011), Shanghai, China (2012)
- IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Anchorage, AK (2004), Seoul, Korea (2005), Denver, CO (2006), Barcelona, Spain (2007), Boston, MA (2008), Cape Town, South Africa (2009), Honolulu, HI (2010), Vancouver, Canada (2011), Munich, Germany (2012), Melbourne, Australia (2013), Beijing, China (2016)
- Third International Workshop on Analysis of Multi-temporal Remote Sensing Images (MultiTemp), Biloxi, Mississippi (2005)
- Nevada/DOE Research Symposium, Las Vegas, Nevada (1999)
- ASEE Pacific Southwest Regional Conference, Las Vegas, Nevada (1997-1998)

Served on Numerous Proposal Review Panels, including for National Geospatial Intelligence Agency (NGA) (2009-2011), NSF Graduate Research Fellowship Program (2003-2005, 2007-2010, 2015), NASA (2003-2006, 2010), European Space Agency (2003, 2007, 2009)

EXTRAMURAL RESEARCH SUPPORT

Co-PI, NSF (GK12 program), "GK-12: Initiating New Science Partnerships in Rural Education (INSPIRE)" $2.9million (2010-2015)

PI, NGA (NURI program), "Redundant Wavelet Transforms and Information Fusion for Robust Hyperspectral ATR" $298,580 (2010-2012)

PI, NASA, "Applying NASA HyspIRI observations to precision vegetation mapping for ecological forecasting applications" $106,415 (2010-2011)

PI, DHS, "Rapid Detection of Agriterrorism via Remote Sensing – Phase II" $560,779, (2008-2011)

PI, DHS, "Rapid Detection of Agriterrorism via Remote Sensing" $546,300, (2007-2008)

PI, DHS, "Assured Strategic Communications During Natural and Willful Disasters" $492,000, (2007-2008)

PI, NASA, "A Rapid Prototyping Capability Experiment to Evaluate Potential Soil Moisture Retrievals of Aquarius Radiometer and Scatterometer" $644,938, (2007-2008)

PI, NASA, "A Rapid Prototyping Capability Experiment to Evaluate CrIS ATMS Observations for Urban Modeling Applications" $515,883, (2007-2008)

PI, NASA, "Evaluation of GPM Precipitation Estimates for Cross-cutting Earth Science Applications via Land Data Assimilation Studies" $546,985, (2007-2008)

PI, NASA, "Optimizing GPM Precipitation Estimation Using High Resolution Land Surface Modeling for Decision Support" $ 537,883, (2007-2008)

PI, NASA, "Using Simulated OCO Measurements for Assessing Terrestrial Carbon Pools in Southern United States" $ 529,092, (2007-2008)

Co-PI, NASA, "Magnolia-1 Small Satellite Program" $11,073,759, (2007-2008) - $2,753,798 to MSU

Co-PI, USGS, "Integrated Management Systems Of Invasive Aquatic Plants and Terrestrial Grasses" $1,813,000 (2004-2007)

PI, NASA, "Rapid Prototyping of Hyperspectral Image Analysis Algorithms for Improved Invasive Species Decision Support Tools," $135,325, (2006-2007)

Co-PI, USGS, "Integrated Management Systems for Invasive Aquatic and Terrestrial Grasses" $1,813,000 (2004-2006)

PI, NASA/MSCI, "Near-Real Time Processing of Digital Multispectral Data Acquired Using Unmanned Aerial Vehicles" $99,964 (2004-2005)

PI, NASA, "Enabling Federal Noxious Weeds Detection for the National Invasive Species Decision Support Systems" $400,000 (2004-2005)

Co-PI, NASA, "Enabling Technologies for Exploiting EOS Data for Decision Support" $550,000 (2004-2005)

Co-PI, NASA SBIR Phase I, "Data Reduction and Rapid Analysis of Hyperspectral Datasets," $70,000 (2004)

Co-PI, Western Michigan University, "High Speed Wavelet-Based Compression and Transmission of Mammograms over Internet2," $30,000 (2003-2004)

Co-PI, NASA-RSTC - "Computational Modeling Support to the Remote Sensing Technology Center," $1,170,012 (2001-2003)

Co-PI, Mississippi Department of Transportation – "Digital Acoustic Signal Processing for Automated Detection of Accidents in Intersections," $95,386 (2001-2003)

PI, General Dynamics, Electronic Systems - " Multiresolution Feature Decomposition and Noise Filtering of Hyperspectral Image Data," $25,000 (2001)

PI, DOE/Bechtel Nevada - "Classification of Hyperspectral Signatures using Wavelet-Based Feature Extraction," $100,000 (1999-2000)

PI, DOE/Bechtel Nevada/ARI, "Wavelet-based Radiance Fingerprints for Computationally Efficient Analysis of Hyperspectral Data," $105,000 (1998-1999)

PI, NSF, "Wavelet-Based Shape Features for Mammographic Analysis," $65,383 (1998-1999)

TEACHING EXPERIENCE

Taught approximately 45 sections of 17 different courses at the undergraduate, split, and graduate levels, resulting in more than 2800 student credit hours (excluding dissertation and thesis hours)

Maintained a high level of dedication to teaching, resulting in instructor evaluation scores averaging to 4.5/5.0, where the Bagley College of Engineering and the Electrical and Computer Engineering Department averages are 4.0 and 3.9, respectively

Developed new graduate and undergraduate courses in the areas of Digital Image Processing, Automated Target Recognition, Biomedical Signals and Systems, and Medical Imaging, as well as conducted overhauls of various existing courses

Received various teaching awards and faculty appreciation awards from university alumni associations and student chapters of Tau Beta Pi and National Society of Black Engineers

Graduate Lecture Courses Taught:

Analog and Digital Communications
Automated Target Recognition *(Developed for MSU)*
Digital Image Processing *(Taught on-campus and via Distance)*
Digital Signal Processing *(Taught on-campus and via Distance)*
Medical Imaging Survey *(Developed for MSU)*
Codes and Cryptography *(Developed for MSU)*
Random Processes in Engineering Systems *(Developed for UNLV)*
Remote Sensing *(Taught on-campus and via Distance)*

Undergraduate Lecture Courses Taught:

Biomedical Signals and Systems *(Developed for UNLV)*
Computer Architecture and Assembly Language
Digital Logic Design
Electrical Engineering Systems
Signals and Systems

Laboratories Taught:

Analog Electronics Laboratory
Bioelectronics Laboratory
Digital Logic Design Laboratory
Digital Signal Processing Laboratory *(Developed for UNLV)*

STUDENT ADVISING

Post-Docs:

Yan Huang, “Texture Analysis of Multispectral Imagery for Automated Detection of Vegetative Species,” 2000-2001.

Ph.D. students (Chaired)

Jiang Li, “Linear Unmixing of Hyperspectral Signals via Wavelet Feature Extraction,” 2002.

Abhinav Mathur, “Hyperspectral Hypertemporal Feature Extraction Methods with Applications to Aquatic Invasives Target Detection,” 2006.

John Ball, “Three Stage Level Set Segmentation of Mass Core, Periphery, and Spiculations for Automated Analysis of Digital Mammograms”, 2007.

Saurabh Prasad, “Multiclassifiers and Decision Fusion for Multi-Source Data with Applications to Remote Sensing and Medial Imaging,” 2008.

Terrance West, “Adaptive Wavelet Transforms for Dimensionality Reduction of Remotely Sensed Hyperspectral Imagery,” 2009.

Matthew Lee, “Applications of Artificial Intelligence to Remotely Sensed Imagery,” 2012.

Sathish Samiappan, “Support Vector Machines and Adaptive Learning for Remotely Sensed Imagery with Limited Ground Truth,” 2014.

Masters students - Thesis Option (Chaired)

Ravikiran Kalluri, “Effects of Wavelet Compression on Mammographic Mass Recognition,” 1998.

Jiang Li, “Fast Wavelet-based Algorithms for Analysis of Hyperspectral Images,” 1999.

Nithya Shanmugam, “Automated Mammographic Mass Shape Classification using Wavelets and Neural Networks,” 2000.

Cliff Morgan, “Detection of Weak Anomalies in Hyperspectral Signatures using Wavelet Coefficient Energy Features,” 2000.

Abhinav Mathur, “Dimensionality Reduction of Hyperspectral Signatures for Optimized Detection of Invasive Species,” 2002.

Anil Cheriyadat, “Limitations of Principal Component Analysis for Dimensionality Reduction of Hyperspectral Data,” 2003.

Huang-de Lin, “Projection Pursuits for Dimensionality Reduction of Hyperspectral Signals in Target Recognition Applications,” 2003.

Navaneethakrishnan Balraj, “Automated Accident Detection in Intersections Via Digital Audio Signal Processing,” 2003.

Anuradha Agatheeswaran, “Analysis of JPEG2000 Compression Effects on Automated Shape and Texture Feature Extraction from Digital Mammograms”, 2004.

Shilpa Venkataraman, “Hyperspectral Dimensionality Reduction via Localized Discriminant Bases,” 2005.

Darrell Wesley Johnson, “Assessing Resolution Tradeoffs of Remote Sensing Data via Classification Accuracy Cubes for Sensor Selection and Design,” 2006.

Terrance R. West, “Detecting Invasive Species via Hyperspectral Imagery using Sequential Projection Pursuits,” 2006.

Matthew Lee, “Analysis of Breast Lesions Using a Simplified Rubber Band Straightening Transform and the Onion Transform,” 2006.

Hemanth Kalluri, “Use of spectral derivatives in hyperspectral image processing and target recognition,” 2009.

Minshan Cui, “Genetic Algorithms Based Feature Selection and Decision Fusion for Robust Remote Sensing Image Analysis”, 2011.

Graduate Students (Non-Thesis Chair and/or Committee)

Served on approximately 55 graduate student committees, including Phd and MS students in the Electrical and Computer Engineering Department, Computer Science and Engineering Department, Plant and Soil Sciences Department, Forestry Department.

Selected Undergraduate Student Research Assistants

Sara Larsen, “Wavelet Denoising of Cl^- Patch Clamp Signals”, “Wavelet Analysis of Hyperspectral Data,” 1997-2000.

Cliff Morgan, “Applying Steerable Filters to Hyperspectral Images,” 1999.

Mathew Burns, “Designing Adaptive Wavelet Filter Banks,” 1999.

Ricco Novero, “Wavelet Algorithm Development for the Texas Instruments DSP Microprocessors,” 1998-1999.

Andres Mendoza, “Wavelet Analysis of Mammographic Tumor Shapes”, “Recognition of Vegetation Textures via Wavelet Packets,” 1998-2000.

Jay Stenmark, “Fourier and Wavelet Transform Methods for Texture Analysis in Remotely Sensed Imagery,” 2002.

Darryll Wesley Johnson, “Spectral Resolution Effects on Automated Detection of Cogongrass in Hyperspectral Imagery,” 2004.

Terrance West, “Investigating the use of Unsupervised Classifiers for Automated Detection of Invasive Species in Remotely Sensed Images,” 2004.

Lennon Brown, “Automated Invasive Species in Multispectral Imagery via Supervised Statistical Classification,” 2004.

Jacob Bowen, “Hyperspectral Remote Sensing: Ground Truth Data via Field Campaigns and Simulation of Satellite Imagery,” 2008.

Jeff Brantley, “Hyperspectral Remote Sensing: Ground Truth Data via Field Campaigns and Simulation of Satellite Imagery,” 2008.

PUBLICATIONS

Citation Indices

More than 140 publications have been cited more than 2800 times resulting in an citation indices of h-index = 26 and i10-index = 53.

Books and Book Chapters

B1. S. Prasad, L.M. Bruce, J. Chanussot, *Optical Remote Sensing - Advances in Signal Processing and Exploitation Techniques*, Springer Publishing Company, Berlin, 2011. *(ISBN: 978-3-642-14211-6)*

B2. S. Prasad, L.M. Bruce, J. Chanussot, "Introduction - Signal Processing and Exploitation for Optical Remote Sensing," Chapter 1 in *Optical Remote Sensing - Advances in Signal Processing and Exploitation Techniques*, Springer Publishing Company, Berlin, 2011. *(ISBN: 978-3-642-14211-6)*

B3. S. Prasad, L.M. Bruce, "A Divide-and-Conquer Paradigm for Hyperspectral Classification and Target Recognition," Chapter 7 in *Optical Remote Sensing - Advances in Signal Processing and Exploitation Techniques*, Springer Publishing Company, Berlin, 2011. *(ISBN: 978-3-642-14211-6)*

B4. S. Prasad, L.M. Bruce, J.E. Ball, "Information Fusion in a High Dimensional Feature Space for Robust Computer Aided Diagnosis using Digital Mammograms," Chapter 9 in *New Developments in Biomedical Engineering*, Edited by: D. Campolo, In-Tech Publishers, Croatia, January 2010. (*ISBN: 978-953-7619-57-2*)

Journal Articles

J1. S. Samiappan, S. Prasad, L.M. Bruce, "An Adaptive Support Vector Machine Classifier for Hyperspectral Image Analysis," *IEEE Transactions on Geoscience and Remote Sensing*, (submitted and under review)

J2. M. Lee, Y. Huang, H. Yao, S. Thomson, L.M. Bruce, "Determining the Effects of Storage on Cotton and Soybean Leaf Samples for Hyperspectral Analysis," *IEEE Journal of Selected Topics in Applied Earl Observations and Remote Sensing*, vol.7, no. 6, June 2014.

J3. M. Lee, Y. Huang, Haibo Yao, S. J. Thomson, L. M. Bruce, "Effects of Sample Storage on Spectral Reflectance Changes in Corn Leaves Excised From the Field," *Journal of Agricultural Science*, vol. 6, no. 8, pp. 214-220, 2014.

J4. M. Cui, S. Prasad, W. Li, L.M. Bruce, "Locality Preserving Genetic Algorithms for Spatial-Spectral Hyperspectral Image Classification," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 6, no. 3, pp. 1688-1697, May 2013.

J5. M. Cui, S. Prasad, L.M. Bruce, "Non-Uniform Random Feature Selection and Kernel Density Scoring with SVM based Ensemble Classification for Hyperspectral Image Analysis," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*,vol. 6, no. 3, pp. 792-800, 2013..

J6. M. Cui, S. Prasad, W. Li, L.M. Bruce, "Locality Preserving Genetic Algorithms for Spatial-Spectral Hyperspectral Image Classification," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 6, no. 3, pp. 1688-1697, June 2013.

J7. S. Prasad, Wei Li, J.E. Fowler, L.M. Bruce, "Information Fusion in a Redundant-Wavelet-Transform Domain for Noise-Robust Hyperspectral Classification," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 50, no. 9, pp. 3474-3486, Sept 2012.

J8. M. Cui, S. Prasad, M. Mahrooghy, J. Aanstoos, M. Lee, L.M. Bruce, "Decision Fusion of Textural Features Derived from Polarimetric

Data for Levee Assessment," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 5, no. 3, pp. 970-976, June 2012.

J9. W. Li, S. Prasad, J. Fowler, L.M. Bruce, "Locality-Preserving Dimensionality Reduction and Classification for Hyperspectral Image Analysis," *IEEE Transactions on Geoscience and Remote Sensing*, vol.50, no.4, pp.1185-1198, 2012.

J10. W. Li, S. Prasad, J. Fowler, L. M. Bruce, "Locality-Preserving Discriminant Analysis in Kernel-Induced Feature Spaces for Hyperspectral Classification," *IEEE Geoscience and Remote Sensing Letters*, vol. 8, no. 5, pp. 894-898, Sept 2011.

J11. H. Kalluri, S. Prasad, L.M. Bruce "Decision Level Fusion of Spectral Reflectance and Derivative Information for Hyperspectral Classification and Target Recognition," *IEEE Transactions on Geoscience and Remote Sensing*, vol.48, no.11, pp.4047-4058, November, 2010.

J12. C.J. Gray, D.R. Shaw, L.M. Bruce, "Utility of Hyperspectral Reflectance for Differentiating Soybean (*Glycine max*) and Six Weed Species," *Weed Technology*, vol. 23, no. 1, pp. 108-119, 2009.

J13. S. Prasad, L.M. Bruce, "Information Fusion in Kernel-Induced Spaces for Robust Subpixel Hyperspectral ATR,", *IEEE Geoscience and Remote Sensing Letters*, vol. 6, no. 3, pp. 572-576, July 2009.

J14. C.J. Gray, D.R. Shaw, P.D. Gerard, L.M. Bruce, "Utility of Multispectral Imagery for Soybean and Weed Species Differentiation," *Weed Technology*, vol. 22, no. 4, pp. 713-718, 2008.

J15. S. Prasad, L.M. Bruce, "Limitations of Principal Components Analysis for Hyperspectral Target Recognition," *IEEE Geoscience and Remote Sensing Letters*, vol. 5, no. 4, pp. 625-629, October 2008.

J16. S. Prasad, L.M. Bruce, "Decision Fusion with Confidence based Weight Assignment for Hyperspectral Target Recognition," *IEEE Trans. On Geoscience and Remote Sensing*, vol. 46, no. 5, pp. 1448-1456, May 2008.

J17. Q. Du, N. Raksuntorn, A. Orduyilmaz, L. M. Bruce, "Automatic registration and mosaicking for airborne multispectral image sequences," *Photogrammetric Engineering & Remote Sensing*, vol. 74, no. 2, pp. 169-181, Feb. 2008.

J18. J.E. Ball and L.M. Bruce, "Level Set Hyperspectral Image Classification Using Best Band Analysis," *IEEE Trans. On Geoscience and Remote Sensing*, vol. 45, no. 10, pp. 3022-3027, October 2007.

J19. L. Alparone, L. Wald, J. Chanussot, C. Thomas, P. Gamba, L.M. Bruce, "Comparison of Pansharpening Algorithms: Outcome of the 2006 GRS-S Data Fusion Contest", *IEEE Trans. On Geoscience and Remote Sensing*, vol. 45, no. 10, pp. 3012-3021, October 2007.

J20. J.E. Ball, L.M. Bruce, and N.H. Younan, "Hyperspectral pixel unmixing via spectral band selection and DC insensitive singular value decomposition," *IEEE Geoscience and Remote Sensing Letters*, Vol. 4, No. 3, pp. 382-386, July 2007.

J21. L.M. Bruce, A. Mathur, J.D. Byrd, "Denoising and Wavelet-Based Feature Extraction of MODIS Multi-Temporal Vegetation Signatures," *GIScience & Remote Sensing*, vol. 43, pp. 170-180, 2006.

J22. J. Li and L.M. Bruce, "Wavelet-Based Feature Extraction for Improved Endmember Abundance Estimation in Linear Unmixing of Hyperspectral Signals," *IEEE Trans. Geoscience and Remote Sensing*, vol. 42, no. 3, pp. 644-649, March 2004. (See Correction to "Wavelet-Based Feature Extraction for Improved Endmember Abundance Estimation in Linear Unmixing of Hyperspectral Signals", *IEEE Trans. Geoscience and Remote Sensing*, vol. 42, no. 5, pp. 1122, May 2004.)

J23. W.B. Henry, D. Shaw, L.M. Bruce, "Spectral reflectance curves to distinguish soybean from common cocklebur (*Xanthium stumarium*) and sicklepod (*Cassia obtusifolia*) grown with varying soil moisture," *Weed Science*, vol. 52, no. 5, pp.78-796, 2004.

J24. W. B. Henry, D. Shaw, L.M. Bruce, H. Tamhankar, "Remote Sensing to Distinguish Soybean (Glycine max) from Weeds Following

Herbicide Application," *Weed Technology*, vol. 18, no. 3, pp. 594-604, 2004.

J25. W.B. Henry, D.R. Shaw, K.R. Reddy, L.M. Bruce, H.D. Tamhankar, "Remote Sensing to Detect Herbicide Drift on Crops," *Weed Technology*, vol. 18, pp. 358-368, 2004.

J26. C.H. Koger, L.M. Bruce, D.R. Shaw, K.N. Reddy, "Wavelet Analysis of Hyperspectral Reflectance Data for Detecting Pitted Morningglory (Ipomoea lacunosa) in Soybean (Glycine max), *Remote Sensing of Environment*, vol. 86, no. 1, pp. 108-119, June 2003.

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ACADEMIC SERVICE

UNIVERSITY SERVICE

MISSISSIPPI STATE UNIVERSITY

MSU Dean's Council (2013-present)

MSU Executive Enrollment Management Council (2013-present)

MSU Strategic Enrollment Management Committee (2013-2014)

MSU Associate Deans Council (2008-2013)

MSU representative to Mississippi State-wide UAS Task Force (2010-2013)

MSU General Counsel Search Committee (2011)

MSU Strategic Planning Committee, Outreach and Economic Development (2010)

MSU Faculty Research Advisory Committee (2004-2010)

MSU Courses and Curriculum Committee (2006-2010)

MSU Office of Research and Economic Development, Research Thrust Focus Group (2008)

MSU Commencement Usher and/or Attendee (2000-2010)

High School Outreach Events, hosted numerous recruiting events for high school students visiting MSU (2000-2010)

Remote Sensing Seminar, semester-long seminar course video-conferenced between faculty and students at MSU, Purdue, University of Nebraska, and Indiana State (2003)

UNIVERSITY OF NEVADA LAS VEGAS

Faculty Senate, Admissions Committee Member (1997-2000)

University Planning Council, Member - Attend Bi-weekly meetings, attend all-day planning retreat, review Planning Initiative Award Proposals, etc. (1998)

Expanding Your Horizons Day – Sponsored laboratory/workshop (1998)

Faculty/Scholar Mentoring Program, Multicultural Student Affairs Office (1996-1997)

COLLEGE SERVICE

MISSISSIPPI STATE UNIVERSITY

Graduate School Fellowship Application Workshop, created and presented workshop to undergrad and graduate students to assist them in preparation for graduate school admission and fellowship applications, approximately 60 students attend annually, personally assisted approximately 12 students with fellowship applications, essays, reference letters, etc. (2003-2013)

College of Engineering New Faculty Development Program, Conducted Brown Bag Lunch Seminars on Effective Teaching and on Jump-Starting a Research Program (2004-2013)

Director, Women in Engineering Programs, Bagley College of Engineering, (2006-2007).

Advisor, MSU Student Chapter of Society of Women Engineers (SWE), attend monthly meetings, advise on service activities, program speakers, chapter finances, attend national conference, etc., (2001-2006)

Girl Scout Engineering Career Workshop, presented 2-hour workshops on Saturdays introducing girl scouts to engineering (2001-2006, 2010)

Search Committee for College of Engineering Dean, Elected College Representative (2004)

Serve as a mentor to new faculty member in the College Mentoring Program (2004-2010)

College of Engineering Women's Faculty Group (2003-present)

Search Committee for College of Engineering Associate Dean for Research, Elected Rep, (2003)

Judge, College of Engineering E-Week Student Research Poster Contest (2003-2004, 2006)

Member, Search Committee for College of Engineering's K12 Outreach Director (2001)

UNIVERSITY OF NEVADA LAS VEGAS

Mechanical Engineering Faculty Search Committee (1998)

Commencement Committee - acted as the Bearer for College of Engineering (1997-2000)

High School Distance Ed Course - Developed lectures, developed lab experiments, co-authored lab manual, ordered materials/supplies, taught two 2-hour lectures, and taught three 3-hour labs – Course enrolled 20 high school students (1998)

Biomedical Engineering Program Committee – Organize curriculum, develop courses, etc. (1998-2000)

Biomedical Engineering Research Group – Meet with College of Science and University Medical Center faculty, present research topics, attend seminars, etc. (1998-2000)

Washoe County College Fair - represented Electrical & Computer Engineering Dept. and Computer Science Dept. at 2-day college recruitment fair in Reno, NV (1997-1999)

Nevada Science & Technology Day – sponsored and hosted Saturday sessions with student hands-on laboratories (1997-2000)

College of Engineering Scout Explorer's Post - Attend monthly scout meetings, conduct lab exercises with scouts (1997-1999)

Nevada Regional Science Bowl (Sponsored by DOE) - served as technical judge (1997-1999)

DEPARTMENT SERVICE

MISSISSIPPI STATE UNIVERSITY

Chair, Graduate Studies Committee (2007-2008, member 2003-2008)

Committee member, Tenure and Promotion Committee (2003-2008)

Committee member, Digital Signal Processing Committee (2000-2008)

Committee member, Space Committee (2003-2005)

Committee member, Awards Committee (2004-2006)

Committee member (elected), Department Head Search Committee (2002-2003)

Committee member, Undergraduate Curriculum Committee (2000-2003)

Committee member, Faculty Search Committee (2000-2002)

IEEE Southeastern Conference (SECON) Student Design Competition - Faculty Advisor for MSU Team for 2002 and 2004 competitions. For both the 2002 and 2004 teams, I met weekly with the design team for 1 calendar year to advise them on project development, hardware and

software development and testing, documentation, and preparations for competition. In 2004, I drove the student team to Greensboro, North Carolina so they could participate in the competition – the MSU team placed 7th out of 33 teams. In 2002, I drove the student team to Clemson, South Carolina, so they come participate in the competition – the MSU team placed 5th out of 27 teams.

UNIVERSITY OF NEVADA LAS VEGAS

Student Advising - serve as student advisor - upkeep student folders, approve of student course schedules, student financial-aid forms, recommendation letters, etc. (1996-2000)

Faculty Search Committee – searched for 5 positions (1997-2000)

EE Curriculum Committee – introduce "tracks" to curriculum, renumber departmental courses, prepare ABET accreditation documents, etc. (1996-2000)

Ph.D. Qualifying Examination Committee - provided and graded exam questions for signal processing, computer engineering, and communications portions of exams (1997-2000)

Ph.D. Comprehensive Examination Committee - Provided and graded exam questions for communications and computer engineering portions of exam, monitored exam (1997-2000)

Tau Beta Pi Departmental Advisor - Assist in member selection and induction ceremonies (1997-2000)

Strategic Planning Committee – author departmental strategic planning document (1996-1998)

Orientation, represent department at Freshman Orientation (1998)

SELECTED COMMUNITY SERVICE

Cub Scout Pack 45, assist with den and pack activities including camping trips, pinewood derby, blue & gold banquet, etc (2012-present)

Starkville Church of Christ, teach children's bible classes, have taught on average 40 classes/year (2001-2011, 2014)

Sunnybrook Home for Children, provide financial and personal assistance (2001-2005, 2009-present)

Boy Scout Troop – Assisted local Boy Scout Troop members to obtain Bicycle Merit Badge by attending rides and loaning bicycles for use, including a tandem bicycle for use by blind troop members (2003, 2008)

Junior Auxiliary of Starkville, Mississippi, conduct service projects for the children of Oktibbeha County, Mississippi (2004-2007)