Timothy E John Dallas

Department of Electrical and Computer Engineering
Texas Tech University, Lubbock, TX 79409-3102
(O) 806-834-6856 (C) 806-438-0510
Tim.Dallas@ttu.edu

PROFESSIONAL EXPERIENCE

Professor of Electrical and Computer Engineering (9/13 – present)

Associate Dean, The Graduate School (1/16 – present)

Director, MEMS University Alliance (US-Mexico university consortium in MEMS)

Acting Director, Program for Semiconductor Product Engineering

Associate Professor of Electrical and Computer Engineering (9/05 – 8/13)
Assistant Professor of Electrical and Computer Engineering (6/99 – 8/05)
Associate Director, TTU Nano Tech Center 10/1999 – 10/2005
Joint appointment in Physics – 11/2001
Adjunct appointment – Department of Anesthesiology – TTU Health Sciences Center – 2/2003

Post-Doctoral Research Fellow (6/98 – 5/99)
University of Texas - Austin, Department of Chemical Engineering
Advisor: Professor C. Grant Willson

Senior Technology and Applications Engineer (6/97 – 5/98)
ISI Lithography, Austin, TX

Research & Teaching Assistant (8/91 – 5/97)
Texas Tech University, Department of Physics, Lubbock, Texas
PhD Advisor: Professor Mark Holtz

Research Assistant (1/90 – 7/91)
The University of Chicago, Department of Physics, Chicago, IL

EDUCATION

Ph.D. Applied Physics (1996)
Texas Tech University, Lubbock, TX
M.S. Physics (1993)
Texas Tech University, Lubbock, TX
B.A. Physics (1991)
The University of Chicago, Chicago, IL

COMMERCIALIZATION

Founder and President of *Class on a Chip, Inc. (Awarded NSF SBIR Phase I funding 7/2010)*

JOURNAL PUBLICATIONS

1. "MEMS-based Education System," Tim Dallas, G. Ramirez, G. Sivakumar, A. Vijayasai, S. Oak, G. Ramachandran, S. Rawool, and S. Lacouture (to be submitted)
2. "Feature Selection and Activity Recognition using Single Tri-axial Accelerometer Worn on Waist," P. Gupta, T. Dallas, IEEE Transactions on Biomedical Engineering 61, pp. 1780-1786 (2014).
3. "Electrostatic Discharge Sensitivity and Electrical Conductivity of Composite Energetic Materials," Chelsea Weir, Michelle L. Pantoya, Gautham Ramachandran, Tim Dallas, and Michael Daniels, *Journal of Electrostatics 71, pp. 77-83 (2013)*.
4. "Characterization of a MEMS Tribogauge," Ashwin Vijayasai, Ganapathy Sivakumar, Gautham Ramachandran, Charlie Anderson, Richard Gale, and Tim Dallas, *Surface & Coatings Technology* 215, pp. 306–311 (2013).
5. "The 18mm^2 Laboratory: Teaching MEMS Development with the SUMMiT Foundry Process," T. Dallas, J. Berg, and R. Gale, IEEE Transaction on Education 55, pp. 529-537 (2012).

6. “Haptic controlled three degree-of-freedom microgripper system for assembly of detachable surface-micromachined MEMS,” Ashwin P. Vijayasai, Ganapathy Sivakumar, Matthew Mulsow, Shelby Lacouture, Alex Holness, and Tim E. Dallas, *Sensors and Actuators A* 179, pp. 328-336 (2012).
7. Development and Testing of a Multi-Level Chevron Actuator Based Positioning System,” Sahil Oak, Sandesh Rawool, Ganapathy Sivakumar, Johan Hendriske, Daniel Buscarello, Immanuel Purushothaman, and Tim Dallas, *J. of Microelectromechanical Systems* 20, pp.1298-1309 (2011).
8. “Effect of a superhydrophobic coating on the combustion of aluminum and iron oxide nanothermites,” Eric Nixon, Ashwin Vijayasai, Ganapathy Sivakumar, Michelle L. Pantoya, and Tim Dallas, *Surface and Coating Technology* 205, pp. 5103–5108 (2011).
9. “Haptic Controlled 3 – Axis MEMS Gripper System,” A. Vijayasai, G. Sivakumar, M. Mulsow, S. Lacouture, A. Holness, and T. Dallas, Review of Scientific Instruments 81, 105114 (2010).
10. “Electrostatic Bi-Directional Two-Axis Stage,” – G. Sivakumar, J. Matthews, and T. Dallas, J. of Microelectromechanical Systems 19, pp. 451-457 (2010).
11. “Rotating Out-of-Plane Micromirror,” S. Oak, G. Edmiston, G. Sivakumar, and T. Dallas, J. of Microelectromechanical Systems 19, pp. 632-639 (2010).
12. “Design and Analysis of a Dual-Mode MEMS Micromirror,” X. Xiong, T. Dallas, J. Berg, H. Temkin, Journal of Micro and Nanosystems 2, pp. 23-31 (2010).
13. “Characterization of Stiction Accrual in a MEMS,” R. Ranganathan, G. Sivakumar, R. Gale, and T. Dallas J. of Microelectromechanical Systems 18, pp. 1149-1159 (2009).
14. “Two-Axis Microstage System,” Phillip Beverly, Ganapathy Sivakumar, and Tim Dallas, J. of Microelectromechanical Systems 17, pp. 863-868 (2008).
15. “Decoupling Functionalization from Sensor Array Assembly Using Detachable Cantilevers,” Kevin W. McBride, David Snow, Stephanie Walters, Zach Jernigan, Tim Dallas, and Brandon L. Weeks, *Scanning* 30, pp. 203-207, (2008).
16. “In-situ Characterization of Induced Stiction in a MEMS,” T. Yu, R. Ranganathan, N. Johnson, N. Yadav, R. Gale and T. Dallas, *J. of Microelectromechanical Systems* 16*, pp. 355-364* (2007).
17. "Cell Detachment Model for an Antibody-Based Microfluidic Cancer Screening System," Swapnil P. Wankhede, Zhiqiang Du, Jordan M. Berg, Mark W. Vaughn, Tim Dallas, Kwan H. Cheng, and Lauren Gollahon, *Biotechnology Progress* 22, pp. 1426-1433 (2006).
18. “Light at the End of the Tunnel: Recent Analytical Applications of Liquid Core Waveguides,” T. Dallas and P. Dasgupta, *Trends in Analytical Chemistry* 23, pp. 385-392 (2004).
19. “Microfabrication and Characterization of Teflon AF Coated Liquid Core Waveguide Channels in Glass” Rosalynn M. Manor, Arindom Datta, Iftikhar Ahmad, Mark Holtz, Shubhra Gangopadhyay, Tim Dallas*, IEEE Sensors Journal* 3 (Special issue), pp. 687-692 (2003).
20. “Microfabrication and Characterization of Teflon AF Coated Liquid Core Waveguide Channels in Silicon,” A. Datta, I. Y. Eom, A. Dhar, P. Kuban, R. M. Manor, I. Ahmad, S. Gangopadhyay, T. Dallas, M. Holtz, H. Temkin, P. K. Dasgupta, *IEEE Sensors Journal* 3*,* pp*.* 788-795 *(*2003).
21. “A Two-Stage Discrete Peristaltic Micropump,” J. M. Berg, R. C. Anderson, M. Anaya, B. Lalouh, M. Holtz, and T. Dallas, *Sensors and Actuators A* 104, pp. 6-10 (2003).
22. “A Microfabricated Amperometric Moisture Sensor,” X. Su, X. Xingguo, T. Dallas, S. Gangopadhyay, H. Temkin, X. Wang, R. Walulu, J. Li, P. Dasgupta, *Talanta* 56, 309-321 (2002).
23. “Metallurgical Analysis and Computer Simulation of a Solid Sphere Under Shock Loading," J. Wilson, J. Hashemi, D. James, N. Guven, T. Dallas, K. Khurts, B. Combs, M. Hale, G. Willson, *Journal of High Pressure Research*, Vol. 21, pp. 1-14, (2001).
24. “Ultra-High Pressure Cell for Materials Synthesis,” M. Hale, D. Clausi, G. Willson, J. Hashemi, J. Wilson, D. James, M. Holtz, K. Kuhrts, B. Combs, and T. Dallas, *Review of Scientific Instruments* 71, 2784 (2000).
25. “Characterization of a Non-chemically Amplified Resist for Photomask Fabrication Using a 257nm Optical Pattern Generator,” B. Rathsack, C. Tabery, T. Stachowiak, T. Dallas, C. Xu, C. G. Willson, BACUS Symposium on Photomask Technology, September 1999, SPIE Vol. 3873, pp. 80-91.
26. “Photoluminescence Studies of Polycrystalline Diamond Films,” T. Dallas, S. Yi, and S. Gangopadhyay, *Diamond Films and Technology* 7 (4), 241 (1997).
27. “Defect Photoluminescence Studies of CVD Grown Polycrystalline Diamond Films,” S. Lal, T.

Dallas, S. Yi, S. Gangopadhyay, M. Holtz, T. Anderson, *Physical Review B* 54, 13428 (1996).

28. "Enhanced Signal-to-Background Ratios in Voltametric Measurements made at Diamond Thin Film Electrochemical Interfaces," J. Strojek, M. Granger, G. Swain. T. Dallas, and M. Holtz, *Analytical Chemistry* 68, 2031 (1996).
29. "The Electronic Structure of Tungsten Impurities in Diamond Films," T. Anderson, T. Dallas, S. Lal, S. Gangopadhyay, and M. Holtz, *Solid State Communications* 102 (12), p. 867, (1997).
30. "Cryogenic Pressure and Lifetime Studies of Defect Related Emission in Heavily Silicon Doped GaAs," M. Holtz, T. Sauncy, T. Dallas, M. Seon, C. P. Palsule, S. Gangopadhyay, and S. Massie, *Phys. Stat. Sol.* B 198, 199-203 (1996).
31. "Electrochemical and Surface Structural Characterization of H Plasma-treated Glassy Carbon Electrodes," R. DeClements, G. Swain, T. Dallas, M. Holtz, R. Herrick III, and J. Stickney, *Langmuir* 12, 6578 (1996).
32. "Effect of Pressure on Defect Related Emission in Heavily Silicon Doped GaAs," M. Holtz, T. Sauncy, T. Dallas, S. Massie, *Physical Review* B *Rapid Communications* 50, 14706 (1994).
33. "Structural Phases of Femtosecond Laser Melted Graphite," T. Dallas, M. Holtz, H. Ahn, M. Downer, *Physical Review B* 49, 796 (1994).

BOOK CHAPTERS

1. "Remote Access MEMS Lab," G. Ramachandran, A. Vijayasai, G. Ramirez, and T. Dallas, Innovations 2012, (iNEER), p. 172.
2. "Peristaltic Micropumps," J. Berg and T. Dallas, *The Encyclopedia of Microfluidics and Nanofluidics*, Springer-Verlag – 2008, 10.1007/978-0-387-48998-8_1198.
3. "Microfabricated Electrolytic Amperometric Humidity Sensors," T. Dallas, J. Berg, & P. Dasgupta, *The Encyclopedia of Sensors Vol. 6,* p. 153*,* American Scientific Publishers (2006).
4. "Liquid Core Waveguide Based Optical Sensors," T. Dallas and P. Dasgupta, *The Encyclopedia of Sensors Vol. 5,* p. 285, American Scientific Publishers (2006).
5. "Towards Integrating Graduate Research and Education with 'Internal Internships': Experiences and Assessment," J. M. Berg, M. Holtz, Y. Su, R. Bunuam, J. Wilhelm, T. Dallas, R. Gale, L. Gollahon, S. Gangopadhyay, and H. Temkin, Innovations 2004, World Innovations in Engineering Education and Research, Editors: *W. Aung, et al.,* iNEER. Arlington VA, 2004, pp. 291–301.
6. "Developing "Internal Internships" for a Microsystems Engineering Curriculum," T. Dallas, J. Berg, M. Holtz, S. Gangopadhyay, and H. Temkin, *Innovations* 2003: World Innovations in Engineering Education and Research; Editors: *W. Aung*, M. *H.W. Hoffmann*, *N. W. Jern*, *R. W. King*, *L. M. S. Ruiz*, iNEER/Bergell House, 2003. p. 319 – 330, ISBN 0-9741252-0-2.

CONFERENCE PROCEEDINGS

1. "MEMS-based Educational Laboratory," Dallas, T. (2014). (9047th ed.). 121st ASEE Annual Conference.
2. "University-Industry Partnership in Semiconductor Engineering," Dallas, T., Karp, T., Nutter, B., Lie, Y.-C., Gale, R., Cox, R., Bayne, S. (2014). 121st ASEE Annual Conference and Exhibition (pp. 13)
3. "Characterization of a self assembled monolayer using a MEMS tribogauge," A. Vijayasai; G. Sivakumar, C. Anderson, R. Gale, T. Dallas, CONFERENCE ON METALLURGICAL COATINGS & THIN FILMS, 39th ICMCTF, April 23–27, 2012, San Diego, California, USA.
4. "Comparison of engineered nanocoatings on the combustion of aluminum and copper oxide nanothermites," E. Collins; Texas Tech University, M. Pantoya; Texas Tech University, A. Vijayasai; T. Dallas, CONFERENCE ON METALLURGICAL COATINGS & THIN FILMS, 39th ICMCTF, April 23–27, 2012, San Diego, California, USA.
5. "Characterization of Fluorocarbon SAM coated MEMS tribogauge," A. Vijayasai, G. Ramachandran, G. Sivakumar, C. Anderson, R. Gale, and T. Dallas, RELIABILITY, PACKAGING, TESTING, AND CHARACTERIZATION OF MEMS/MOEMS AND NANODEVICES XI, Editors: SM Garcia-Blanco and R. Ramesham, Proceedings of SPIE 8250, Article #82500B (2012).
6. "Characterization of a Nanocoating Using a MEMS Tribogauge," A. Vijayasai, G. Ramachandran, G. Sivakumar, C. Anderson, R. Gale, T. Dallas, RELIABILITY, PACKAGING, TESTING, AND

CHARACTERIZATION OF MEMS/MOEMS AND NANODEVICES X, Editors: SM Garcia-Blanco and R. Ramesham, Proceedings of SPIE 8250, Article #82500C (2012)

7. "Usage Induced Changes to Surface Topography and Material Properties in Polysilicon MEMS Electrothermal Structures," S. Oak, G. Ramachandran, and T. Dallas, RELIABILITY, PACKAGING, TESTING, AND CHARACTERIZATION OF MEMS/MOEMS AND NANODEVICES XI, Editors: SM Garcia-Blanco and R. Ramesham, Proceedings of SPIE 8250, Article #825005 (2012).
8. "MEMS Based Sensing and Algorithm Development for Fall Detection and Gait Analysis, "Piyush Gupta, Gabriel Ramirez, Donald Y.C. Lie, Tim Dallas, Ron E. Banister and Andrew Dentino, SPIE MOEMS-MEMS, 2010, San Jose, CA, {SPIE VOL. 7593-29}.
9. *"A 2-DOF MEMS Positioning System," G. Sivakumar, J. Matthews, and T. Dallas,* SPIE MOEMS-MEMS, 2010, SAN JOSE, CA {SPIE VOL. 7592-27}
10. "Mesoscale to microscale manipulation using haptic interface and MEMS microgripper," A. Vijayasai, A. Holness, S. Lacouture, and T. Dallas, SPIE MOEMS-MEMS, 2010, SAN JOSE, CA {SPIE VOL. 7593-18}
11. Design and Testing of a Rotating Out-of-Plane Micro-mirror," S. Oak, Sahil, G. Edmiston, G. Sivakumar, and T. Dallas, SPIE MOEMS-MEMS, 2010, SAN JOSE, CA {SPIE VOL. 7594-17}
12. "Development and testing of a multi-level chevron actuator-based micropositioner," S. Rawool, G. Sivakumar, J. Hendriske, D. Buscarello, and T. Dallas, SPIE MOEMS-MEMS, 2010, SAN JOSE, CA {SPIE VOL. 7592-25}
13. "Remotely accessible laboratory for MEMS testing," G. Sivakumar, M. Mulsow, A. Mellinger, S. Lacouture, and T. Dallas, SPIE MOEMS-MEMS, 2010, San Jose, CA, {SPIE VOL. 7592-19}
14. "Low-cost system for testing MEMS for research and educational applications," Gabriel Ramirez, Ganapathy Sivakumar, Shelby Lacouture, and Tim Dallas, SPIE MOEMS-MEMS, 2010, San Jose, CA, {SPIE VOL. 7592-21}
15. "Reliability study of MEMS array under varying temperature and humidity conditions," Ganapathy Sivakumar, Ranjith Ranganathan, Richard Gale, and Tim Dallas, SPIE MOEMS-MEMS, 2010, San Jose, CA, {SPIE VOL. 7592-11}
16. "Lifetime estimation and reliability study of electrothermal MEMS actuators," Ganapathy Sivakumar, Stephen Johns, Armando Nava, and Tim Dallas, SPIE MOEMS-MEMS, 2010, San Jose, CA, {SPIE VOL. 7592-13}
17. "Pseudo-analog electrostatic piston micromirror," Hao Gu, Ganapathy Sivakumar, and Tim Dallas, SPIE MOEMS-MEMS, 2010, San Jose, CA, {SPIE VOL. 7595-23}
18. "Tele-operated Microsystems Laboratory," G. Sivakumar, M. Mulsow, A. Mellinger, S. Lacouture, and T. Dallas, Proceedings of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2009, August 30 - September 2, 2009, San Diego, California, USA.
19. "A Non-Contacting, Digital, Electrostatic MEMS Using Extremum-Seeking Control," Imiya Wickramasinghe, Ganapathy Sivakumar, Jordan M. Berg, Tim Dallas, 48th IEEE Conference on Decision and Control, to be held in Shanghai, P.R. China on December 16-18, 2009.
20. "Precise Positioning of Electrostatic MEMS: A Non-Contacting Approach," Imiya Wickramasinghe*, Ganapathy Sivakumar, Jordan M. Berg, Tim Dallas, Dynamic Systems and Control Conference (DSCC'09)
21. "Investigation of energy loss mechanisms in surface-micromachined resonators," Yang Xu, Shiva Krishna Durgam, Sunder Sarangan, Tim Dallas, and Zhili Hao, *Proceedings of IMECE2009 - 2009 ASME International Mechanical Engineering Congress and Exposition*, November 13-19, 2009, Lake Buena Vista, Florida, USA
22. "A Low-Cost Custom HF RFID System for Hand Washing Compliance Monitoring," Suyash Jain, Shashank Mane, Jerry Lopez, Donald Y.C. Lie, Tim Dallas, Sharmila Dissanaike, Ronald E. Banister and John Griswold, ASICON 2009, Changsha, China, (2009).
23. "The 18mm^2 Classroom," T. Dallas, J. Berg, and R. Gale, *Solid State Sensors, Actuators, and Microsystems Workshop - Educational Digest*, eds. Leland Spangler, Thomas Kenny, & Martin Schmidt, Hilton Head, SC (2006).
24. Highly durable microfabricated sensors for humidity monitoring, P. Kuban, J. M. Berg, P. K. Dasgupta, and T. Dallas, "Proceedings of the 3rd International Conference on Earthquake

Engineering – New Frontier and Research Transformation," pp. 909-913 (2004).

25. O'Gallagher, J.J., Winston, R., and Dallas, T., Long term performance of a first generation commercial external reflector evacuated tube CPC, in *Solar 2004: A Solar Harvest, Growing Opportunities*: the Proceedings of the 2004 ASES Annual Conference, Portland, OR (2004).
26. "Towards Integrating Research and Education Using "Internal Internships," J. M. Berg, M. Holtz, S. Gangopadhyay, J. Wilhelm, Y.-L. Su, R. Bunuan, L. Gollahon, R. Gale, T. Dallas, and H. Temkin, Proceedings of the 2003 International Conference on Engineering Education, ICEE-2003, Valencia, Spain.
27. "Microfabricated Liquid Core Waveguides for Microanalysis Systems," R. Manor, A. Datta, A. Dhar, M. Holtz, J. Berg, S. Gangopadhyay, P. Dasgupta, H. Temkin, V. Veeraraghavan, R. Vijayaraghavan, and T. Dallas, Conference Proceedings of IEEE Sensors 2002, Orlando, FL USA, 6/14-16/2002, pp. 660 – 664.
28. "A three-course sequence in engineering of fluorescence-based micro total analytical systems," T. Dallas, M. Holtz, J. M. Berg, and S. Gangopadhyay, ICEE Conference, Manchester, U. K., August, 2002.
29. "Metallurgical analysis and computer simulation of a solid steel sphere under shock loading," J. N. J. Hashemi, D. James, N. Guven, T. Dallas, K. Kuhrts, B. Combs, M. Hale, and G. Willson, Shock Compression of Condensed Matter-1999, Pts 1 and 2 505, pp. 479-482 (2000).

AWARDS

1. 2013 1st Place (Education) – 2013 Sandia National Labs University Alliance Program MEMS Design Competition
2. 2012 1st Place (Novel) – 2012 Sandia National Labs University Alliance Program MEMS Design Competition
3. 2011 1st Place (Novel) – 2011 Sandia National Labs University Alliance Program MEMS Design Competition
4. 2010 1st Place (Novel) – 2010 Sandia National Labs University Alliance Program MEMS Design Competition
5. 2009 College of Engineering Whitacre Research Award – 2009 - (3 in College of Engineering/year)
6. 2009 1st Place (Reliability) – 2009 Sandia National Labs University Alliance Program MEMS Design Competition
7. 2008 Lockheed-Martin Teaching Award – (1 in College of Engineering/ year)
8. 2007 Spencer A. Wells Creative Excellence in Teaching – (1 in Texas Tech University/year)
9. 2007 President's Excellence in Teaching Award – (1 in College of Engineering/year)
10. 2006 TTU IEEE Professor of the Year Award
11. 2006 1st Place (Reliability) – 2006 Sandia National Labs University Alliance Program MEMS Design Competition
12. 2005 1st Place (Novel Design) – 2005 Sandia National Labs University Alliance Program MEMS Design Competition

STUDENTS

Doctoral Students Graduated

1. Dr. Ranjith Ranganathan (co-supervisor with R. Gale) – 2006
2. Dr. Ganapathy Sivakumar – 2010
3. Dr. Ashwin Vijayasai - 2012
4. Dr. Sahil Oak – 2012
5. Dr. Ashwin Vijayasai - 2013

Current PhD Student Supervision

Current MS Student Supervision

1. Ms. Akshaya Ramachandran
2. Mr. Bryan Kahler
3. Mr. Sanketh Kasupa
4. Mr. Aravind Raghu

Master's Students Graduated

1. Mr. Xin Tang, "Micromachining Processes for Microsensor Fabrication,"– 2001
2. Mr. Mohammed Rahman, "Hinge Sag in a DMD " – 2002
3. Mr. Vijay Veeraraghavan, "Glass-Glass Anodic Bonding using Hydrogenated a-Silicon" – 2002
4. Ms. Jennifer Grinsted, "Lumens and Contrast Ratio in Relation to the DMD" – 2003
5. Mr. Scott Williams, – "Study of the effects of prebake on headspace chemistry and Hinge of DMD"– 2003
6. Mr. Rajesh Vijayaraghavan, "Advanced Process Control & Fault Detection in Plasma Tools"–2003
7. Ms. Rosalynn Manor, "Fabrication & Testing of Microfabricated Liquid Core Waveguides" – 2003
8. Mr. Krishnakumar Venkitapathy, "Chip to Chip Optical Interconnect" – 2004
9. Mr. Bharath Vijayaraghavan, "In-line Cobalt Silicide Defectivity Analysis and Quantification of Oxygen Gettering Capabilities of Titanium Nitride" – 2004
10. Mr. Tao Yu, "Digital Micromirror Device Controller for Stiction and Friction Studies" – 2004
11. Mr. Daniel Acevedo, "An Intuitive Handheld Display" – 2009
12. Mr. Hao Gu, "Pseudo Analog Micromirrors," – 2009
13. Mr. Sandesh Rawool, "Microscale Bi-directional Electrothermal Ratcheting Mechanism"– 2009
14. Mr. Sahil Oak, "Testing and Characterization of 360° Rotating Out-of-Plane Micromirrors" – 2009
15. Mr. Sunder Sarangan – "Capacitive Sensor for MEMS Applications," -2009
16. Mr. Piyush Gupta – "Fall Detection Algorithm" - 2009
17. Ms. Sloane Springer – "The Effects of No Die Passivation on the VSP with 3G Lubricant" – 2010
18. Mr. Ashwin Vijayasai – "Haptic Controlled XYZ MEMS Gripper System" – 2010
19. Mr. Kiran Kolluru – 2010
20. Mr. Gautham Ramachandran - 2012

Undergraduate Projects Supervised

1. Ms. Rosalynn Manor, "Microfabrication of Microfluidic Devices" – 1999, 2000, 2001
2. Mr. Alex Villarreal, "Microfabricated Humidity Sensors" – 2000
3. Ms. Elizabeth McKinney, "Direct Patterning of PDMS" – 2002
4. Mr. Robert Anderson (Joint w/ME), "Microfabricated Micropumps" – 2001, 2002
5. Mr. Nicholas Johnson, "Optical Performance Simulation of DMDs" – 2003
6. Mr. Chiang Tan, "Microfabricated Laser Tweezers"– 2003
7. Mr. Nicholas Johnson, "DMD Friction Studies" – 2003, 2004; (2004 Goldwater, "James A. 'Jim' McAuley Distinguished Engineering Student Award winner, Gates-Cambridge Fellowship)
8. Mr. Naveen Yadav, "MEMS Environmental Control System"– 2004
9. Mr. Chris Mills, "SUMMiT V Gyroscope" - 2005
10. Ms. Stephanie Walters, "Parallel Actuator Array" – 2005
11. Mr. Aaron Mellinger, "Micromirror Actuator" – 2005
12. Mr. Matthew Harrison, "Bi-Directional TRA" – 2005
13. Mr. John Allison, "Bolometer Array with Integrated Optical Chopper" – 2005
14. Ms. Tasha Franklin, "Tiled DMD Projector Array" – 2005
15. Mr. Ryan Adair, "Wireless Stethoscope" – 2005
16. Mr. Phillip Beverly, "SUMMiT V Design"
17. Mr. Zach Jernigan, "Cantilever Sensors" – 2006
18. Ms. Stephanie Walters, "Cantilever Sensors" – 2006
19. Mr. Charles Morton, "Wireless Stethoscope" – 2006
20. Mr. Mahmood Subhani, "micro-AFM v2" - 2006
21. Mr. Alphonso Portillo & Mr. Jesus Uribes - "Wireless Blood Pressure Cuff" – 2006
22. Mr. Alphonso Portillo and Mr. Daniel Buscarello - "Wireless Blood Pressure Cuff" – 2007
23. Ms. Tina Shaw - "Wireless Blood Pressure Cuff System" – 2007
24. Mr. Wes Ruff & Ike Okonkwo – "Hack the Nike-iPod" - 2007
25. Mr. Steven Harvey – "Wireless Strain Gauge for Embedding in Cement" – 2007
26. Mr. Immanuel Purushothaman – "MEMS Brain Probe" – 2007
27. Mr. Andrew Samborski –"Resonant Mass Sensor/ MicroMarx Generator" – 2007
28. Ms. Lindsay Sokol – "Nanocoatings for Medical Devices and MEMS" – 2007
29. Mr. Gary Stinnett – "microAFM + Nanotubes" – 2007

30. Mr. Kevin McBride – “Detachable Microcantilevers for Sensor Arrays” - 2007
31. Mr. Chris Melhauser – “MEMS Educational Chip” – 2007
32. Mr. Daniel Bullock – “DMD Holography” - 2007
33. Mr. Tucker Brown & Mr. James Honekamp – “Hack the Wiimote” – 2007
34. Ms. Sydney Laquey – “MEMS Website” – 2007
35. Ms. Brandi Ellis – “Medical Anti-Shock Trousers” – 2007
36. Ms. Tina Shaw – “Wireless Blood Pressure Cuff System” – 2007-2008
37. Mr. AJ Dean & Mr. Thomas Maples – “Wii-mote Based Fall Detection System” -2008
38. Mr. Nick Ward and Mr. Joe Carter – “RFID Hand-Washing Compliance System” – 2008
39. Mr. Arthur Graves – “Video Patient Chart” - 2008
40. Mr. Aaron Mellinger – “Electronic Controller for MEMS” – 2008
41. Mr. Shelby Lacouture – “Haptic – MEMS Interface” – 2008
42. Ms. Megan Cole – “MEMS Education Chip” – 2008
43. Mr. James Matthews – “Long-travel MEMS Stages” - 2008
44. Mr. Sterling Beeson – “Chevron TRA” – 2008
45. Mr. Gabriel Ramirez – “Wireless Accelerometer-based Activity Monitoring System”–2008
46. Mr. Matthew Mulsow – “Integrating a Haptic Controller through the Internet” – 2008
47. Mr. Matthew Hershey – “High Level Abstraction MEMS Design System” – 2008
48. Ms. Carissa Carrington – “MEMS Exhibit for Science Spectrum” – 2009
49. Ms. Danielle Felty – “Wireless Medical Devices” – 2009
50. Mr. Jesse Ault – “Control of Micromirrors past Snap-Through” - 2009
51. Mr. Jesus Nava – “Assembly of a Characterization System and Device Testing” – 2009
52. Mr. Alex Holness – “Haptic Controlled Microsystems” – 2009
53. Mr. Stephen Johns – “Lifetime Testing of MEMS Electrothermal Actuators” – 2009
54. Mr. Samuel Hsaio – “Design and Development of a power supply for MEMS” – 2010
55. Mr. Jeremy Patterson – “Testing and Characterization of MEMS Actuators” – 2010
56. Mr. John Mastracchi – “MEMS Mote with Wireless Charging” – 2011-2012
57. Mr. Ryan Geries and Mr. Casey Smith – “iRobor + Kinect Robot” – 2012
58. Mr. Bryan Kahler – “MUMPs Chip Design” – 2014
59. Horace Robison – “Pitching Speed Sensor System” - 2015
60. Felix Langer – “Weight Lifting Sensor System” - 2015
61. Gregory Gullion – “Mobile Pollution Sensor System” - 2015
62. Jarred Ferguson – “Mobile Pollution Sensor System” - 2015
63. Blayne Parrish – “Mobile Pollution Sensor System” - 2015
64. Sunil Kurji – “Digital Classroom in a Box” - 2015
65. Dustin Best – “Digital Classroom in a Box” - 2015
66. Duy Nguyen – “Digital Classroom in a Box” - 2015
67. Alexander D’Abreu – “Football Performance and Safety Sensor System” - 2015
68. Meghan O’Halloran – “Football Performance and Safety Sensor System” - 2015
69. Brennan Branch – “Football Performance and Safety Sensor System” - 2015
70. Jacob Manning – “Inertial Sensor Controlled Quadcopter” - 2015
71. Andrew Jones – “Inertial Sensor Controlled Quadcopter” - 2015
72. Doug Nichols – “Inertial Sensor Controlled Quadcopter” – 2015
73. Hugo Chavarria – “Football Performance and Safety Sensor System v.2” - 2015
74. Vincent Dominic – “Traffic Congestion Reduction System – 2015
75. Hayden Miller – “Traffic Congestion Reduction System - 2015
76. Doug Bernhoft – “Garrison v2.0”
77. Bryan Timmerman – “Garrison v2.0”
78. Josh Chapa – “Garrison v2.0”
79. Jeremy Bessire – “Mobile Pollution Sensor System v.2.0” – 2015
80. Jessica Hart – “Custom Kiosk” – 2015
81. Nick Pawelka – “Cardiovascular Autonomic Neuropathy Device” – 2015
82. Kyle Rump - Nick Pawelka – “Cardiovascular Autonomic Neuropathy Device” - 2015
83. Anil Sangroula - “Bluetooth LED Display Controller: - 2015
84. Miranda Manning – “Pollution Monitoring App” – 2015

85. Devan Kelley – “Pollution Monitoring App” - 2015
86. Doug Cooper – “Pollution Monitoring System” - 2015
87. Duy Nguyen – “Sports Activity Tracker” – 2015
88. Bryan Sam – “Sports Activity Tracker” - 2015
89. William Riegler – “Sports Activity Tracker” - 2015

Conference Organization

Conference Chair, TEXMEMS IX, September 17th, 2007, Texas Tech University.
Co-Chair, MEMS – State of Texas’ State Strategy on Advanced Technology - 2005
Conference Chair, TEXMEMS IV, July 2002, Texas Tech University.

Invited Workshops and Conferences

Science Coalition 2001 Meeting, Washington, D.C. – Representative from TTU.
National Science Foundation Workshop on Control and System Integration of Micro- and Nano-Scale Systems 3/29-30/2004.

Committees

President’s Excellence in Commercialization Award: Committee Member 3/2015 - present
Texas Tech Kinetic Accelerator Faculty Advisory Committee: Committee Member 10/2014 - present
Office of Research Commercialization Advisory Committee: Committee Member 4/2015 - present
Faculty Senator, Whitacre College of Engineering 2013 – present
TTU University Ethics Advisory Committee 9/2014 - present
Panel for Tenure Hearing 9/2014 - present
Program for Semiconductor Product Engineering 6/1999 – present
Undergraduate Committee 8/1999 – 8/2000, 2007 - present
Electronics Committee 8/1999 – 8/2002
Engineering Physics Advisor 11/2000 – present
Graduate Studies Committee 1/2001 – present
TTU Radiation/Laser Safety Committee 6/2001 – present
ECE Strategic Plan Committee 2001
TTU Core Curriculum Committee 2008 – 2010
ECE Faculty Search Chair 2008-2009

Journal/Proposal Reviewer

- Associate Editor, IEEE Transactions on Education
- National Science Foundation (ECCS, REU, NUE, CCLI, CAREER, SBIR)
- Scanning
- Sensors and Actuators
- IEEE Sensors
- IEEE Electron Devices Society
- IEEE Transactions on Education
- iNEER (Innovations in Engineering Education and Research)
- U.S. Civilian Research and Development Foundation
- ASME International Mechanical Engineering Congress (IMECE)

TTU and Community Service

President, TTU Christian Faculty and Staff Association
Sunday School Teacher, First Baptist Church – 9:30 University Student Ministry
Board Member, Parkridge
Faculty Advisor, Foundation Retreat (Student Organization)
Faculty Advisor, Baptist Student Ministries (Student Organization)
Faculty Advisor, Christian Graduate Student Fellowship (Student Organization)
Faculty Advisor, Young Conservatives of Texas
Youth Baseball Coach