MELINDA PIKET-MAY

Curriculum Vitae

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RESEARCH INTERESTS

Numerical modeling of electromagnetic phenomena: Finite-Difference Time-Domain

High Speed Digital Engineering*:* Signal integrity, Power integrity and EMI/EMC

Engineering Education*:* Interactive/collaborative education, first-year engineering

Community Engineering: Designing for the community, client based design education

EDUCATION

Northwestern University; Evanston, IL; Advisor Allen Taflove
Ph.D. in Electrical Engineering, Aug 1993.
"Computational Electromagnetics for High-Speed Digital Design"
M.S. in Electrical Engineering, June 1990.
"CEM for Hyperthermia Cancer Treatment & Study of the Retinal Rod of the Eye"

University of Illinois at Urbana-Champaign; Urbana, IL
B.S. in Electrical Engineering, Biomedical Engineering track, June 1988.

University of Lancaster; Lancaster, England
Electrical Engineering Exchange, Fall 1985.

EXPERIENCE

University of Colorado - Boulder; Boulder, CO
Associate Professor (6/2000 -) Assistant Professor (8/1993 – 5/2000)
Interim Associate Vice Chancellor of Research (8/2001 – 8/2002)
Associate Chair of Outreach and Engagement (8/2022 – ongoing)
Director of the High-Speed Digital Engineering Professional Master's Program (1/2023 - ongoing)

Cray Research, Inc.; Chippewa Falls, WI/Eagan, MN; Intern (Summer 1991-1992, Spring 1993)

Northwestern University; Evanston, IL; Research Assistant (September 1988-July 1993)

Waubonsee Community College; Sugar Grove, IL; Math Faculty (Aug 1990-Dec 1992)

Naval Research Laboratory; Washington D.C.; Engineering Consultant (July 1989, Sept. 1990)

National High School Institute; Northwestern University, IL; Engineering Faculty (July 1990)

Fermi National Accelerator Laboratory; Batavia, IL
Engineering Intern (Summer 1988)
Co-op Student (Aug 1984-Aug1987)

EXPERIENCE (cont.)

University of Illinois; Urbana, IL
ECEE Teaching Assistant (August 1987-May 1988)
Physics Lab Researcher (January 1885-May 1988)

AWARDS

External

2004 Creative work; ***Editor's Choice Award*** "Memories", International Library of Poetry

2001-2003 **Pew-Carnegie Teaching Scholar Award**; Selected as a Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) fellow for engineering education

2001 Future Engineering Education Leadership (**FEEL**) fellow **(invited)**

1999 ASEE Frontiers in Education **Helen Plant Award** for "Teaching Creativity" workshop

1999 **Best Paper of Session**, *International Materials and Packaging Society Conference*

1997-2001 National Science Foundation **CAREER Award**

1997 Sloan **New Faculty Fellow** for the ASEE Frontiers in Education Conference

1996 International Union of Radio Science **Young Scientist Award**

CU System

2019-2022 ***Timmerhaus Teaching Ambassadorship Award***, CU System Award, Outreach focus

2012 University of Colorado System Faculty Council ***Distinguished Service Award***

2002 ***Elizabeth E. Gee Memorial Lectureship Award*** (teaching service and research)

2001 **Emerging Leadership Fellow** (ELP)

Campus

2024 **Faculty Leadership Institute** (FLI)

2017 **Engage Faculty Fellow** for Community Based Learning

2011 UCB ***Faculty Recognition Award (Excellence in Service)*** for support of the CUB community

2009 UCB ***Women Who Make a Difference*** Award

1994 **Junior Faculty Development Award**; University of Colorado at Boulder

Department and College

2024 ***Max Peters Service Award***, College of Engineering and Applied Science

2018 ***ECEE Excellence in Service Award***

2017 Broadening Opportunity through Leadership and Diversity **(BOLD) fellow**

2000 College of Engineering **Peebles Teaching Award**

SELECT SERVICE, RECOGNITION & LEADERSHIP

External

2024-2026 **Chair** of Colorado Faculty Advisory Committee

2015-2017, 2022-2014, 2022-2024 **Vice-Chair** of Colorado Faculty Advisory Committee (CFAC)

2021-2025 **Faculty Advisor** to Colorado Commission on Higher Education

2018-2019 Elected to be **President of the PAC 12 Academic Leadership Coalition**; improve the effectiveness and responsiveness of shared governance organization; and facilitate academic and research cooperation beneficial to participating institutions.

2017 **National Certification:** Gallup Strength's Coach

2014-2017, 2021-2025, American Council on Education (ACE) Colorado and Wyoming Network of Women Leaders (CWNWL) **Executive Board Member** CWNWL

2012-2014, American Council on Education (ACE) Colorado and Wyoming Network of Women Leaders (CWNWL) **Academic Management Institute Director**

2011 2-Day Workshop *Leadership in Engineering Education*, ASEE (invited)

2011 National Certification: COLORS Coach

2010-2016 Organizing Committee for the Accessing Higher Ground (AHG) Accessible Media, Web and Technology Conference

2010-2012 Elected to Applied Computational Electromagnetic Society (ACES) **Admin Council**

2009-2010 Selected to participate in the Academic Management Institute (AMI). An academic leadership training program

2009 **National Academy of Science** team trip to San Pedro, Chile on an ambassador mission to the Atacama Large Millimeter/submillimeter Array (ALMA). It is the world's most advanced radio astronomy observatory at 5000 m altitude in the Chilean Andes

2007 Research in Engineering Education Workshop (REE) (invited) ASEE

2006 **Technical Program Chair,** "Frontiers in Education"; IEEE Education Society Representative

2005-2008, 2008-2011 Selected to be a member of the **National Academy of Science** (NAS) Physics Division Committee on Radio Frequencies (CORF)

2004-2006 Elected to **Treasurer** of National Society of Women Engineers (SWE)

2003 **General Chair** with James Avery of ASEE/IEEE **Frontiers in Education Conference**, "Engineering as a Human Endeavor; Partnering Academia, Government, Industry and Community", 600+ international attendees

2003 Judge for "Helen Plant Award" for Frontiers in Education Conference

2002 Participated in a national planning conference "Liberal Studies and the Integrated Engineering Education of ABET 2000" sponsored by **NSF** (35 faculty invited)

2002 Participated in a national discussion / colloquy on "Developing a teaching and learning center in engineering" sponsored by the **National Academy of Engineering** (30 faculty invited)

2002 Participated in a national Distance Education Colloquy "Learning Objectives for Engineering Education Laboratories; What Are They?" sponsored by **ABET & Alfred P. Sloan Foundation** (50 faculty nationwide chosen to participate)

2001-2006 **Associate Editor** for IEEE Microwave and Wireless Components Letters

2001-2002 **Treasurer** for ASEE - Women in Engineering (WIE) Division

2000-2001 Newsletter Editor of Perspectives in Electromagnetics for Applied Computational Electromagnetics Society (ACES) Journal (wrote a monthly column)

2000 Invited to display the *HandiSwing* assistive technology research project at Smithsonian History Museum as a part of the Lemelson-MIT March Madness Event

2000 Biography on National Academy of Engineering **"**Celebrating Women in Engineering"

2000 **Technical Program Committee** for National Radio Science Institute Conference

2001-2004 Elected to IEEE Education Division **Administrative Council**

2000 Membership to URSI Commission B; Numerical Methods

1999-2001 Elected to International Union of Radio Science **Administrative Council**

1999-2000 **Secretary** of International Union of Radio Science (URSI) Commission D

1999-2000 **Chair** of Denver Local IEEE MTT/APS/GRSS Society

1999 **Senior Membership** in the Institute of Electronics and Electrical Engineers

1999 Judge for the "Helen Dryer Best Paper Award" at Frontiers in Education Conference

1999 Chaired Session "A College Based Program for Enhancing Teaching and Learning" at Frontiers in Education Conference, Puerto Rico

1999 Chaired technical session for the International Conference on Electromagnetics in Advanced Applications, Torino, Italy

1998 On the Organizing Committee for *The Eighth Biennial IEEE Conference on Electromagnetic Field Computation*, Tucson, Arizona

1998 National Center for Innovation and Invention in Academia *Teaching Creativity Workshop*

1998 Invited to ***National Academy of Engineering*** *Fourth Annual Symposium on Frontiers in Engineering*, Irvine, CA

1997-2005 **Associate Editor** for IEEE Antennas and Wave Propagation Society Journal

1997-2001 Elected to IEEE Antennas and Wave Propagation International **Administrative Council**

1997 North Carolina's Center for Success in the First Year Seminar

1997 NSF conference *Achieving Success in Academia*, Washington D.C. (invited)

1996, 1997, 1998, 2000 Organized and Chaired sessions at ACES, Monterey, CA

1996, 1997, 1998 Participant in *Teaching and Technology Conference* Golden, CO

1996 Chaired technical session for the URSI General Assembly, Lille, France

1995-2010, 2019- Faculty Advisor for IEEE student group, Boulder, CO

1995, 1996, 1998, 1999, 2000 Organized and Chaired Sessions for URSI

1995 Membership in URSI Commission D; High Speed Devices

1994, 1998, 1999, 2014 Organized and Chaired sessions at the IEEE APS Conference

1994-2000 Member of NSF CampMODE Research Center

1994 Moderator of conference session for Colorado Advanced Software Institute (CASI)

1994 Participant in *Honors Seminar on Teaching and Learning*, Boulder, CO

1993, 1994, 1996, 1998, 1999 *Conference on High-Speed Computing* (**invited** funded participant) run by LANL and MIT LL

CU System

2016-2018 System Concurrent Enrollment Committee

2016-2018 Inter-campus tuition benefit committee

2012-2014 **Chair** of the University of Colorado System Faculty Council (faculty governance)

2011-2012 **Chair** of the Faculty Council Women's Committee

2011-2012 **Chair** of the Faculty Council Communication Committee

2010-2018 Fund Raiser; Faculty Council; Women Succeeding in Academia Symposium

2010-2011 University system wide Diversity Awards/Grants Committee

2009-2011 Served as a BFA representative to the CU System Faculty Council

2009-2011 Investigator in CU's President's Teaching and Learning Collaborative, a **Carnegie Academy for the Scholarship of Teaching and Learning** (CASTL) program

2009-2015 C**haired** the CU Women Succeeding Symposium (400 Attendees in 2015)

2003 **Keynote** at "Leadership: Women Succeeding in the Professoriate" Faculty Council Women's Committee Symposium, Denver Campus

Campus

2015-2017 **Chair** of the Boulder Faculty Assembly (faculty governance)

2012-2014 Participated in campus planning around Title IX review

2011-2013 Campus committee evaluating the information technology on campus

2010-2016 Chair of the CCW awards committee

2010 Office of Diversity Equity and Civic Engagement (ODECE) external advisory committee

2010 **Co-Chair** *Chancellors Diversity Conference*

2010-2012 **Chair** of the Boulder Faculty Assembly Diversity Committee

2010-2014 BFA Budget and Planning committee

2010-2012 **Secretary** of the Faculty Council Budget Committee

2010-2011 Campus committee for the student climate survey

2009-2013 BFA Representative to the Diversity Committee

2009-2010 **Chair** of the Boulder Faculty Assembly Administrator Appraisal Committee

2009-2011 Organizing committee (and co-chair 2010) Chancellors Diversity Conference

2009-2011 At-large position on the **Executive Committee** of the Boulder Faculty Assembly

2008-2013, 2018-2020 **Faculty Chair** of the Chancellors Committee on Women (CCW).

2006-2010 Boulder Faculty Assembly resource member

2005-2014 Civic Engagement Awards Committee; Institute for Ethics and Civil Engagement (IECE)

2005-2014 A founding member of **steering committee** for IECE

2004, 2005, 2009, 2010, 2011 Speaker for *Women Succeeding in Academia* Conference

2001-2003 Leadership Education for Advancement and Promotion **(LEAP) fellow** as a part of NSF's ADVANCE Institutional Transformation Award

2000-2020 Member of the Awards/Scholarship Committee, CEAS

2000-2020 Member of the Assessment Committee, CEAS

2000-2005 BFA Representative to the Chancellor's Advisory Committee on Public Access

1996-1998 Member of CUB Information Technology and Social Science Research Group

1995-2002 CU Speakers Bureau; talks to K-12 Schools on "Understanding Engineering"

Department and College

2022 – current Associate Chair External Relations and Outreach for ECEE Department

2022 – current Chair of Marketing and Outreach Committee for the ECEE Department

2022 – current Executive Committee ECEE Department

2005-2024 Served on various ECEE department committees

2001-2020 Electrical Engineering representative on the Boulder Faculty Assembly

2001 Advisor to "Outstanding Undergraduate Research Award" recipient; Todd Lammers

1999 Advisor to "Outstanding Undergraduate Research Award" recipient; Ian Rumsey

1998 Co-Developer and facilitator for the *Minority Success Institute*

1997-2020 Women in Engineering, Faculty Advisory Board, College of Engineering

1996-2012 Faculty Advisor to IEEE student chapter

1996 Dean's Committee on Multidisciplinary Education, CEAS

1996 Faculty Advisor for **IEEE** *Outstanding Student Chapter*

1995 - ongoing Participate in activities for incoming and high school students such as: High School Honors Institute, Success Institute, Engineering Open House, Meet your Major, Engineering Career Day for High School Women

1994-2001 Member of Assessment Committee for Integrated Teaching and Learning Lab

1994-1999 Member of the Integrated Teaching and Learning Lab Task Force

1994-1995 Diversity Planning Committee, College of Engineering

PAPERS (chronological order)

5 book chapters and over 200 peer reviewed Journal & Conference Papers and Presentations.
June 2024 Google Scholar Citations 27678; Most Cited Paper 770; h-index 20; i10-index 35

BOOK CHAPTERS (Student Authors **BOLD)**

- Piket-May and Taflove, Chapter 13; "FDTD Modeling of High Speed Digital Circuits" in *Computational Electrodynamics*, Editor: Allen Taflove, Artech House, 1996, pp 431-474.

BOOK CHAPTERS (cont.)

- Houshmand, Piket-May, Chapter 8; “High Speed Electronic Circuits with Active and Nonlinear Components” in *Advances in Computational Electrodynamics*, Editor: Allen Taflove, Artech House, 1998, pp 461-512.
- Piket-May, Houshmand, Itoh, Chapter 15; "High Speed Electronic Circuits with Active and Nonlinear Components" in *Computational Electrodynamics*, Editor: Allen Taflove, Susan Hagness, Artech House, 2000, pp 703-764.
- Taflove, Hagness, Piket-May, Chapter 9 in section V; Electromagnetics; “Computational Electromagnetics: The Finite Difference Time Domain Method” in *The Electrical Engineering Handbook*, Editor Wai-Kai Chen, Elsevier Academic Press, 2005, pp 629-670.
- Hadi, Elsherbeni, **Bollimuntha**, Piket-May, “FDTD in Cartesian and Spherical Grids." in *Computational Photonic Sensors* Editor: Hameed M; Obayya S. (Cham: Springer, January 10, 2019) 153-175. (Published online June 14, 2018)

PEER REVIEWED JOURNAL PAPERS (Student Authors **BOLD)**

- Katz, D., M. Piket-May, A. Taflove, and K. Umashankar, "FD-TD Analysis of Electromagnetic Wave Radiation from Systems Containing Horn Antennas", *IEEE Transactions on Antennas and Wave Propagat*ion **39**, 1203-1212, 1991.
- Piket-May, M., A. Taflove, W. Lin, D. Katz, V. Sathiaseelan, and B. Mittal, "Computational Modeling of Electromagnetic Hyperthermia: Three-Dimensional and Patient-Specific", *IEEE Trans. Biomedical Engineering* **39**, 226-237, 1992.
- Sathiaseelan, V., A. Taflove, M. Piket-May, **C. Reuter**, and B. Mittal, "Application of Numerical Modeling Techniques in Electromagnetic Hyperthermia", *Journal of Applied Computational Electromagnetics Society* **7**, 61-71, 1992.
- Piket-May, M., A. Taflove, and J. Troy, "Electrodynamics of Visible Light Interactions with the Vertebrate Retinal Rod", *Optics Letters* **18**, 568-570, 1993.
- Thomas, V., M. Jones, M. Piket-May, A. Taflove, and E. Harrigan, "The Use of SPICE Lumped Circuits as Sub-grid Models for FD-TD Analysis", *IEEE Micro. Guided Wave Letters* **4**,141-143, July 1994.
- Piket-May, M., A. Taflove, and **J. Baron**, "FD-TD Modeling of Digital Signal Propagation in 3-D Circuits with Active and Passive Loads", *IEEE Transactions on Microwave Theory and Technique* **42,** 1514-1523**,** August 1994.
- **Hadi, M.,** and M. Piket-May, "A Modified FDTD 2,4 Scheme for modeling Electrically Large Structures with High Phase Accuracy", *IEEE Transactions on Antennas and Wave Propagation* **45**, 254-264, February 1997.
- **Marshall, T.,** and M. Piket-May, "Finite-Difference Time-Domain Modeling of Light Trapping in Solar Cells", *Applied Computational Electromagnetics Society Journal* **12**, 31-42, Nov 1997.

- **Vichot, P., Z. Schoenborn, J. Mix,** J. Dunn, and M. Piket-May, " Numerical modeling of a clock distribution network for a superconducting multichip module", *IEEE Transactions on Components, Packaging and Manufacturing, Technology, Part B: Advanced Packaging*, Vol. 21, no. 1, 98-104, February 1998.
- Thomas, K., R. Gravrok, **G. Haussmann**, M. Piket-May, " Implementation and application of a FD-TD simulation tool for the analysis of complex 3D structures", **invited paper** to *ACES Journal*, *Special Issue on Computational Electromagnetics*, **13**, No. 2, 160-167, 1998.
- **Reuter, C**., A. Taflove, V. Sathiaseelan, M. Piket-May, B. Mittal, "Unexpected Physical Phenomena Indicated by FDTD Modeling of the Sigma-60 Deep Hyperthermia Applicator", *IEEE Transactions on Microwave Theory and Technique* **46**, pp. 313-319, April 1998.
- Gravrok, R., **A. Byers**, M. Piket-May, "A Novel Way of Calculating System Inductance", *International Journal on Microcircuits and Electronic Packaging (IMAPS)*, 1998.
- **Rumsey, I., P. Kelly,** M. Piket-May, "Photonic Bandgap Structures used as Filters in Microstrip Circuits", *IEEE Microwave Guided Waves and Letters*, 336-338, 1998.
- Piket-May, M., B. Sopori, "Numerical Model of Light-Trapping in Solar Cells", (**invited technical feature paper)** to *Applied Computational Electromagnetics*, Volume 13, No. 2, 13-18, 1998.
- **Mix, J., J. Dixon**, Z. Popovic, M. Piket-May, "Incorporating non-linear lumped elements in FDTD: the equivalent source method", (**invited)** *International Journal of Numerical Modeling; Electronic Networks, Devices and Fields*, **12**, 157-170, 1999.
- **Byers, A.,** S. Hall, M. Piket-May, "Modeling Ground Bounce Effects in High Speed Design", (**invited)** *International Journal of Microcircuits and Electronic Packaging,* Issue III, Vol. 22, No. 3, 1999.
- **Kelly, K., M.** Piket-May, "Propagation Characteristics for a One Dimensional Grounded Finite Height Finite Length Electromagnetic Crystal", *Journal of Lightwave Technology*, Nov 1999.
- **Bhobe,** Holloway**,** Hall, Piket-May, "Coplanar Waveguide Fed Wideband Slot Antenna", *IEE Electronics Letters*, 1340-1342, Volume 36, number 16, August 3, 2000.
- **Fornberg, P.; Kanda, M.; Lasek, C.; Hall, S.;** Piket-May, M., "The Impact of a Non-Ideal Return Path on Differential Signal Integrity", *IEEE Trans. on Electromagnetic Compatibility*, Vol 44, NO 1, February 2002, pp.11-15.
- **Vichot, P.A.;** Grabow, B.E.; Piket-May, M., "High-speed operation of a low-power 4-bit serial-to- parallel converter", IEEE Transactions on Applied Superconductivity, Volume: 12, Issue: 4, December 2002, pp.1891- 1896. **DOI:** 10.1109/TASC.2002.806029
- E.F. Kuester, **M. A. Mohamed**, Melinda Piket-May, C. Holloway, "Averaged Transition Conditions for Electromagnetic Fields at a Metafilm", *IEEE Trans. on Antennas and Propagation, special issue on Metamaterials*, Vol. 51, October 2003, pp.2641-2651.
- **Staker, S. W**., Holloway, C. L., **Bhobe, A.U**., Piket-May, M., "Alternating-Direction Implicit (ADI) Formulation of the Finite-Difference Time-Domain (FDTD) Method: Algorithm and Material

Dispersion Implementation", *IEEE Trans. on Electromagnetic Compatibility, special issue on Advanced EMC Numerical Modeling*, Vol. 45, No. 2, May 2004, pp.156-166.

- **Bhobe, A.** U, Holloway, C. L, Piket-May, M, **Hall, R,** 'Wide-Band Slot Antennas with CPW feed lines: Hybrid and Log-Periodic Designs', *IEEE Trans. on Antennas and Propagation (special issue on Metamaterials)*, Vol. 52, October 2004.
- **F. Schlottau**, M. Piket-May, and K. Wagner, "Modeling of femtosecond pulse interaction with inhomogeneously broadened media using an iterative predictor corrector FDTD method," *Optics Express* 13, 182-194, 2005.
- **M. A. Mohamed**, E. F. Kuester, C. L. Holloway, and M. Piket-May, "The Field of an Electric Dipole and the Polarizability of a conducting Object Embedded in the Interface Between Dielectric Materials," *Progress In Electromagnetics Research B*, Vol. 16, 1-20, 2009.
- **AA Aly**, M. Piket-May, "FDTD Computation for SAR induced in human head due to exposure to EMF from mobile phone", *Advanced Computing*, Vol. 5, No.5/6, 2014.
- **R. Smith, A. Weiss, R. Bollimuntha**, M. Piket-May, M. F. Hadi and A. Elsherbeni, "Merging VSim's Model Building and Visualization Tools with Custom FDTD Engines," *ACES Express Journal*, vol. 1, No. 1, pp. 16—19, January 2016
- **R. C. Bollimuntha**, M. F. Hadi, M. J. Piket-May and A. Z. Elsherbeni, "Dispersion Optimized Plane Wave Sources for Scattering Analysis with Integral Based High Order Finite Difference Time Domain Methods," *IET Microwaves, Antennas & Propagation*, vol. 10, No. 9, pp. 976-982, June 2016
- **Bollimuntha, R.** C., Hadi, M. F., Piket-May, M. J., & Elsherbeni, A. Z. (2016). Dispersion optimized plane wave sources for scattering analysis with integral based high order FD-TD methods. *IET Microwaves, Antennas & Propagation*, *10*(9), 976-982.
- Hadi MF, Elsherbeni AZ, Piket-May MJ, Mahmoud SF, "Radial Waves Based Dispersion Analysis of the Body-of-Revolution FDTD Method." *IEEE Transactions on Antennas and Propagation*. 65 (2) (February 01, 2017): 721-729.
- **Smith R, Weiss A, Bollimuntha R, DMello S,** Piket-May M, Hadi M, Elsherbeni A. "Merging VSim's Model Building and Visualization Tools with Custom FDTD Engines." *Applied Computational Electromagnetics Society Journal* 32 (12) (December 01, 2017): 1144-1147.
- Hadi, M. F., **Bollimuntha, R. C.,** Elsherbeni, A. Z., & Piket-May, M. (2018). A spherical FDTD numerical dispersion relation based on elemental spherical wave functions. *IEEE Antennas and Wireless Propagation Letters*, *17*(5), 784-788.
- **Bollimuntha R,** Piket-May MJ, Hadi MF, Elsherbeni AZ "FDTD in Cartesian and Spherical Grids." *Computational Photonic Sensors*, (June 14, 2018) 153-175.
- Bogatin E, Piket-May M, **Al Hasani M, Argaw A** "When to use a 2D Field Solver to Accurately Predict Characteristic Impedance*", Signal Integrity Journal* 2 (May 26, 2020).

- **Bollimuntha RC,** Hadi MF, Piket-May MJ, Elsherbeni AZ. "Near-to-Far Field Transformation in FDTD: A Comparative Study of Different Interpolation Approaches" *Applied Computational Electromagnetics Society Journal*. 36 (5) (May 01, 2021): 496-504.
- **Rao A**, Piket-May M, Bogatin E. "Bandwidth of Signals: What is Important, Rise Time or Slew Rate?" *Signal Integrity Journal* 3 (May 04, 2021).
- **Rao** A, Piket-May M, Bogatin E. "How to Avoid Gibbs Ringing Artifacts in Measurements." *Signal Integrity Journal* 3 (June 29, 2021).
- Eric Bogatin, **Chaithra Suresh**, Melinda Piket-May, Haris Basit, and Paul Dennig "Utilizing Fine Line PCBs with High Density BGAs" *Signal Integrity Journal* 4 (Jan 18, 2022).
- Eric Bogatin, **Chaithra Suresh**, Melinda Piket-May, Haris Basit, and Paul Dennig "Exploring Design Space for Fine Line Differential Pair Transmission Lines" *Signal Integrity Journal* 4 (Nov 22, 2022).
- Eric Bogatin, **Chaithra Suresh**, Melinda Piket-May, Haris Basit, and Paul Dennig "Ultra-Fine Line Differential Pair Design with No Return Plane" *Signal Integrity Journal* 5 (Jan 9, 2023).
- Eric Bogatin, **Chaithra Suresh**, Melinda Piket-May, Haris Basit, and Paul Dennig "Assessing the Accuracy of EM Simulation Tools" *Signal Integrity Journal* 6 (Jan 31, 2024).
- **Aditya Rao**, Eric Bogatin, Mohammed Hadi, Melinda Piket-May "Metrics for Acceptable Oscilloscope Bandwidth" *IEEE Transactions on Instrumentation and Measurement*, (in review Aug 2024)
- **Aditya Rao**, Eric Bogatin, Mohammed Hadi, Melinda Piket-May "Non-TEM Dispersion in Microstrip Structures at High Data Rates" *IEEE Transactions on Signal Integrity and Power Integrity*, (in press Nov 2024).
- **Ramadurgakar AS**, Rezac JD, Remley KA, Williams DF, Piket-May MJ, Horansky RD. "A Robust, Over-the-Air Test Bed for Radio Frequency Fingerprinting of Cellular Devices" *IEEE Transactions on Information Forensics and Security* (currently in internal NIST review 9.2024 - to be submitted by 11.30.24)
- **Aakriti Srivastava**, Eric Bogatin, Mohammed Hadi, Melinda Piket-May "Methodology to determine characteristic impedance of a single ended via with 4 or more return vias*" IEEE Transactions on Components, Packaging and Manufacturing Technology*, (to be submitted by 12.30.2024).
- **Aditya Rao**, Eric Bogatin, Mohammed Hadi, Melinda Piket-May "TDR Based Dielectric Constant Extraction from Microstrip Structures" *IEEE Transactions on Signal Integrity and Power Integrity,* (to be submitted by 12.30.24).
- **Ramadurgakar AS**, Rezac JD, Piket-May MJ, Horansky RD. "Fingerprinting Millimeter Wave Commercial Off-the-Shelf Cellular Devices: Evaluating Classification Accuracy Using Robust EVM-Based Algorithms" *IEEE Transactions on Information Forensics and Security* (to be submitted by 12.30.24)

- **Aakriti Srivastava**, Eric Bogatin, Mohammed Hadi, Melinda Piket-May "Measurement – Simulation Correlation of Characteristic Impedance of a Single Ended Via with 4 or more Return Vias" *IEEE Transactions on Components, Packaging and Manufacturing Technology,* (to be submitted by 2.28.25).

PEER REVIEWED CONFERENCE PAPERS (Student Authors **BOLD)**

- Pala, W.P.; Taflove, A.; Piket, M.J.; Joseph, R.M., "Parallel finite difference-time domain calculations", *Proceedings of the IEE International Conference on Computation in Electromagnetics*, UK, 83-85, 1992.
- **Reuter, C.,** M. Piket-May, A. Taflove, "Pattern Synthesis of Phased Array Antennas Using Linear Superposition of the FD-TD Simulated Fields", *Proceedings of the Applied Computational Electromagnetics Society Conference*, Monterey, CA, 767-774, March 1995.
- Gravrok, R., M. Piket-May, K. Thomas, "LC: an integrated methodology to model and visualize the complex electrodynamics of 3D structures", *Proceedings of the 3rd Topical Meeting on Electrical Performance of Electronic Packaging*, Portland, OR, 73-76, November 1995.
- **Hadi, M**., and M. Piket-May, "A Modified FDTD 2,4 Scheme for modeling Electrically Large Structures with High Phase Accuracy", *Progress in Applied Computational Electromagnetics Annual Review*, Monterey, California, 767-774, March 1996.
- Piket-May, M.; Thiele, E.T.; **Haussmann, G**.; Gravrok, R., "A powerful EM analysis tool based on the FDTD simulation method", *Symposium on Antenna Technology and Applied Electromagnetics 1996 Conference Proceedings*, Montreal, Canada, 309-311, August 1996.
- **Vichot, P.,** E. Thiele, J. Dunn, M. Piket-May, "Numerical modeling of a clock distribution network for a superconducting multichip module", *Proceedings of the fourth Topical Meeting on Electrical Performance of Electronic Packaging*, Napa Valley, CA, 43-46, November 1996.
- **Marshall, T.,** M. Piket-May, "Numerical Modeling of Light-Trapping in Solar Cells", *Progress in Applied Computational Electromagnetics Annual Review,* Monterey, California, pp. 1163-1167, March 1997.
- **Vichot, P., J. Mix, Z. Schoenborn,** J. Dunn, M. Piket-May, "Numerical Modeling of a Clock Distribution Network for a Superconducting Multichip Module", *Progress in Applied Computational Electromagnetics Annual Review*, CA, NTIS, pp. 1168-1173, March 1997.
- **Haussmann, G.,** M. Piket-May, "Modified FDTD M(2,4) Scheme in 3D", *Progress in Applied Computational Electromagnetics Annual Review*, CA, NTIS, pp. 82-89, March 1997.
- Dunn, J., **P. Vichot**, M. Piket-May**, J. Mix**, "Clock Design and Analysis for a Superconductive Crossbar Switch", *47th Annual IEEE/EIA Electronics Components and Technology Conference Proceedings*, San Jose, CA, IEEE/Electronic Industries Association, pp. 1094-1099, May 1997.
- Brown, R., P. Ensaf, **T. Marshall**, Z. Popovic, M. Piket-May, "Printed Microwave Couplers with Thermal Isolation", *1997 IEEE MTT-S International Microwave Symposium Digest vol.2*, pp. 983-986, July 1997.

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- A. Weiss, S. DMello, A. Z. Elsherbeni, M. J. Piket-May, and M. F. Hadi, "Enhancement of Higher Order FDTD Method Using OpenCL, CUDA, and MPI on Single and Multiple CPUs/GPUs," *Proceedings of USNC/URSI National Radio Science Meeting*, Boulder, Colorado, January 2017.
- M. F. Hadi, A. Z. Elsherbeni, Ravi C. Bollimuntha and Melinda J. Piket-May, "Reflection Analysis of Spherical FDTD Absorbing Boundary Conditions," *2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Boston, MA, July 2018.
- R. C. Bollimuntha, M. F. Hadi, M. J. Piket-May, and A. Z. Elsherbeni, "Spherical FDTD Numerical Dispersion Analysis," *Proceedings of USNC/URSI National Radio Science Meeting,* Boulder, Colorado, January 2018.
- N. Sonth, R. C. Bollimuntha, M. F. Hadi, M. J. Piket-May, and A. Z. Elsherbeni, "A Finite Volumes-Based FDTD Material Dispersion Modeling," *Proceedings of USNC/URSI National Radio Science Meeting,* Boulder, Colorado, January 2018.

EDUCATION RELATED JOURNAL PAPERS and CONFERENCE PAPERS

- Sheppard, Jenison, Agogino, Brereton, Bucciarelli, Dally, Demel, Dym, Evans, Faste, Henderson, Minderman, Mitchell, Oladipupo, Piket-May, Quinn, Regan, Wujeket, "Examples of Freshman Design Education", *International Journal of Engineering Education* **13**, #4, 1997.
- Piket-May, M., J. Avery, L. Carlson, "A Multidisciplinary, Hands-On Introduction to Engineering through a Community/University Collaboration in Assistive Technology", *Proceedings of American Society for Engineering Education Conference*, Los Angeles, CA, June 1995.

- Piket-May, M., J. Avery, L. Carlson, "A Multidisciplinary, Hands-On Introduction to Engineering through a Community/University Collaboration in Assistive Technology", *Proceedings of Frontiers in Education Conference*, Salt Lake City, Utah, 926-929, Nov 1996.
- Piket-May, M., J. Avery, "Results of Client-Based Freshman Design Projects", Session F1F, *Proceedings of the 1997 IEEE Frontiers in Education Conference*, PN, 634-637, Nov 1997.
- Piket-May, M., "Facilitating Learning: Believe in Your Students", Session S4A, *Proceedings of the 1997 IEEE Frontiers in Education Conference*, Pennsylvania, 1481-1484, Nov 1997.
- Piket-May, M., J. Avery, L. Carlson, J. Sullivan, "Integrated Teaching and Learning Lab", 90-minute (**invited presentation)**, *NSF Teaching and Technology Conference*, July 1997.
- Piket-May, M., J. Avery, "Designing for the Community", **(invited presentation),** *1997 Annual Conference of the Rocky Mountain ASEE*, Logan, Utah, Aug 1997.
- Avery, J., M. Piket-May, "Integrated Teaching and Learning", **(invited presentation)** *1997 Annual Conference of the Rocky Mountain ASEE*, Logan, Utah, Aug 1997.
- Piket-May, M., "Learning Interactively: Electromagnetics Case Study", on CD-ROM, Session F2I, *Proceedings of the 1997 IEEE Frontiers in Education Conference*, Pennsylvania, Nov 1997.
- Avery, J., M. Piket-May, J. Sullivan, L. Carlson, "Initial Results Teaching and Learning the Integrated Teaching and Learning Lab", on CD-ROM, Session S3F, *Proceedings of the 1997 IEEE Frontiers in Education Conference*, Pennsylvania, November 1997.
- Piket-May, M., J. Avery, "University/Community Outreach in Assistive Technology", CD and Web *Proceedings of Technology and Persons with Disabilities Conference*, CA, 1998.
- **Chang, J**., Piket-May, M., Avery, J.P., "Using Student Feedback in the Learning Environment*", Proceedings of the 1998 IEEE Frontiers in Education Conference*, 643-646, 1998.
- Piket-May, M., **Chang, J.,** Avery, J.P., "Understanding what Success means in Assessment", 1998 *Proceedings of the 1998 IEEE Frontiers in Education Conference*, 20-22, 1998.
- Avery, J.P., Piket-May, M., **Chang**, J., Carlson, L., Sullivan, J., S. Davis, "Integrated Teaching and Learning Lab", *Proceedings of the 1998 IEEE Frontiers in Education Conference*, 932-936, 1998.
- **Chang**, Piket-May, Avery, "How Students Help you to Succeed" *1999 ASEE Conference Proceedings*, 4 pages, June 1999.
- Carlson, L., J. Sullivan, S. Poole, M. Piket-May, "Engineers as Entrepreneurs: Invention and Innovation in Design and Build Courses", *Proceedings of Frontiers in Education*, 4 pages, November 1999.
- Piket-May, M., J. Avery, "Teaching Design using Assistive Technology Projects", *NCIIA Symposium; CULTIVATING INNOVATION: Creativity & Technical Entrepreneurship in Higher Education*, Washington, DC, March 9-11, 2000.
- Piket-May, M., J. Chang, "Experiential Engineering Education", *Progress in Electromagnetics Research Symposium* (PIERS), Boston, MA, July 2000.

- Piket-May, M., J. Avery, "First Year Students do E-Teams", *NCIIA Symposium; CULTIVATING INNOVATION: Creativity & Technical Entrepreneurship in Higher Education*, MARCH 9-11, 2001, Washington, DC.
- Piket-May, M., J. Avery, "Service Learning Retention Results", *Proceedings of Frontiers in Education*, CD publication, November 2001, Reno, NV.
- Piket-May, M., J. Avery, "The Art of Teaching Engineering", Proceedings of Frontiers in Education, CD publication, November 2004, Savannah, GA.
- Avery, J., M. Piket-May "FIE2003 Assessment Results", *Proceedings of Frontiers in Education*, CD publication, November 2004, Savannah, GA.
- M.J. Piket-May, "Reflections and Critical Thinking", at *Making it Real: Conference on Service Learning and Civic Engagement*, 2009.
- A. Andrews and M. J. Piket-May, "Building Community through Collaboration", **invited paper**, *Coleman Conference*, 2013.
- Piket-May, M., T. May, **M. Sturm, T. Brunsgaard**, "Using touchpoints to increase retention in Engineering", *ASEE First Year Engineering Experiences Conference*, August 2015, Roanoke, VA.
- M. Piket-May, "Community Collaboration for Assistive Technology Design", 45 minute **invited talk**, *Coleman Conference*, November 2017.
- M. Piket-May, "Learning Unlimited" – Timmerhaus Keynote Speaker for 2-day *Teaching and Learning Conference*, UCCS, 2020.

SELECT CU DIVERSITY WORKSHOPS/TALKS

- M.J. Piket-May, Piket P.H., "The Tipping Point in Gender Studies", 1 hour, *Achieving Success in Academia Symposia*, March 6, 2009.
- M.J. Piket-May "Negotiating at an Uneven Table: Developing Moral Courage in Resolving Our Conflicts", *Diversity Summit*, 2 hours, Nov 3, 2009.
- M.J. Piket-May, "Lazy Wisdom", *Diversity Summit*, 2 hours, Nov 3, 2009.
- M. J. Piket-May, "Negotiating at an Uneven Table: Developing Moral Courage in Resolving Our Conflicts", 1 hour, *Achieving Success in Academia Symposia*, Feb. 26, 2010.
- M. J. Piket-May, Darling, B., "Women Don't Ask", *Diversity Summit*, 1.5 hour, University of Colorado at Boulder, Nov 2, 2010.
- M. J. Piket-May, Piket P.H., "The Tipping Point in Diversity Studies", *Diversity Summit*, 1.5 hour, Nov 3, 2010.
- M. J. Piket-May, "Women Don't Ask ", *Achieving Success in Academia Symposia*, 1 hour, Feb 25, 2011.

SELECT EDUCATIONAL ASSISTIVE TECHNOLOGY PUBLICITY

- **NBC Nightline National News** "Compassionate Engineering", a piece on my assistive technology engineering design course http://tinyurl.com/NBC-ATvideo
- **Channel 9 Local News** "The Assistive Glove" http://tinyurl.com/AssistiveGlove
- https://www.coloradodaily.com/2010/12/02/cu-boulder-engineering-class-focused-on-innovations-for-disabled/
- https://www.colorado.edu/cuengage/2017/12/27/amplify-december-27th-faculty-fellows-edition-engineering-students-design-assistive
- **National Webinar: ANCOR**, 6/13/2018 Imagine!, and University of Colorado, Boulder, Melinda Piket-May, Brodie Schulze, Fred Hobbs, "Partnering with Universities for Individualized I/DD Technology Solutions

ASSISTIVE TECHNOLOGY VIDEOS

- *Coleman Conference* "Imagine! and University of Colorado Collaboration in Assistive Technology" http://tinyurl.com/ColemanImagine
- College of Engineering Freshman Design Expo "Research Project Student Presentations" http://tinyurl.com/AtechDesignExpo
- Imagine! / CU Assistive Tech Projects: A Retrospective (2 minutes) https://www.youtube.com/watch?v=dOWtHUK9oJA

NAS HANDBOOKS

- **National Academy of Science**, Committee on Radio Frequencies (CORF) sub-panel that wrote the "Handbook of Frequency Allocations and Spectrum Protection for Scientific Uses". National Academies Press. ISBN #13 978-0-309-10301-5
- **National Academy of Science**, Committee on Radio Frequencies sub-panel that wrote "Views of the NAS and NAE on Agenda Items at Issue at the World Radio Communication Conference 2012," http://www.nap.edu

SELECT FCC FILINGS (with NAS CORF)

- Committee on Radio Frequencies FCC filing August 16th, 2007: The impact of proposed vehicle- mounted Earth Station/fixed satellite on Radio Astronomy observations at 14.47 - 14.50 GHz; protection of observations in this band with coordination requirements.
- Committee on Radio Frequencies FCC filing August 13th, 2007: The potential impact of proposed permanent fixed microwave operations in the 4940 - 4990 MHz (4.9 GHz) band on radio astronomy observations.
- Committee on Radio Frequencies FCC filing February 5th, 2008: The importance of the scientific observations in the Earth Explorations Satellites band at 36.0 to 37.0 GHz and the need to protect them. Also, FCC should reinstate a mandatory power limit.

COURSES TAUGHT

COEN 1830 Freshman seminar (Fall 2023)

ECEN 1100 ECE Freshman Seminar (1998, 1999, 2022)
Developed and taught this introduction to Electrical Engineering seminar.

GEEN 1400 Freshman Projects (Since 1994 ~ 47 times)
A design section for the first year projects course that is a part of the Integrated Teaching and Learning Lab Program. This section topic is service learning, often in the area of assistive technology. They learn skills (Circuit theory, Breadboards, Microcontroller programming, Sensors, PCB design (Altium), 3D Printing, Laser cutting, Shop). The student teams do an open ended project for a specific client in our local community who has a specific need. Also, community outreach to zoos, museums and classrooms.

ECEN 1400 Introduction to Analog and Digital Design (Fall 2021,22,23,24)
This is a course where students are introduced to analog and digital electronic and product design. They learn skills (Circuit theory, Breadboards, Microcontroller programming, Sensors, PCB design (Altium), 3D Printing, Laser cutting, Shop) as well as doing a client based project they design and deliver.

ECEN 3030 Circuits for Non-majors (2 times)
Basic Circuit Analysis for civil engineering students.

ECEN 3400 Electromagnetic Fields and Waves (fall 1993 to fall 2000, ~5 times)
This is a core class in electromagnetics. It has a 3-hour lecture, 2-hour recitation, and 2- hour lab each week. It teaches traditional material in a collaborative style. Students write reports and make observations about electromagnetics in addition to the traditional problem solving work. Students also have to do an open ended design project at the end of the semester, pushing their knowledge of EM beyond that of the basic material. Students do presentations and write a final report.

ECEN 3410 Electromagnetic Waves and Transmission (spring 1996 to spring 2011, ~8 times)
Traditional information is experienced in an active learning classroom. The students work in teams and collaborative learning exercises are used to enhance the student's absorption of the material. Students write observations about EM and do a final open-ended design project using LC, an FDTD EM simulation tool. Students do in class presentations and write up a final report (in the form of a journal paper) for their projects.

ECEN 4024/5024 Time Domain/Numerical Techniques (5 times)
Theoretical development of the Finite Difference Time Domain Technique and open-ended design projects using FDTD for a real-world problems.

ECEN 5154 Computational Electromagnetics (Fall 2011)
Provides a computational study of microwave circuits and antennas, using finite-difference, finite-element, and moment methods. Requires students to develop algorithms, write and execute programs, and prepare reports analyzing results. Circuits include waveguides, microstrip lines, and center-fed dipole antennas.

ECEN 4224/5224 High Speed Digital Design (18 times)
High Speed Digital Design (HSDD) from a practical standpoint. Students learn basic theory of HSDD, monitor the Signal Integrity industrial list, and do open ended projects. Developing a Coursera version for Fall 2025.

ECEN 4004/5004 and 4324/5324 Micro-System Packaging (8 times)
High speed packaging. High speed systems must be packaged to obtain a robust final design. Mechanical and electrical concepts are taught in relation to each other.

ECEN 5024 Advanced High-Speed Design Projects (Spring 2024)
Design and Fabrication of high speed PCBs with a focus on measurement-simulation correlation.

ECEN 5414 Essential Principles of Signal Integrity (Spring 23, Summer 23, Fall 23)
Created for the HSDE PMP. Explores how interconnects affect signal integrity.

ECEN 5434 Advanced Gigabit Channel Design (not taught yet)
Created for the HSDE PMP. Designing High Speed Channels for Signal and Power Integrity.

ECEN 5424 S-Parameters for Signal Integrity (Fall 23)
Created for the HSDE PMP. Interpreting Scattering Parameters for High-Speed Digital Design.

STUDENTS (chronological order)

SELECT MENTORING

Mentoring National Science Foundation GK-12 Fellows
(RA, 20 hours a week of outreach in the school)
Boulder High School Honors Physics Program (Alex Settle) 8/1999-5/2000
Casey Middle School Science (4 graduate students) 8/2000 – 6/2002

POST DOCTORAL RESEARCHERS

Eric Thiele; Wright Patterson Air Force Research Center; Ball Aerospace (1995-1997)

Julie Chang; National Science Foundation, Post Doc Fellow Math Engineering and Technology Education (PSFMETE) (1998-1999)

GRADUATE STUDENTS: PhD

Mohammed Hadi (PhD May 1996) **Emeriti Professor, University of Kuwait**, "Modeling Long Distance Propagation using a 2D Modified (2,4) FD-TD scheme"

Linden McClure (PhD May 1996) HP, **Platform Technologist, Intel**, "Improved transient fault tolerance in commercial off-the-shelf embedded systems for ultra-low-cost spacecraft"

Gary Haussmann (PhD May 1998) **Consultant**, EMC Engineer Silicon Graphics, Cray Research Intern (Summer 1995, Summer 1997) "A dispersion optimized three-dimensional finite-difference time-domain method for electromagnetic analysis"

Jason Mix (PhD May 1999) **SI Engineer Intel**, Cray Research Intern (Summer 1994), Motorola Intern (Summer 1995), Intel Intern (Summer/Fall 1997), " Incorporating non-linear lumped elements in FDTD: the equivalent source method"

Keith Kelly (PhD Aug 2000) **CEO, Agile RF Systems LLC**, Ball Aerospace, First RF, "Surface wave mitigation using photonic crystals"

Paul Vichot (PhD May 2002) **Program Manager**, **The Johns Hopkins Applied Physics Lab "**Development of a giga-bit-per-second superconducting serial-to-parallel converter for use in switching and demultiplexing applications"

Ian Rumsey (PhD May 2002) **CTO, FirstRF**, Ball Aerospace, "Method for incorporating S - parameter macro-models into finite difference time domain simulation of transmission line networks"

Alpesh Bhobe (PhD Dec 2003) **Director, Hardware Engineering, Cisco**, "Derivation of equivalent boundary conditions using the homogenization method and their implementation in time-domain electromagnetics techniques"

Mohamed Mohamed (PhD May 2004) "Averaged Transition Conditions for Electromagnetic Fields at a Metafilm"

Mona Elhelbawy (PhD May 2005**) Teaching Professor at CU Boulder**, NIST**, "**Three-dimensional alternating direction implicit finite difference time domain for cylindrical structures"

Seyit Tigrek (PhD May 2012) "Teaching Smartphone and Microcontroller Systems using Android Java"

Ravi Chandra Bollimuntha (PhD May 2018) **SI/PI Engineer, Apple**, "Advanced Formulations and Applications of Finite Difference Time Domain Analysis"

Chun-Ting Wang Lee (PhD December 2020) **SI Application Scientist, Keysight Technologies,** "Test Structures and Economical Non-destructive Measurement Techniques for Multilayer Printed Circuit Board Impedance Characterization"

Fadi Deek (PhD May 2021) Siemens, AMD, **SI/PI Engineer, Amazon Web Services,** "Analyzing and Reducing Signal to Cavity Coupling in PCBs and Packages for Digital and Mixed Signal Applications"

Aditya Rao, (PhD Dec 2024) Intern SI/PI Amphenol, **SI/PI engineer, Qualcomm, "**In-Situ Multi-Layer Printed Circuit Board Characterization for Signal Integrity"

Ameya Ramadurgakar (PhD May 2025) **NIST "**An Electromagnetic, Robust, Over-the-Air Radio Frequency Fingerprinting of Wireless Devices Using Digital Modulation Techniques"

Manohar Raju (expected PhD May 2027) **Senior Application Engineer, Ansys**

Farhan Ahmed (expected PhD May 2027) **Senior SI/PI Product Engineer, Micron**

SELECT GRADUATE STUDENTS: MS

Paul Vichot (MS EE May 1995) *Continued for a PhD with me*

Jason Mix (MS Thesis EE June 1995, PhD January 1999) **Design Engineer at Intel**, Cray Research Intern (Summer 1994), Motorola Intern (Summer 1995), Intel Intern (Summer/Fall 1997) Modeling High Speed Phenomena using FD-TD. *Continued for a PhD with me.*

Todd Marshall (MS Thesis EE December 1996) Continued on for a PhD with Z. Popovic in Antenna Design, National Renewable Energy Lab (NREL) Research Assistant (1995) Computational EM Modeling of Solar Cells using a Modified FD-TD Scheme.

Zale Schoenborn (MS Thesis EE December 1996) Design Engineer at Intel**, Founder and CEO PICKATHON LLC**, Computational EM modeling of High-Speed Digital Design for MCM's.

David Smith (MS Thesis EE Dec 95) Continuing for a PhD in Remote Sensing at CU, EM Analysis of electromagnetic pulses.

Bryan Boots (MS May 1999) Intern at Ball, 1999, Intern at Cray Research, 1998, **Director of Research and Development, Ansys,** Research Area: Power/Ground Design for High-Speed Systems.

Ian Rumsey (MS Thesis EE May 1999) Ball Aerospace, **CT0, First RF,** Antenna Design with PBG substrates; Hybrid FDTD / S-parameter. *Continued for a PhD with me.*

Alpesh Bhobe (MS Thesis December 1999) **Director of Hardware Engineering, Cisco**, Alternating Difference Implicit Finite Difference Time Domain Methods for Anechoic Chambers. *Continued for a PhD with me.*

Ted Brannan (MS Project EE May 2000) Distinguished Engineer (Tech Fellow) **Medtronics**, FDTD modeling for Optical Resonators.

Andrew Byers (MS Thesis May 2000) Intel, Tektronix, **Director of Strategic Partnerships, Ansys**; Research Area: High Speed Digital Design

Shawn Staker (MS Thesis August 2000) MIT PhD, Lincoln Labs; **Director – USD Swaps Trader, Deutsche Bank**; Higher Order FDTD Schemes

Pelle Fornberg (MS Thesis December 2001) **Retired Principal Engineer, Intel;** EMC**.**

Billy Mansour (MS Project May 2002) Picosecond Pulse Labs, **Vice-President of Flow Measurement Operations**, North America at **Emerson Automation Solutions**; High Speed Interconnects

Rich Hall (MS Project May 2002) **Pico-Second Pulse Labs**; High Speed Interconnects.

Sirichia Kungswai (MS Thesis May 2002) **Kyocera;** High Speed Packaging.

Todd Lammers (MS Thesis June 2003) **Technologist in Engineering**, **Seagate,** ECEE EAB 2024**;** High-Speed Routing EM Simulations

Sanjay DeMello (MS Project December 2013) Apple, **Software Engineer, Firmware, Serve Robotics**; Massively Parallel Computing for a fourth order FDTD algorithm.

Vinit Vyas (MS Project Dec 2014) Intel, **Architect**, **Solidigm**; Fortran CUDA for FDTD core using Graphical Processing Units

Vidyadhar Deodhar (MS Project Dec 2015) **SI/PI Hardware Engineer, Apple**; Analyzing glass weave fiber skew for signal integrity applications

Pranav Balachander (MS Project December 2015) **SIPI Tech Lead**, **Western Digital**; Analysis of Simulation to Measurement Correlation for PCB Interconnects in HFSS

Sai Ram Anand Vempati (MS Project Dec 2015) **Silicon Validation Engineer, Google**; Determining Accurate ESR values of Ceramic Decoupling Capacitors

Rohit Kandurwar (MS Project Dec 2015) Seagate, **Solidigm**, OpenCL programming to maximize big computing for EM using GPUs

Ashik Imran Akbar Basha (MS Project May 2016) OpenCL programming to maximize big computing for EM using GPUs

Dharma Paladugu (MS project 2017) Software Engineer II **Cadence Design Systems**; Characterization of Glass Weave Skew using FDTD algorithms, *starting 2020 working on a PhD at Texas A&M University*

Priya Vemparala Guruswamy (MS project 2017) Micron, **Serdes SI/PI engineer, AMD;** Signal Integrity

Neeti Soonth (MS Thesis May 2018) Siemens, RF Systems Design Engineer **Apple**, Higher order FDTD with Dispersion, *2023 started PhD studies in Aero Engineering CU Boulder*

Aditya Rao (MS Thesis May 2021) Intern SI/PI, Siemens, Amphenol, **Qualcomm** *continued on for PhD with me*

Saish Sawant (MS Project Dec 2021) **Hardware Engineer, ZT Systems** (acquired by **AMD** in 2024) HSDD Application Development Engineer Keysight Technologies

Chaithra Suresh (MS Project Dec 2022) **Hardware Engineer, Apple;** Ultra fine transmission line design and analysis

Michelle Christian (MS Project Dec 2022) **SoC Firmware Engineer, Intel**; Equivalent Circuit models for Capacitors

Aakriti Srivastava (MS Thesis May 2023) Qorvo internship, **Signal Integrity Engineer, Micron**; High Speed Via Design Simulation for Signal Integrity

Vivek Kamble (MS Project Dec 2023) AMD, **Senior Signal and Power Integrity Engineer, Nvidia;** SI/PI modeling with HFSS

Neha Pazare (MS Project Dec 2023) NIST, Apple, **Senior Analog Design Engineer (SI), AMD;** SI/PI design using Hyperlynx, ADS and HFSS

Rylee Beach (MS Project May 2024) Signal Integrity Engineer, **Electrical Engineer, BAE Space and Mission Systems** (acquired Ball AeroSpace 2024) Signal Integrity

Adinath Phene (MS Project Dec 2024) Power Distribution Networks

SELECT UNDERGRADUATE RESEARCH STUDENTS

Jack Ulmer; Conformal Current Sheet Sourcing in FDTD

Marcelo DeGraza; Using Digital Filter Sourcing in FDTD

Matthias Labuszewski; Sourcing Techniques in FDTD

Aaron Orsen; Signal Integrity

Taylor Colety; Near Field Antenna Design

Ginn Sato; Assistive Technology Design

Ainsley Herd; Teaching Microcontroller Design Projects

Elia Muncey; Microcontroller Design Projects for Assistive Technology

Sonal Tamrakar; Slammer Circuits to measure low ESR capacitors

William Guanci; Microcontroller Design Projects

Matthew Cerza; Microcontroller Design Projects

Brooke Cochran; Engineering Education; Postsecondary Education Recruiting

Marina McCann; Engineering Education; Postsecondary Education Recruiting

Fallyn Logan; Engineering Education; Assistive Technology; "Engaging Youth Through Interactive Storybooks"

Mohammed Al Hasani; Signal Integrity: Simulated and Fabricated PCB

Garrett Gipson; Assistive Technology Designs

Hugo Stetz; Supercomputing for EM simulations

Kristin Bogar; Assistive Technology Design

Brandon Hernandez; Alexa Assistive Technology Design

Anna Anderson; High Performance Computing for EM simulations

Bennett; High Performance Computing

Vincent Mahathirash; High Performance Computing for Electromagnetic Behavior

Alec Weiss: Visual Simulation of Electromagnetic Behavior (continued on for PhD at Mines)

Ryan Smith; Graphical User Interface for Massively Parallel Computing; 4th order FDTD algorithm

Chris Lasek; Photonic Bandgap Structures

Scott Harmon; EMC for Networking with Cisco

Asa Holley; FDTD/S-parameter Study

Jennifer Masini; General Electromagnetics/ Web development/Coding, MEMS

Janice Huang; 3D Electromagnetic Interactions with the Human Retinal Rod, Photonic Band Gap Structures, biomed studies

Todd Lammers; Photonic Band Gap Structures; ***College of Engineering Outstanding Undergraduate Research Award recipient; on ECEE EAB 2024***

Ted Kutrumbos; Cisco, Owner "Deno's Mountain Bistro", Consults and Constructs Restaurants in Denver; Photonic Bandgap Structures for RF Applications & EMC for Networking with Cisco

Ted Brannan; Designing Optical Resonators with FDTD/ High Performance Computing

Pelle Fornberg; High Speed Digital Design with Intel

David Schmeltzer; High Speed Interconnect Design with Kyocera

Billy Mansour; Electrical MEMS Design

Tom Hamilton; MEMS Design

Mike Niyompong; Photonic Bandgap Structures / Neural Nets

Lindsay Wanner; Co-Planar Photonic Bandgap Structures

Matt Larson; Coplanar Waveguides

Andy Byers; High Speed Design for Signal Integrity

Bryan Boots; Power/Ground Systems for High Speed Design

Ian Rumsey; Photonic Bandgap Structures; ***College of Engineering Outstanding Undergraduate Research Award recipient***

David Dunshee; SPICE/FD-TD Interface

Darrell Barnhart; Macro Parameter Characterization of Complex High Speed Structures

Jody Matsushima; SPICE/ FD-TD Interface

Curtis Nottberg; Supercomputer Simulations

Tim Stelzer; Assistive Technology; ***on ECEE EAB since 2022***

SELECT DIRECT FUNDING (chronological order)

University of Colorado Undergraduate Research Opportunity (UROP/DLA/SURF) - ongoing
High Speed Interconnect Design, Signal Integrity, Assistive Technology Design, Supercomputing

ARPA Device Optimization Program
Subcontract from Cray Research
Full Wave Analysis of Electromagnetic Fields
1994 – 1995, $100,000

University of Colorado Council on Research and Creative Work Award
Full Wave Analysis of EM Fields for High Speed Design
1994 – 1995, $5,000

University of Colorado MIMICAD Center
Signal Integrity Study
1994 –1995 $5,000

Hughes Undergraduate Biomedical Initiative
Hyperthermia Studies Using FDTD, EM Studies of the Human Retinal Rod
1994 – 1995, $4,000

Jet Propulsion Lab Director's Discretionary Funds Award Miniature High Frequency Electronic Packaging Technology
1994 – 1995, $10,000

Department of Defense/ National Security Agency
Superconducting Multichip Module
1995 – 1999, $365,000

University of Colorado Integrated Teaching and Learning Lab
First Year Engineering Design Projects Curriculum Development
1995 – 1996 $14,166

ROME Air Force Research Lab Electromagnetic Electromigration Study
1995 – 1996, $20,000

University of Colorado Undergraduate Excellence Fund
Introduction to Academia; A Retention Program for First Year Engineers
1996 – 1997, $9,000

NSF Academic Research Infrastructure Program
Instrumentation for Wireless Multi-Media High-Speed Communications PI; Popovic
Co-PI; Piket-May, Varenasi, Mathys
1996 – 1997, $500,000 (My portion was a $50K workstation)

National Science Foundation CAREER Award

Computational Electromagnetic Studies of High Speed Design
1997 – 2001, $210,000

Research Experience for Undergraduates
1997 – 2001, $40,000

NSF CAREER Industrial Matching from Intel Contract
1999 – 2001, $75,000

National Center for Innovation and Invention in Academia
First Year Engineering Design Curriculum Development Co-PI; J. Avery
1998 – 1999, $2,000

Lemelson/MIT National Center for Innovation and Invention in Academia
First Year Engineering Design Swing Project Commercialization
1998 -1999, $10,500

Intel
High Speed Design for Printed Circuit Boards
1999 – 2001, $105,000

University of Colorado through CampMODE
Design of transmission Line MicroElectroMechanical Systems (MEMS) for Undergraduate Labs
1999 – 2000, $10,000

Kyocera through CampMODE
Design of High Speed Connectors
1999 – 2001, $130,000

Intel
1999 gifted $7,000
2000 gifted $10,000

Cray
2000 gifted $45,000

University of Colorado Service Learning Grant
Support for Community Outreach in Assistive Technology Co-PI, James Avery
2000 – 2001, $1,000

Cisco
High Speed Design for EMC of Printed Circuit Boards
2000 – 2002, $60,000

Center for the Integration of Research, Teaching and Learning (CIRTL) Grant
Assessment of Service Based Learning
2014 – 2015, $4,000

BOLD Fellowship
2017-2018 $20,000

Engage Fellowship
2017-2018 $3,000

Timmerhaus Fellowship
2019-2020 $50,000

Keysight - gift
with Eric Bogatin
High-Speed Digital Engineering (HSDE)
2019 $7,500

Ansys - gift
Dev of High-Speed Digital Engineering (HSDE) Professional Master's Program (PMP)
2021 $100,000
2022 $50,000
2023 $23,000

Kyocera – AVX - gift
with Eric Bogatin
High-Speed Digital Engineering (HSDE)
2021 – 2022 $10,000

GE Medical Systems – gift
with Eric Bogatin
High-Speed Digital Engineering (HSDE)
2021-2024 $20,000

Siemen's
with Eric Bogatin
High-Speed Digital Engineering (HSDE) Labs
2021-2024 $42,000

Averatek - gift
with Eric Bogatin
2022-2024 High-Speed Digital Engineering (HSDE)$10,000

IN-KIND FUNDING

1993 – 2001 Cray **Research** Computational Electromagnetics Research
Cray Supercomputer Accounts for Piket-May and all students, value over $500,000/yr

Electromagnetic Computer Simulation Tools ongoing (Polar, Hyperlynx, ADS, HFSS, XFDTD)