Brock J. LaMeres

Director, Montana Engineering Education Research Center
Associate Professor, Department of Electrical and Computer Engineering
Montana State University, Bozeman, MT 59717
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Research Interests: computer engineering, embedded systems, reconfigurable computing, aerospace systems, radiation tolerant computing, and high speed digital system design.

Education Interests: student motivation, e-learning systems, introductory-level engineering and programming instruction, embedded systems, and robotics

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I. Education

Ph.D.	Electrical Engineering University of Colorado, Boulder, CO. December 2005. Thesis Topic: *Novel Design Techniques to Reduce SSN in VLSI Packaging* Thesis Advisor: Sunil. P. Khatri
M.S.	Electrical Engineering University of Colorado, Colorado Springs, CO. May 2001. Thesis Topic: *Characterization of a Printed Circuit Board Via* Thesis Advisor: T.S. Kalkur
B.S.	Electrical Engineering *(w/ highest honors)* Montana State University, Bozeman, MT. December 1999. Thesis: *Fuzzy Logic Voltage Controller for a Synchronous Generators* Thesis Advisor: M.H. Nehrir

II. Professional Appointments / Employment

10/16-pres	Director, Montana Engineering Education Research Center (MEERC) College of Engineering Montana State University, Bozeman, MT.
7/12-pres	Associate Professor (with tenure) Department of Electrical and Computer Engineering Montana State University, Bozeman, MT.
7/06-7/12	Assistant Professor Department of Electrical and Computer Engineering Montana State University, Bozeman, MT.
8/01-12/03	Adjunct Instructor (part time) Department of Electrical and Computer Engineering University of Colorado, Colorado Springs, CO.
1/99-7/06	Hardware Design Engineer Digital Validation Division Agilent Technologies, Inc. Colorado Springs, CO.

III. Awards & Honors

- 2017 Outstanding Instructor in Electrical and Computer Engineering, Montana State University, Bozeman (student selected).
- 2017 Featured Convocation Speaker, Montana State University (Provost selected), "Transforming Engineering Education".
- 2016 Outstanding Instructor in Electrical and Computer Engineering, Montana State University, Bozeman (student selected).
- 2015 MSU James and Mary Ross Provost's Award for Excellence (peer selected).
- 2015 Outstanding Instructor in Electrical and Computer Engineering, Montana State University, Bozeman (student selected).
- 2015 MSU Alumni Association & Bozeman Area Chamber of Commerce Award for Excellence. (student selected, Monica Whitaker).
- 2014 MSU Excellence in Online Teaching Award (peer selected).
- 2014 MSU College of Engineering Lloyd Berg Faculty Mentorship Award (peer selected).
- 2014 Outstanding Instructor in Electrical and Computer Engineering, Montana State University, Bozeman (student selected).
- 2013 American Society of Engineering Education (ASEE), Pacific Northwest Section Outstanding Instructor Award.
- 2013 MSU Teaching Innovation Award (peer selected).
- 2013 Outstanding Instructor in Electrical and Computer Engineering, Montana State University, Bozeman. (student selected).
- 2011 MSU President's Excellence in Teaching Award (peer selected).
- Best Paper Award, "The Montana MULE – A Case Study in Interdisciplinary Design", American Society of Engineering Education Annual Conference, Multidisciplinary Engineering Division, Vancouver, B.C., June 2011.
- 2010 MSU College of Engineering Excellence in Teaching Award (peer selected)
- Elevated to IEEE Senior Member, June 2009
- 2008 MSU Alumni Association & Bozeman Area Chamber of Commerce Award for Excellence. (student selected, Patrick Kujawa).
- 2007 Outstanding Instructor in Electrical and Computer Engineering, Montana State University, Bozeman. (student selected).
- Best Paper Award, "Broadband Impedance Matching for Inductive Interconnect in VLSI Packaging", IEEE International Conference on Computer Design (ICCD). Circuit Consideration in Processor Design track, 2005.
- Best Paper Award, "Performance Modeling for Off-Chip Busses Considering Bandwidth and Cost", DesignCon-05. PCB & Package Co-Design Track, Feb 2005.
- Outstanding Graduate Student in Electrical and Computer Engineering, University of Colorado, Colorado Springs, 2001.

IV. Funded Research Projects

- Total Research Funding = $4.5M, 32 projects. (as PI = $2.45M, 23 projects).
- Focus Area: Computer Engineering = $2.4M, Education Research = $2.1M.
- Rank Breakdown: Assistant Professor = $2.1M (1→13), Associate Professor = $2.4M (14→32).

32. National Science Foundation, (Award ID: 1735124), **$481,482** (co-PI, PI is Shannon Willoughby, Department of Physics), *Designing a Middle Grades Spatial Skills Curriculum*, 1/1/18 - 12/31/20,

31. MSU College of Engineering - Thorson Excellence in Engineering Research (TEER) Grants Program, **$25,000, (PI)**, *Building Education Research Capacity within the MSU College of Engineering*, 7/17 - 6/18.

30. NASA - International Space Station Flight Opportunities (CAN: tbd), **$100,000, (PI)**, *Satellite Demonstration of a Radiation Tolerant Computer System Deployed from the International Space Station*, 7/17-7/18.

29. National Science Foundation, (Award ID: 1720801), **$449,965** (co-PI, PI is Nick Lux, Department of Education), *Designing a Middle Grades Spatial Skills Curriculum*, 7/1/17 - 6/30/20.

28. NASA - 2017 CubeSat Launch Initiative (CSLI), **launch contract (PI)**, *Satellite Demonstration of a Radiation Tolerant Computer System: RadSat-u*, 2/17-2/20. Ranked #2 of 34 selected.

27. NASA - Undergraduate Student Instrument Payload - USIP (CAN: NNX16AI75A), **$200,000 (PI)**, *Student Built CubeSat to Demonstrate a Radiation Tolerant Computer Technology*, 5/16-5/18.

26. National Science Foundation, (Award ID: 1544147), **$150,000 (PI)**, *Engineering a Culture of Engagement*, 1/16-12/17.

25. NASA - 2015 CubeSat Launch Initiative (CSLI), **launch contract (PI)**, *Satellite Demonstration of a Radiation Tolerant Computer System: RadSat-g*, 2/15-2/18. Ranked #2 of 14 selected.

24. Montana Space Grant Consortium (MSGC) - Educational Enhancement, **$49,990** (co-PI, PI is Nick Lux, Department of Education), *Side-by-Side Learning: Using Minecraft and Gamification to Support Student Learning and Teacher Professional Development*, 1/15-12/15.

23. MSU Technology Transfer Office CATalyst Awards, **$10,000 (PI)**, *3+1 LEON4 Radiation Tolerant Computer System*, 12/29/14.

22. Montana Office of Commissioner of Higher Education, **$100,165** (co-PI, PI is Nick Lux, Department of Education), *Scaling up the Bozeman Side by Side Learning Model*, 12/14-12/15.

21. National Science Foundation, (Award ID: 1432373), **$298,102 (PI)**, *Deploying Adaptive Learning Environments to Overcome Background Deficiencies and Facilitate Mastery of Computer Engineering Content*, 1/15-12/17.

20. NASA - International Space Station Flight Opportunities (CAN: NNX14AL03A), **$100,000 (PI)**, *Space Flight Demonstration of a Radiation Tolerant, FPGA-based Computer System on the International Space Station*, 6/14-12/17.

19. Montana University System Office of the Commissioner of Higher Education, **$63,179** (co-PI, PI is Nick Lux, Department of Education), *Hyalite Partnership Evaluation and Summer STEM Camp*, 1/14-11/14.

18. NASA - Small Sat Technology Partnership (CAN: NNX13AR03A), **$183,478 (PI)**, *Radiation Tolerant, FPGA-based SmallSat Computer System*, 9/13-9/15.

17. Montana Tech - Montana High Performance Computing (HPC) Research Seed Grant, **$5,000 (PI)**, *Using the Montana High Performance Computing Infrastructure for Benchmarking of Space Imaging Algorithm*, 6/13 - 12/13.

16. Montana State University - Instructional Innovation Grant, **$10,000 (PI)**, *Applying Adaptive Learning to a Digital Circuits Laboratory*, 1/13 - 12/13.

15. Montana Space Grant Consortium (MSGC) - Educational Enhancement, **$49,298 (PI)**, *Vertically Integrating a Robotics Thread Through the Undergraduate ECE Curriculum at MSU-Bozeman*, 1/13-12/14.

14. NASA - Game Changing Opportunities (CAN: NNX12AM50G), **$98,706 (PI)**, *Suborbital Flight Demonstration of an FPGA-based, Radiation Tolerant, Reconfigurable Computer System with Real Time Fault Detection, Avoidance and Repair*, 1/13-12/14.

13. Corporate Sponsorship Campaign through the MSU Foundation, **$11,800 (PI)**, *The 2012 NASA Lunabotics Competition Team*, 8/11 – 5/12.
12. Advanced Acoustic Concepts, **$174,996** (co-PI, PI is Richard Wolff, ECE Department), *Ocean Modeling Algorithm Evaluation*, 11/11 - 10/12.
11. NASA ESMD Innovative Project CAN (CAN: NNX10AN91A), **$163,350 (PI)**, *Engaging Women in Engineering Through an 8-Week, Interdisciplinary Payload Design* to *Test a Radiation Tolerant Computer Technology*, 9/10-8/13.
10. NASA EPSCoR (CAN: NNX10AN32A), **$750,000 (PI)**, *Development and Testing of a Radiation Tolerant Flight Computer with Real-Time Fault Detection, Recovery, and Repair*, 9/10-8/13.
9. National Science Foundation, (Award ID: 0958317), **$401,086** (co-PI, PI is Richard Wolff, ECE Department), *MRI-R2: Instrumentation for Development and Testing of Digital Beam forming Antennas*, 7/10-7/13.
8. NASA Advanced Avionics and Processors Systems (APPS) Project, **$40,000 (PI)**, *Radiation- Aware Space Computing*, 2/10-12/11.
7. Montana Space Grant Consortium: Educational Enhancement, **$29,991 (PI)**, *An Interdisciplinary Capstone Experience: Designing a Robotic Lunar Regolith Excavator*, 1/10-12/10.
6. NASA / National Space Grant Foundation, **$13,000 (PI)**, *Senior Capstone Projects (3x) - Design of a Robotic Lunar Regolith Excavator*, 9/09-5/11.
5. National Science Foundation, (Award ID: 0836961), **$148,732 (PI)**, *Improved Learning of Microprocessors Through Measurement and Hands on Experience*, 6/09-10/11.
4. NASA / National Space Grant Foundation, **$28,320** (co-PI, PI is Lisa Brown, Extended University), *Using Robotics in an Inquiry Based Course to Learn Unmanned Exploration of the Moon*, 1/09-12/09.
3. NASA ESMD Higher Education Project / MSGC, **$10,000 (PI)**, *Senior Capstone Projects (3x) - Radiation Tolerant Reconfigurable Computing*, 9/08-12/09.
2. Montana Space Grant Consortium (MSGC): Research Initiation, **$39,458 (PI)**, *Radiation Hardened Computer Processors*, 1/08-8/09.
1. Advanced Acoustic Concepts Inc., **$277,289** (co-PI, PI is Richard Wolff, ECE Department), *Wireless Telemetry using Digital Beam Forming of Adaptive Antenna Arrays*, 10/07-9/09.

V. Teaching Experience

7/06-pres **Montana State University**, *Assistant/Associate Professor*
Department of Electrical and Computer Engineering, Bozeman, MT.

EELE 101 – Introduction to Electrical Fundamentals	(2x)
EELE 207 – Circuits II	(1x)
EELE 261 – Introduction to Logic Circuits	(15x)
EELE 367 – Logic Design	(8x)
EELE 371 – Microprocessor Hardware and Software	(6x)
EELE 414 – Introduction to VLSI Design	(5x)
EELE 461 – Digital System Design *	(3x)
EELE 561 – Advanced Digital System Design *	(2x)
PHYS 591 –Introduction to Lunar Robotics *	(4x)
EELE 591 - Logic Circuits for Teachers*	(1x)
REU Short Course - Introduction to Matlab *	(1x)

* New course that I developed or co-developed

8/01-12/03 **University of Colorado**, *Adjunct Instructor* (part-time)
Department of Electrical and Computer Engineering, Colorado Springs, CO.

ECE3420 –Microprocessor Systems Laboratory I (1x)
ECE3430 –Intro to Microprocessor Systems (2x)
ECE3440 –Microprocessor Systems Laboratory II (2x)

VI. Publications & Presentations

- Student authors are underlined.
*- * indicates the presenting author when delivered in technical session format.*
- + indicates the presenting author when delivered in poster session format.

A. Books

3. **Brock J. LaMeres**, *Introduction to Logic Circuits and Logic Design with Verilog*, Springer International Publications, 1st Edition, 2017, ISBN 978-3-319-53882-2.
2. **Brock J. LaMeres**, *Introduction to Logic Circuits and Logic Design with VHDL*, Springer International Publications, 1st Edition, 2016, ISBN 978-3-319-34194-1.
1. Chunjie Duan, **Brock LaMeres**, & Sunil Khatri , *On and Off Chip Cross-Talk Avoidance in VLSI Designs*, Springer Publications, 2010, ISBN 978-1-4419-0946-6.

B. Peer-Reviewed Journal Articles

- The following underwent a full peer-review of the entire manuscript prior to being published in a journal.

- Papers 1 → 7 are as a student and/or practicing engineer.
- Paper 8 is as an Assistant Professor at MSU.
- Papers 9 → 15 are as an Associate Professor at MSU.

15. Justin A. Hogan, Raymond J. Weber, and **Brock J. LaMeres**, "Reliability Analysis of Field-Programmable Gate-Array-Based Space Computer Architectures", *Journal of Aerospace Information Systems*, vol. 14, no. 4, pp. 247-258, Apr. 2017,
14. Raymond J. Weber, **Brock J. LaMeres**, and Justin A. Hogan, "Real-Time, Dynamic Hardware Accelerators for BLAS Computation", *International Journal on Recent and Innovation Trends in Computing and Communication (IJRITCC)*, vol. 5, issue 1, Jan. 2017.
13. Todd J Kaiser, **Brock J. LaMeres**, Todd Buerkle, Justin A. Hogan, and Raymond J. Weber, "Experimental Conformation of Ionizing Sensing for Space Radiation Environmental Awareness", *IEEE Sensors Journal*, vol.16, no.10, pp.3482-3483, May 2016.
12. Adrien Lambert, Ahsan Mian, Justin Hogan, Todd Kaiser and **Brock J. LaMeres**, "Finite Element Analysis of System-Level Electronic Packages for Space Applications", *Journal of Computational Engineering*, vol. 2015, no. 428073, Mar. 25, 2015.
11. **Brock J. LaMeres** and Carolyn Plumb, "Comparing Online to Face-to-Face Delivery of Undergraduate Digital Systems Content", *IEEE Transactions on Education*, vol. 57, no. 2, pp. 99-106, May 2014.
10. Jennifer Hane, **Brock J. LaMeres**, Todd Kaiser, Raymond Weber and Todd Buerkle, "Increasing the Radiation Tolerance of FPGA-Based Computers Through Redundancy and Environmental Awareness", *Journal of Aerospace Information Systems*, vol. 11, no. 2, pp. 61-75, Feb. 2014.
9. T. Buerkle, **B. J. LaMeres**, T. Kaiser, E. Gowens, L. Smoot, T. Heetderks, K. Schipf, L. Clem, S. Schielke, R. Luhr, "Ionizing Radiation Detector for Environmental Awareness in FPGA-Based Flight Computers", *IEEE Sensors Journal*, vol. 12, no. 6, pp. 2229-2236, June 2012.

8. **Brock LaMeres**, Christopher McIntosh, and Monther Abusultan, "Novel 3-D Coaxial Interconnect System for use in SiP Applications", *IEEE Transactions on Advanced Packaging*, vol. 33, no 1, pp. 37-47, Feb. 2010.
7. **Brock LaMeres**, "FPGA I/O - When to go Serial", *IEE Electronic Systems and Software*, vol. 2, no. 3, pp. 14-18, June 2004.
6. **B.J. LaMeres** and T.S. Kalkur, "Effect of Ground Vias on Changing Signal Layers in a Multi-Layered PCB", *Microwave and Optical Technology Letters*, vol. 28, no. 4, pp. 257-260, Feb. 20, 2001.
5. **Brock J. LaMeres** and T.S. Kalkur, "Time Domain Analysis of a Printed Circuit Board Via", *Microwave Journal*, vol. 43, no. 11, pp. 76-84, November 2000.
4. M.H. Nehrir, and **B.J. LaMeres**, "A multiple-block fuzzy logic-based electric water heater demand-side management strategy for leveling distribution feeder demand profile", *Journal of Electric Power Systems Research*, vol. 56, pp. 225-230, Mar. 2000.
3. M.H. Nehrir, **B.J. LaMeres**, G. Venkataramanan, V.Gerez, and L.A. Alvarado, "An Approach to Evaluate the General Performance of Stand-Alone Wind/Photovoltaic Generating Systems", *IEEE Transactions on Energy Conversion*, vol 15, no. 4, pp. 433-439, Dec. 2000.
2. **Brock J. LaMeres**, M.H. Nehrir, "Fuzzy Logic Based Voltage Controller for a Synchronous Generator", *IEEE Computer Applications in Power*, vol. 12, no. 2, pp. 46-49, April 1999.
1. **B.J. LaMeres**, M.H. Nehrir, and V. Gerez, "Controlling the Average Residential Electric Water Heater Power Demand Using Fuzzy Logic", *Journal of Electric Power Systems Research*, vol. 52, pp. 267-271, Feb. 1999.

C. Peer-Reviewed Conference Proceedings

- The following underwent a full peer-review of the entire manuscript prior to being published in a conference proceedings.

- Papers 1 → 12 are as a student and/or practicing engineer.
- Papers 13 → 24 are as an Assistant Professor at MSU.
- Papers 25 → 36 are as an Associate Professor at MSU.

36. **B. J. LaMeres***, C. Delaney, M. Johnson, C. Julien, K. Zack, B. Cunningham, T. Kaiser, L. Springer, D. Klumpar, "Next on the Pad: RadSat – A Radiation Tolerant Computer System", *Proceedings, 2017 SmallSat Conference*, Logan, UT, Aug. 6-9, 2017.
35. **Brock J. LaMeres**+ and Jessi Smith, "Engineering a Culture of Engagement by Improving Student Engagement ", *Proceedings, 2017 American Society for Engineering Education (ASEE) Annual Conference*, Columbus, OH, June 25-28, 2017.
34. **Brock J. LaMeres**+ and Carolyn Plumb, "Measuring the Impact of Adaptive Learning Modules in Digital Logic Courses", *Proceedings, 2017 American Society for Engineering Education (ASEE) Annual Conference*, Columbus, OH, June 25-28, 2017.
33. Connor R. Julien*, **Brock J. LaMeres**, and Raymond J. Weber, "An FPGA-based Radiation Tolerant SmallSat Computer System", *Proceedings, 2017 IEEE Aerospace Conference*, Big Sky, MT, Mar. 4-11, 2017.
32. **Brock J. LaMeres***, Carolyn Plumb and Jessi Smith, "A Personalized Learning System to Address Background Deficiencies and Highlight the Value of Digital Logic", *Proceedings, 2016 International Conference on Engineering Education & Research (iCEER)*, Sydney, Australia, Nov. 21-24, 2016.
31. Carolyn Plumb+ and **Brock J. LaMeres**, "Using an e-Learning Environment to Create a Baseline of Understanding of Digital Logic Knowledge", *Proceedings, 2016 American Society for Engineering Education (ASEE) Annual Conference*, New Orleans, LA, June 26-29, 2016.

30. Lux, N.*, Lux, C., Kalonde, G., **LaMeres, B**., Will-Dubyak, K., Downey, J., "Online Professional Development to Support Side-By-Side Learning and Lesson Study", *Proceedings, 2015 World Conference on E-Learning (E-LEARN)*, Kona, HI, Oct. 19-22, 2015.

29. Lux, N.*, Kalonde, G., **LaMeres, B.**, & Perchy, D., "Using Minecraft to Support STEM Learning", *Proceedings, 2015 World Conference on E-Learning (E-LEARN)*, Kona, HI, Oct. 19-22, 2015.

28. **B. J. LaMeres***, S. Harkness, M. Handley, P. Moholt, C. Julien, T. Kaiser, D. Klumpar, K. Mashburn, L. Springer, G. Crum (NASA Goddard Space Flight Center), "RadSat – Radiation Tolerant SmallSat Computer System", *Proceedings, 2015 SmallSat Conference*, Logan, UT, Aug. 9-13, 2015.

27. **Brock J. LaMeres*** and Carolyn Plumb, "Using Adaptive Learning Environments to Overcome Background Deficiencies and Facilitate Mastery of Computer Engineering Content", *Proceedings, 2015 American Society for Engineering Education (ASEE) Annual Conference*, Seattle, WA, June 14-17, 2015.

26. Justin A. Hogan, Raymond Weber, and **Brock J. LaMeres***, "A Network-on-Chip for Radiation Tolerant, Multi-core FPGA Systems", *Proceedings, 2014 IEEE Aerospace Conference*, Mar. 3-7, 2014, Big Sky, MT.

25. Raymond J. Weber, Justin A. Hogan, **Brock J. LaMeres**+, "Power Efficiency Benchmarking of a Partially Reconfigurable, Many-Tile System Implemented on a Xilinx Virtex-6 FPGA", *Proceedings, 2013 International Conference on Reconfigurable Computing and FPGAs (ReConFig)*, Cancun, Mexico, Dec. 9-11, 2013.

24. Carolyn Plumb* and **Brock J. LaMeres**, "Comparing Student Learning in a Required Electrical Engineering Undergraduate Course: Traditional Face-to-Face vs. Online", *Proceedings, 2011 International Conference on Engineering Education (ICEE)*, Belfast, Northern Ireland, UK, Aug. 21-26, 2011.

23. **Brock J. LaMeres***, Hunter Lloyd, Robb Larson, and Ahsan Mian, "The Montana MULE: A Case Study in Interdisciplinary Capstone Design", *Proceedings, 2011 American Society for Engineering Education (ASEE) Annual Conference*, Vancouver B.C, June 26-29, 2011. **Best Paper Award: Multidisciplinary Engineering Division**

22. **Brock J. LaMeres*** and Carolyn Plumb, "A Comparison of Hands-On versus Remote Laboratory Experience for Introductory Microprocessors Courses", *Proceedings, 2011 American Society for Engineering Education (ASEE) Annual Conference*, Vancouver B.C, June 26-29, 2011.

21. **Brock J. LaMeres**, Robert F. Hodson* (NASA Ames Research Center), Robert E. Ray (NASA Marshall Space Flight Center), Robert L. Akamine (NASA Langley Research Center), "Error Mitigation of Point-to-Point Communication for Fault-Tolerant Computing", *Proceedings, 2011 IEEE Aerospace Conference*, Mar. 5-12, 2011, Big Sky, MT.

20. **Brock J. LaMeres***, Raymond Weber, Monther Abusultan, Sam Harkness, and Yikun Huang, "Design and Test of FPGA-based Direction-of-Arrival Algorithms for Adaptive Array Antennas", *Proceedings, 2011 IEEE Aerospace Conference*, Mar. 5-12, 2011, Big Sky, MT.

19. **Brock J. LaMeres***, Todd J Kaiser, Eric Gowens, Todd Buerkle, Jeff Price, Kevin Helsley, Brian Peterson, and Robert Ray (NASA Marshall Space Flight Center), "Position Sensitive Radiation Detector Integrated with a Field Programmable Gate Array for Radiation Tolerant Computing", Proceedings, *2010 IEEE Sensors Conference*, Waikoloa, HI, Nov. 1-4, 2010.

18. **Brock J. LaMeres***, Carolyn Plumb, and Fred Cady, "Improved Student Learning of Microprocessor Systems Through Hands-On and Online Experience", *Proceedings, 2010 American Society for Engineering Education (ASEE) Annual Conference*, Louisville, KY, June 20-23, 2010.

17. Clinton Gauer, **Brock J. LaMeres***, and David Racek, "Spatial Avoidance of Hardware Faults using FPGA Partial Reconfiguration of Tile-based Soft Processors", *Proceedings, 2010 IEEE Aerospace Conference*, Big Sky, MT, Mar. 6-13, 2010.

16. Monther Abusultan, Sam Harkness, **Brock J. LaMeres***, and Yikun Huang, "FPGA Implementation of a Bartlett Direction of Arrival Algorithm for a 5.8GHz Circular Antenna Array", *Proceedings, 2010 IEEE Aerospace Conference*, Big Sky, MT, Mar. 6-13, 2010.

15. Christopher McIntosh, Samuel Harkness, and **Brock J. LaMeres***, "Electrical Characterization of a Novel Coaxial Die-to-Die Interconnect", *Proceedings, 2009 IEEE Aerospace Conference*, Big Sky, MT, Mar. 7-14, 2009.

14. **Brock J. LaMeres*** & Clinton Gauer, "Dynamic Reconfigurable Computing Architecture for Aerospace Applications", *Proceedings, 2009 IEEE Aerospace Conference*, Big Sky, MT, Mar. 7-14, 2009.

13. Samuel Harkness*, Jeffrey Meirhofer, and **Brock J. LaMeres**, "Controlled Impedance Interconnect Using Coplanar Wire Bond Structures", Proceedings, IEEE Electrical Performance of Electronic Packaging Conference (EPEP-08), San Jose, CA, Oct. 27, 2008.

12. **B.J. LaMeres** and S.P. Khatri*, "Bus Stuttering: An Encoding Technique to Reduce Inductive Noise in Off-Chip Data Transmission", *Proceedings, 2006 Design Automation and Test in Europe (DATE)*, Munich, Germany, Mar. 10, 2006.

11. **Brock LaMeres**, Kanupriya Gulati, and Sunil Khatri*, "Controlling Inductive X-talk and Power in Off-chip Buses using CODECs", *Proceedings, 2006 Asia and South Pacific Design Automation Conference (ASP-DAC)*, Yokohama, Japan, Jan. 24, 2006.

10. B**.J. LaMeres** and S.P. Khatri*, "Broadband Impedance Matching for Inductive Interconnect in VLSI Packaging", *Proceedings, 2005 IEEE International Conference on Computer Design (ICCD)*, San Jose, CA, Oct. 2, 2005. **Best Paper Award: Circuit Consideration in Process Design**

9. **B.J. LaMeres** and S.P. Khatri*, "Performance Model for Inter-chip Communication Considering Inductive Cross-talk and Cost", *Proceedings, 2005 IEEE International Symposium on Circuits and Systems (ISCAS)*, Kobe, Japan, May 23, 2005.

8. **B.J. LaMeres** and S.P. Khatri*, "Encoding-based Minimization of Inductive X-talk for Off-chip Data Tx", *Proceedings, 2005 Design Automation and Test in Europe (DATE)*, Munich, Germany, Mar. 13, 2005.

7. **B.J. LaMeres** and M.H. Nehrir*, "A Fuzzy Logic-Based Synchronous Generator Voltage Regulator Optimized with a Genetic Algorithm", *Proceedings, 2000 World Automation Congress (WAC)*, Maui, HI, June 11-16, 2000.

6. H. Salehfar, P.J. Noll, **B.J. LaMeres**, M.H. Nehrir*, V. Gerez, "Fuzzy logic-based direct load control of residential electric water heaters and ACs recognizing customer preferences in a deregulated environment", *Proceedings, IEEE Power Engineering Society Summer Meeting*, Edmonton, Alta, Canada, vol. 2, pp. 1055-1060, July 18-22, 1999.

5. M.H. Nehrir*, **B.J. LaMeres**, G. Venkataramanan, V. Gerez, L.A. Alvarado, "Performance Evaluation of Stand-Alone Wind/PV Generating Systems", *Proceedings, IEEE Power Engineering Society Summer Meeting*, Edmonton, Alta, Canada, vol. 1, pp. 555-559, July 18-22, 1999.

4. M.H. Nehrir, **B.J. LaMeres**, and V. Gerez, "A Customer-Interactive Electric Water Heater Demand-Side Management Strategy Using Fuzzy Logic", *Proceedings, 1999 IEEE Power Engineering Society Winter Meeting*, New York, NY Jan 31 - Feb 4, 1999.

3. **B.J. LaMeres**, M.H. Nehrir*, and V. Gerez, "Controlling the Average Residential Electric Water Heater Power Demand Using Fuzzy Logic", *Proceedings, 1998 North American Power Symposium*, Cleveland, OH, Oct 18-20, 1998.

2. M.H. Nehrir*, V. Gerez, and **B.J. LaMeres**, "Shifting Residential Electric Thermal Storage Loads: An Automated Fuzzy Logic-Based Control Strategy", *Proceedings, 1998 World Automation Congress*, (WAC), Anchorage, AK, May 10-14, 1998.

1. M.H. Nehrir, G. Venkataramanan, V. Gerez, and **B. LaMeres**, "Component Sizing for Stand-Alone Wind-Electric Generating Systems: Frequency and Time Span of Data Needed", *Proceedings, 17th Annual ASME Wind Energy Symposium*, Reno, NV, Jan 11-15, 1998.

D. Formal Conference Proceedings

- These are formal papers that were invited or accepted for presentation at a scholarly conference based on peer-review of the abstract or extended summary only.

- Papers 1 → 9 are as a student and/or practicing engineer.
- Papers 10 → 15 are as an Assistant Professor at MSU.
- Papers 16 → 19 are as an Associate Professor at MSU.

19. Jessi L. Smith, Maxwell Burns, Megan Bruun, **Brock J. LaMeres**, and Dustin B. Thoman, "(Stop) Thinking like an Engineer: The Role of Communal Values in Motivating Electrical Engineering Students", *Proceedings, Society for Personality and Social Psychology (SPSP) Annual Convention*, Atlanta, GA, Mar. 1-3, 2018. *(accepted for publication)*

18. **Brock J. LaMeres**, Jessi L. Smith, Maxwell Burns, and Dustin B. Thoman, "Do Students Value the Pro-Social Side of Electrical Engineering?", *Proceedings, Hawaiian International Conference on Education (HICE)*, Honolulu, HI, Jan. 4-7, 2018. *(accepted for publication)*

17. Nick Lux*, **Brock J. LaMeres**, Shannon Willoughby, Bryce Hughes, "Crafting Spatial Skills: The Use of a Minecraft-Based Intervention to Aid in the Development of Elementary Learners' Spatial Ability", *Proceedings, 2017 Annual Meeting for the Society for Information Technology and Teacher Education (SITE)*, Austin, TX, Mar. 5-9, 2017.

16. **Brock J. LaMeres*** and Carolyn Plumb, "Infusing Demographic-Specific Applications into a Digital Logic Adaptive Learning System", *Proceedings, Hawaiian International Conference on Education (HICE)*, Honolulu, HI, Jan. 3-6, 2016.

15. **Brock J. LaMeres***, Erwin Dunbar, Pat Kujawa, David Racek, Anthony Thomason, Colin Tilleman and Clint Gauer, "Design of a Radiation Tolerant Computing System Based on a Many-Core FPGA Architecture", *Proceedings, Military and Aerospace Programmable Logic Devices (MAPLD) Conference*, NASA Goddard Space Flight Center, Greenbelt, MD, Sept. 11-4, 2009.

14. **Brock J. LaMeres*** and Clinton Gauer, "A Power-Efficient Design Approach to Radiation Hardened Digital Circuitry using Dynamically Selectable Triple Modulo Redundancy", *Proceedings, Military and Aerospace Programmable Logic Devices (MAPLD) Conference*, Annapolis, MD, Sep. 15, 2008.

13. Christopher McIntosh* and **Brock J. LaMeres**, "Fabrication Process For High Speed Coaxial To Coplanar Off-Chip Interconnect", *Proceedings, 2008 Electronics Systems-Integration Technology Conference (ESTC)*, Greenwich, London, UK, Sep. 1-4, 2008.

12. Monther Abusultan* and **Brock J. LaMeres**, "Off-Chip Coaxial to Coplanar Transition Using a MEMS Trench", *Proceedings, 3D/SiP Advanced Packaging Symposium*, Durham, NC, Apr. 28, 2008.

11. **Brock J. LaMeres***, Brent Holcombe, and Emad Soubh, "Characterization Methodology for High Density Microwave Fixtures", *Proceedings, DesignCon 2008*, Santa Clara, CA, Feb. 4, 2008. **Best Paper Award Finalist: Test and Measurement Track**

10. **Brock J. LaMeres*** and Chris McIntosh, "Off-Chip Coaxial to Microstrip Transition Using MEMS Trench", *Proceedings, 13th NASA Symposium on VLSI Design*, Post Falls, ID, June 5, 2007.

9. **Brock LaMeres***, Kanupriya Gulati, Rajesh Garg, & Sunil Khatri, "Impedance Matching Techniques for VLSI Packaging", *Proceedings, DesignCon 2006*, Santa Clara, CA, Feb. 6, 2006.
8. **Brock LaMeres***, Brent Holcombe, & G. Marshall, "Connector-Less Logic Analyzer Probing - Mechanical and Electrical Advantages", *Proceedings, DesignCon East 2005*, Worcester, MA, Sep. 22, 2005.
7. **Brock J. LaMeres*** and Sunil P. Khatri, "Performance Model for Inter-Chip Busses Considering Bandwidth & Cost", *Proceedings, DesignCon East 2005*, Worcester, MA, Sep. 22, 2005.
6. **Brock J. LaMeres*** and Sunil P. Khatri, "Design of Low-Power Diff Repeater Using Low-Voltage & Charge Recycling", *Proceedings, DesignCon East 2005*, Worcester, MA, Sep. 22, 2005.
5. **Brock LaMeres***, Brent Holcombe, & George Marshall, "Connector-Less Logic Analyzer Probing - Mechanical and Electrical Advantages", *Proceedings, DesignCon 2005*, Santa Clara, CA, Feb. 2, 2005.
4. **Brock J. LaMeres*** and Sunil P. Khatri, "Performance Model for Inter-Chip Busses Considering BW and Cost", *Proceedings, DesignCon 2005*, Santa Clara, CA, Feb. 2, 2005. **Best Paper Award : Board Level Design Track**
3. **Brock J. LaMeres*** and Sunil P. Khatri, "Design of Low-Power Diff Repeater Using Low-Voltage & Charge Recycling", *Proceedings, DesignCon 2005*, Santa Clara, CA, Feb. 2, 2005.
2. **Brock LaMeres***, "High Speed Digital Systems Require Advanced Probing Techniques for Logic Analyzer Debug", *Proceedings, JEDEX San Jose Memory Conference*, Memory Futures Track, San Jose, CA, Mar. 24, 2003.
1. **Brock J. LaMeres***, "Logic Analyzer Probing Techniques for High-Speed Digital Systems", *Proceedings, DesignCon 2003*, High Performance Systems Track, Santa Clara, CA, Jan. 27, 2003.

E. Presentations and Invited Talks

- Presentations 1 → 3 are as a student and/or practicing engineer.
- Presentations 4 → 12 are as an Assistant Professor at MSU.
- Presentations 13 → 30 are as an Associate Professor at MSU.

30. **Brock J. LaMeres***, "Getting your kids interested in STEM", *Bozeman School District Parent University*, Bozeman, MT, Jan. 24, 2017.
29. **Brock J. LaMeres***, "Transforming Engineering Education", *MSU Convocation Keynote*, Bozeman, MT, Jan. 10, 2017.
28. **Brock J. LaMeres***, "A Portable Lab Kit for Teaching Introduction to Logic Circuits & Logic Design", *Hands-On Practitioners Workshop, NSF Virtual Workshop organized by the Center for Mobile Hands-On STEM*, July 7, 2016.
27. **Brock J. LaMeres***, "Reconfigurable Computing for Space Applications", *MSU First Year Research Seminar*, Bozeman, MT, Oct. 13, 2015.
26. **Brock J. LaMeres***, "Conducting Research in Space - A Journey Towards the International Space Station", *Museum of the Rockies Winter Lecture Series,* , Bozeman, MT, Jan. 15, 2015.
25. **Brock J. LaMeres***, "Effectiveness of Online Learning of STEM Content", *Department of Physics Research Colloquiums*, Bozeman, MT, Nov. 14, 2014.
24. **Brock J. LaMeres***, "Are There Limits to Online Learning?", *National Academy of Engineering (NAE) Frontiers of Engineering Education (FOEE) Symposium*, Irvine, CA, Oct. 27, 2014.

23. **Brock J. LaMeres***, "How Robotics will Impact Our Lives and How we can use them to Teach STEM", *Keynote Speaker, Montana Robotics Summit*, Bozeman, MT, Oct. 3, 2014.

22. **Brock J. LaMeres***, "Reconfigurable Computing and its Application in Space Systems", *MSU College of Engineering Research Seminar*, Bozeman, MT, Sep. 19, 2014.

21. **Brock J. LaMeres***, "Lunch with Leaders in Teaching", *Center for Faculty Excellence Workshop*, Montana State University, Bozeman, MT, Oct. 21, 2013.

20. Raymond J. Weber+, Justin A. Hogan, **Brock J. LaMeres** and Todd Kaiser, "Power efficiency in a partially reconfigurable multiprocessor system", *International Conference on Supercomputing*, Eugene, OR, June 10-14, 2013.

19. Justin A. Hogan+, Raymond J. Weber, **Brock J. LaMeres** and Todd Kaiser, "Network-on-Chip for a Partially Reconfigurable Many-Core FPGA System", *International Conference on Supercomputing*, Eugene, OR, June 10-14, 2013.

18. **Brock J. LaMeres***, "Increasing Female Participation in Engineering", *Guest Lecture, PSYX 335 – Psychology of Gender*, Montana State University, Bozeman, MT, May 23, 2013.

17. **Brock J. LaMeres***, Ray Weber, "FPGA-Based Radiation Tolerant Computing", *Invited Seminar, NASA Marshall Space Flight Center*, Huntsville, AL, Apr. 26, 2013.

16. **Brock J. LaMeres***, "Reconfigurable Space Computing", *IEEE Student Branch Meeting*, Bozeman, MT, Apr. 10, 2013.

15. **Brock J. LaMeres***, "FPGA-Based Radiation Tolerant Computing", *Embry-Riddle Aeronautical University, Research Colloquium*, Daytona Beach, FL, Nov. 12, 2012.

14. **Brock J. LaMeres***, "FPGA-Based Radiation Tolerant Computing", *University of Florida Research Colloquium*, Gainesville, FL, Nov. 9, 2012.

13. **Brock J. LaMeres***, "Radiation Effects on Electronics", *MSU Space Public Outreach Team (SPOT) seminar*, Bozeman, MT, Oct. 30, 2012.

12. **Brock J. LaMeres***, Jennifer Hane, and Todd Buerkle, "A Fault Tolerant Computing Platform for Aerospace Applications", *Invited Seminar, NASA Marshall Space Flight Center*, Huntsville, AL, Aug. 9, 2011.

11. **Brock J. LaMeres** and Hunter Lloyd*, "A Case Study in Team Teaching an Online Course", XLi 2011 Extended Learning Institute, Bozeman, MT , Mar. 7-8, 2011.

10. **Brock J. LaMeres***, "What's inside of a Computer?", *Guest Lecture, UH400 – Honors Seminar*, Montana State University, Bozeman, MT, Oct. 21, 2010.

9. **Brock J. LaMeres***, Jennifer Hane, "The Montana State Lunabotics Project", *IEEE Section Meeting*, Bozeman, MT, Oct. 20, 2010.

8. **Brock J. LaMeres**, Sam Harkness*, Devin Mikes, Jeff Bahr, "Resilient IO Capstone Demonstration", *Delivered remotely via Adobe Connect webcast (live Audio/Video) to NASA Marshall Space Flight Center*, Huntsville, AL, Feb. 3, 2010.

7. **Brock J. LaMeres***, Clint Gauer, "Radiation Tolerant Computing Capabilities", *Invited Seminar, NASA Marshall Space Flight Center*, Huntsville, AL, Jan. 7, 2010.

6. **Brock J. LaMeres***, "What's inside of a Computer?", *Guest Lecture, UH400 – Honors Seminar*, Montana State University, Bozeman, MT, Oct. 8, 2009.

5. Robert Ray+ (NASA-ESMD), **Brock LaMeres**, Todd Kaiser, Ross Snider, David Andrews (U of Alabama), "Radiation Tolerant Computing for the Europa Jupiter System Mission", *Europa Jupiter Systems Mission (EJSM) Instrument Workshop*, Session, Johns Hopkins Applied Physics Laboratory, Laurel, MD, July 15-17, 2009.

4. **Brock J. LaMeres***, "Radiation Tolerant Computing for Aerospace Applications", *MSU Research for Undergraduates Colloquium*, Bozeman, MT, July 20, 2009.

3. **Brock J. LaMeres**, "Compensation for Simultaneous Switching Noise in VLSI Packaging", *Guest Lecture, MCEN 5166 - Electronic Packaging Class*, University of Colorado, Boulder, CO, Sep. 15, 2005.

2. **Brock LaMeres***, John Calvin, & Sarah Boen, "Challenges in Debugging at 5GHz", *Intel's Developers Forum (IDF)*, San Francisco, CA, Aug. 23, 2005.

1. **Brock J. LaMeres***, "RF Effects in PCB Design", *IEEE Pikes Peak Technology Conference (TechCon)*, Colorado Springs, CO, Apr. 2001.

F. Trade Journals / Magazines

- Papers 1 → 13 are as a student and/or practicing engineer.
- Papers 14 → 15 are as an Associate Professor at MSU.

15. **Brock J. LaMeres**, "My First Job – The Learning Continues…", *IEEE Potentials Magazine*, Jan. 2015.

14. **Brock LaMeres** & Todd Kaiser, "Sensor for Spatial Detection of Single-Event Effects in Semiconductor-Based Electronics", *NASA Tech Briefs*, vol. 38, no.2, pp.43, Feb. 2014.

13. **B. LaMeres** & B. Holcombe, "Compression Probe Technology Makes Sense in Logic Analyzers", *Connector Specifier Magazine*, June 2006.

12. **Brock LaMeres**, "Connectorless Probing Enables HyperTransport Debug at 2.4Gb/s", *TechOnline (www.techonline.com)*, Oct. 2005.

11. **Brock LaMeres**, "When to Make the Move to Advanced Probing Technology in Logic Analysis", *RF Design Magazine*, July 2005.

10. **Brock LaMeres**, "How Much Bandwidth Does Your Logic Analyzer Need", *TechOnLine*, Nov. 2004.

9. **Brock LaMeres**, "FPGA I/O - When to go Serial", *FPGA and Programmable Logic Journal*, Aug. 2004.

8. **Brock LaMeres** & Brent Holcombe, "Connectorless Probes Simplify Digital Design", *Electronic Engineering Times Asia*, Aug. 2004.

7. **B. LaMeres** & K. Johnson, "Taking Logic-Analyzer Probing for Granted Can Spell Trouble", *Electronic Design Magazine*, Aug. 2004.

6. **Brock LaMeres**, "Physical Connections are Key in FPGA Debug", *COTS Journal*, June 2004.

5. **Brock LaMeres**, "Differential Logic Analyzer Probing", *AnalogZone Magazine*, June 2004.

4. **B. LaMeres** & K. Johnson, "Your Logic Analyzer Can Probe those Forgotten Signals", *EE Product Center*, May 2004.

3. **Brock LaMeres**, "Logic Analyzer Connectorless Probing Reduces Loading and Footprint Impact on DDR Memory Validation", *TechOnLine*, March 2004.

2. **Brock LaMeres**, "Choosing a Logic Analyzer Probe", *Electronic Products Magazine*, Nov. 2003.

1. **Brock J. LaMeres**, "FPGA Logic Analysis", *Printed Circuit Design Magazine*, pp 21-24, July 2002. + *Elektro Automation*, July 2002.

VII. Patents & Licenses

A. License Agreements

1. **Brock J. LaMeres** & Todd Kaiser, "Radiation Tolerant, FPGA-Based, Reconfiguration Computer Technology", *License agreement between MSU and Tyvak Inc.*, Oct. 2014.

B. U.S. Patents

13. **Brock J. LaMeres**, Brent Holcombe, & Kenneth Johnson, "Probe accessories, and methods for probing test points using same", *US Patent 7,492,173*, Feb. 17, 2009.
12. Brent Holcombe, **Brock J. LaMeres**, & Kenneth Johnson, "Method and apparatus for probing at arbitrary locations within an inaccessible array of leads the solder balls or pins actually connecting a VLSI IC package to a substrate or socket", *US Patent 7,372,284*, May 13, 2008.
11. Kenneth Johnson & **Brock J. LaMeres**, "Board-to-Board Electronic Interface Using Hemi-Ellipsoidal Surface Features", *US Patent 7,338,292*, Mar. 4, 2008.
10. **Brock J. LaMeres** & Brent A. Holcombe, "Probe having a frame to align spring pins perpendicularly to a printed circuit board, & method of making same", *US Patent 7,323,892*, Jan. 29, 2008.
9. Glenn Wood, Donald M. Logelin, **Brock J. LaMeres**, & Brent A. Holcombe, "Regenerator Probe", *US Patent 7,282,935*, Oct. 16, 2007.
8. **Brock J. LaMeres**, Brent A. Holcombe, & Kenneth Johnson, "Probe Retention Kit, and System and Method for Probing a Pattern of Points of a PCB", *US Patent 7,242,203*, July 10, 2007.
7. Joseph Groshong, **Brock J. LaMeres**, & Brent A. Holcombe, "Signal Probe and Probe Assembly", *US Patent 7,242,202*, July 10, 2007.
6. **Brock J. LaMeres**, Brent A. Holcombe, & Glenn Wood, "Incorporation of isolation resistor(s) into probes using probe tip spring pins", *US Patent 7,183,781*, Feb. 27, 2007.
5. **Brock J. LaMeres**, Brent A. Holcombe, & Kenneth Johnson, "Apparatus, method, and kit for probing a pattern of points on a printed circuit board", *US Patent 7,145,352*, Dec. 5, 2006.
4. Brent A. Holcombe, **Brock J. LaMeres**, & Donald M. Logelin, "Probe assembly with controlled impedance spring pin or resistor tip spring pin contacts", *US Patent 7,116,121*, Oct. 3, 2006.
3. **Brock J. LaMeres**, Brent A. Holcombe, & Kenneth Johnson, "Probes with perpendicularly disposed spring pins, and methods of making and using same", *US Patent 7,046,020*, May 16, 2006.
2. **Brock J. LaMeres** & Kenneth W. Johnson, "Electronic Probe Extender", *US Patent 7,025,628*, Apr. 11, 2006.
1. Brent A. Holcombe & **Brock J. LaMeres**, "Alignment/Retention Device for Connector-Less Probe", *US Patent 6,822,466*, Nov. 23, 2004.

VIII. Student Advising & Supervision

A. Graduate Student Advising (Committee Chair)

• Skylar Tamke [A]	MSEE	Radiation Tolerant Computing	2017-pres
• Ben Cunningham [A]	MSEE	Radiation Tolerant Computing	2016-pres
• Kevin Zack[A]	MSEE	Radiation Tolerant Computing	2016-pres
• Mathew Handley[C]	MSEE	Radiation Tolerant Computing	2015-2017
• Connor Julien[A]	MSEE	Radiation Tolerant Computing	2015-2017
• David Turner[A]	MSEE	Aerospace Embedded Systems	2013-2015

• Sam Harkness[A]	MSEE	Space Computing Architectures	2013-2015
• Adam Gunderson[C]	MSEE	Radiation Science	2012-2014
• Justin Hogan[A]	Ph.D, EE	Fault Tolerant Computing	2011-2014
• Raymond Weber[A]	Ph.D, EE	Reconfigurable Computing Apps.	2011-2014
• Jennifer Hane[A]	MSEE	Radiation Tolerant Computing	2010-2012
• Ningkonsin Rajkumar[B]	MSEE	Embedded Systems for Aerospace	2009-2010
• Clint Gauer[A]	MSEE	Radiation Hardened Computing	2008-2010
• Monther Abusultan[A]	MSEE	Digital Beam Forming HW	2008-2010
• Charles Ostrander[C]	MSEE	Synchronizing High Speed Pulses	2007-2009
• Srinitha Nimmakayala[B]	MSEE	Survey of Rad-Hard Electronics	2006-2009
• Christopher McIntosh[A]	MSEE	Fab of Novel MEMS Interconnect	2007-2008

[A] *Research thesis or dissertation*
[B] *Project paper*
[C] *Research conducted in Physics department*

B. Other Student Advising

- I have, or am currently serving as co-chair on graduate committees for 17 students pursuing MS/Ph.D. degrees in the ECE department.
- I serve as the academic advisor for ~30 undergraduates students each year in the ECE department.
- I have served as the advisor for 16 senior capstone projects, of which I have sponsored 9 projects financially through grant funds.
- I have served as research advisor for 17 students that received fellowships through the MSU Undergraduate Scholar Programs (USP).

C. Student Awards Under my Supervision

- Connor Julien, 2017 Don Pierre Graduate Student Paper Award – Best Conference Paper, "An FPGA-based Radiation Tolerant SmallSat Computer System", 2017 IEEE Aerospace Conference, Mar 5-12, 2014, Big Sky, MT.
- Connor Julien, 2016 Montana Space Grant Consortium, Research Symposium, Student Achievement Award, April 2016.
- Justin Hogan, 2014 Don Pierre Graduate Student Paper Award – Best Conference Paper, "A Network-on-Chip for Radiation Tolerant, Multi-core FPGA Systems ", 2014 IEEE Aerospace Conference, Mar 5-12, 2014, Big Sky, MT.
- M. Peterson, Tesha Taveria, Kathryn Manning, Genevieve Suwara, Kasandra Miller, & Allison Walsh, 2014 Montana Space Grant Consortium, Research Symposium, Best Undergraduate Student Poster, "Payload Design for High Altitude Radiation Measurement", April 2014.
- Justin Hogan & Ray Weber, 2013 Montana Space Grant Consortium, Research Symposium, Best Graduate Student Poster, "Radiation Tolerant Space Computing", April 2013.
- Todd Buerkle, 2012 Don Pierre Graduate Student Paper Award – Best Conference Paper, "Ionizing Radiation Detector for Environmental Awareness in FPGA-Based Flight Computers", IEEE Sensors Journal, vol.12, no.6, pp.2229-2236, June 2012.
- Raymond Weber, 2012 Don Pierre Graduate Student Paper Award – Best Conference Paper, "Design and Test of FPGA-based Direction-of-Arrival Algorithms for Adaptive Array Antennas", 2011 IEEE Aerospace Conference, Mar 5-12, 2011, Big Sky, MT.
- Jennifer Hane, Kevin Love, Daniel Benson, Lars Osborne, Logan Warberg, Alison Figueira, Bethany Higgins, Garth Grubb, Seth Berardinelli, 2012 NASA Lunabotics Competition, 2nd place in Community Outreach Category, Kennedy Space Center, FL, May 2012
- Jennifer Hane, Kevin Love, Daniel Benson, Lars Osborne, Logan Warberg, Alison Figueira, Bethany Higgins, Garth Grubb, Seth Berardinelli, 2012 NASA Lunabotics Competition, 1st place in Systems Engineering Paper Category ($750), Kennedy Space Center, FL, May 2012.

- Laurie Smoot, Tiffany Heetderks, Katie Schipf, Lizzy Clem, Steph Schielke, Rachael Luhr, 2012 Montana Space Grant Consortium Student Research Symposium, Best Group Presentation, 1st Place ($500), Design of a High-Altitude Balloon Payload, April 2012.
- Justin Krohn, Charlie Ferguson, Chad Willett, Donovan Ferrin, Terrell Thomason, Joe Stack, Steve Iobst, Kris Bengtson, 2011 Montana Space Grant Consortium Student Research Symposium, Best Group Presentation, 1st Place ($500), Design of a Robotic Lunar Regolith Excavator, April 2011.
- Ben Hogenson, Jenny Hane, Chris Ching, Steve Pemble, Craig Harne, John Ritter, and Paul Dallapiazza, 2010 NASA Lunabotics Competition Joe Kosmo Award for Excellence (given for overall points), 1st place (invitation to NASA Dessert RATS), Kennedy Space Center, FL, May 2010.
- Jenny Hane, Chris Ching, Steve Pemble, Craig Harne, John Ritter, and Paul Dallapiazza, 2010 NASA Lunabotics Competition, 1st place in Mining Category ($5,000), Kennedy Space Center, FL, Ben Hogenson, May 2010.
- Sam Harkness, Jeff Bahr, and Devin Mikes, 2010 IEEE NorthEast Area Student Paper Contest, 1st Place ($500), Design of a Resilient IO System with automatic fault detection and correction, April 2010.
- Colin Tilleman and Anthony Thomason, 2009 IEEE Region 6 NorthEast Area Student Paper Contest, 2nd Place ($250), Radiation Tolerant Computer System, April 2009.

IX. Consulting

9/10-3/11 Astek, Inc.
Probing system for MIPI DPHY Protocol Analyzer

9/08-8/09 Flat Earth, Inc.
Ultra-Wide-Band Snow Depth Sensor

9/08-3/09 Advanced Micro Devices (AMD), Inc.
Design of Microprocessor Probe for Protocol Analyzers

8/06-2/08 Agilent Technologies, Inc.
Design of DDR2/DDR3 Memory Probes for Logic Analyzers and Oscilloscopes

X. Service

A. University Service

• MSU Mixed Martial Arts (MMA) Club Faculty Advisor	2013-present
• MSU Brazilian Jujitsu Club Faculty Advisor	2013-present
• MSU ADVANCE TRACS Cultural Attunement Subcommittee, member	2013-2016
• MSU Teaching Excellence Action Committee (TEACh), member	2013-present
• MSU Online Education Taskforce, Quality Subcommittee Chair	2013
• MSU Online Advisory Committee, member	2011-2014
• IEEE Student Branch Faculty Advisor	2007-2016
• ECE Department, Undergraduate Curriculum Committee	2007-present
• ECE Department, Promotion & Tenure Committee	2007-2014
• College of Engineering, Faculty Development Committee	2007-present

B. Professional Committees & Staff

• Program Committee, IEEE Reconfigurable Computing Conference	2014-pres
• Editorial Staff, "Active & Passive Electrical Components Journal (APEC)"	2006-2009
• Technical Program Committee, DesignCon	04,07-10

C. Book & Manuscript Reviewer

• Elsvier Journal of Microprocessors and Microsystems	2017
• Journal of Computer Assisted Learning	2017

- ASEE Annual Conference 2016
- Wakerly, "Digital Design – Principles & Practice", Pearson 2015
- IEEE Reconfigurable Computing Conference 2014-16
- ACM Transactions on Reconfigurable Technology and Systems 2014
- Wiley Prodigy, "Basic Engineering Circuit Analysis, 10E", Wiley 2012
- Alexander, "Fundamentals of Electric Circuits, 5/e", McGraw-Hill 2012
- IEEE Wireless Communications Magazine 2011
- IEEE Communication Letters 2010
- Sandige, "Fundamentals of Computer Design with VHDL", McGraw-Hill 2010
- ASME International Mechanical Engineering Congress & Expo 2008
- International Conference on Circuits & Systems (ISCAS) 2008
- Huang, "Embedded Systems Design with C8051", Wiley & Sons 2007
- Dubey, "Programmable Logic for Motor Control", Springer 2006
- DesignCon 04,07-10

D. Proposal Reviewer

- National Science Foundation, *Engineering Education and Centers* 2017
- Army Corps of Engineers Engineer Research and Development Center 2016
- National Science Foundation, *Engineering Education Core Research* 2013
- Quebec Fund for Research on Nature & Technology, New Researcher Prog. 2010
- National Science Foundation, *Division of Undergraduate Edu.* 2010
- National Science Foundation, *Division of Undergraduate Edu.* 2010
- National Science Foundation, *Division of Undergraduate Edu.* 2009

E. Outreach / Misc

- Worked with a 2nd grade class to create the logo for a mission to the International Space Station. The class created the logo, which was then put onto stickers and sent to the ISS in April 2016. The stickers returned to Earth in December 2016, were put on plaques, and given to the students as a token of appreciation. News story at: http://www.montana.edu/news/16276/bozeman-second-graders-artwork-heads-to-international-space-station
- Conducted an outreach activity with 4th graders at Morning Star Elementary school where they built simple DC motors to gain experience with electromagnetism (March, 2015).
- Served as a mentor in a week-long robotics camp for 4th/5th graders at Hyalite Elementary School, Bozeman, MT, August 11-15, 2014.
- Presented a "Science of Sound" session to 82 second graders at Morning Star Elementary School, Bozeman, MT, February, 27, 2014.
- Judge, Poster Session, Montana Space Grant Consortium Student Research Symposium, Montana State University, April 12, 2013.
- Presented to 50+ high school students about engineering as a career at the Ennis High School Career Day, Ennis, MT, April 2013.
- Judge, Poster Session, Montana Space Grant Consortium Student Research Symposium, Montana State University, April 13, 2012.
- Participated in MSU's *Conversations with Professors*, an event where incoming students were able to ask questions directly to faculty about what to expect in college and how to be better prepared, August 25, 2012.
- Judge & Session Chair, Computing Track, Montana Space Grant Consortium Student Research Symposium, Montana State University, April 15, 2011.
- Developed Robotics Content for the 1080i studio in the EPS atrium highlighting the interdisciplinary design projects going on in the College of Engineering.
- Participated in a series of Robotics Outreach Activities during the week of 4/5-/10-4/9/10 to 4 classes of 4th graders from Morning Star Elementary School. The students were presented

the design process used to build the MSU Mule mining robot that competed in the 2010 NASA Lunabotics Competition at the Kennedy Space Center, FL in May 2010.

- Participated in an IEEE sponsored outreach project to mentor middle school students participating in the First Lego League Robotics Competition. I helped organize groups of students from the IEEE student branch to work with the teachers and students at Chief Joseph and Mount Forten Middles schools who are participating in the local robotics competition. (8/08-12/08).

XI. Professional Registration & Membership

- American Society for Engineering Education (ASEE), Member (2009-present).
- IEEE, Senior Member, (2009-present), Member, (1998-2009).
- Registered Professional Engineer, Montana, Reg # 13627, (11/8/06 – present).
- Registered Professional Engineer, Colorado, Reg # 37255, (12/30/02 - present).