Teaching

- 11 different courses taught (4 at MU)
- 6 new courses developed (2 at MU)
- 1 EECE Module in Engineering Discovery 1 (GEEN-1200) - co-taught with Prof. S.C. Schneider at MU

Service

- Selected Service at University
  - Committee member, Electrical and Computer Engineering, Undergraduate Committee
  - ADVANCE Program team member, Marquette University
  - Advocate of NDSU ADVANCE FORWARD (Focus on Resources for Women's Advancement, Recruitment/Retention, and Development), NDSU
  - 4 times WE-GIRLS Summer Camp for girls grades 6-8
- Service outside University
  - 9 times proposal reviewer and panelist for the National Science Foundation (NSF)
  - Reviewer for 22 journals and 8 conferences
  - Technical program committee member for 8 conferences and for Ph.D. DAC Forum
  - Member of the editorial board for 1 journal
  - Guest editor for 2 journals

Papers in Journals   Peer Refereed

Summary: 29 Journal papers (18 while at Marquette)
Electronic versions in PDF format are available at http://dejazzer.com/publications.html
Author names marked with * denote advised graduate students - as Chair of Dissertation/Thesis Committee
Author names marked with ** denote advised undergraduate students - as research mentor and sponsor

1. W. Guan*, M.G. Moghaddam*, and **C. Ababei**, "Quantifying the impact of uncertainty in embedded systems mapping for NoC based architectures," *Elsevier Microprocessors and Microsystems*, Nov. 2020.

2. S. Duerr*, **C. Ababei**, and D.M. Ionel, "A case for using distributed energy storage for load balancing and power loss minimization in distribution networks," *Electric Power Components & Systems Journal*, vol. 48, no. 9-10, pp. 1063-1076, Oct. 2020.

3. L. Bosman, S. Roy, W. McDonald, and **C. Ababei**, "Using online discussions to connect theory and practice in core engineering undergraduate courses," *Wiley Computer Applications in Engineering Education*, vol. 28, no. 3, pp. 675-691, May 2020.

4. H. Gong, V. Rallabandi, D.M. Ionel, D. Colliver, S. Duerr*, and **C. Ababei**, "Dynamic modeling and optimal design for net zero energy houses including hybrid electric and thermal energy storage," *IEEE Trans. on Industry Applications*, vol. 56, no. 4, pp. 4102-4113, July-Aug. 2020.

5. K. Etta**, C. Gilger**, A. Maatman**, T. Ren**, L. Wedel**, C. Tamma, and **C. Ababei**, "A 320x256 RGB LED electronic display controlled via WiFi from mobile application," *The Journal of Open Engineering*, Feb. 2020.

6. K. Conley**, A. Foyer**, P. Hara**, T. Janik**, J. Reichard**, J. D'Souza**, C. Tamma, and **C. Ababei**, "Vibration alert bracelet for notification of the visually and hearing impaired," *The Journal of Open Hardware*, vol. 3, no. 1, pp. 1-11, Oct. 2019.

7. K. Carey*, N. Zimmerman*, and **C. Ababei**, "Hybrid field oriented and direct torque control for sensorless BLDC motors used in aerial drones," *IET Power Electronics*, vol. 12, no. 3, pp. 438-449, Jan. 2019.

8. **C. Ababei** and M.G. Moghaddam*, "A survey of prediction and classification techniques in multicore processor systems," *IEEE Trans. on Parallel and Distributed Systems (TPDS)*, vol. 30, no. 5, pp. 1184-1200, May 2019.

9. T. Nandy, R. Coutu, and **C. Ababei**, "Carbon monoxide sensing technologies for next-generation cyber-physical systems," *MDPI sensors*, vol. 10, no. 18, pp. 1-29, Oct. 2018.

Cristinel Ababei

15. **C. Ababei** and S.C. Schneider, "Arduino to the rescue: swaying undecided freshmen engineering students to electrical and computer engineering," *ASEE Midwest Section Conference*, Manhattan, KS, Sep. 2016.

16. **C. Ababei**, S. Duerr*, J. Ebel*, R. Marineau*, M.G. Moghaddam*, and T. Sewell, "Open source digital camera on field programmable gate arrays," *IEEE Int. Conf. on Electro Information Technology (EIT)*, Grand Forks, ND, May 2016.

17. M.G. Moghaddam*, A. Yamamoto*, and **C. Ababei**, "Investigation of DVFS based dynamic reliability management for chip multiprocessors," *Int. Workshop on Dependable Many-Core Computing (DMCC)*, Amsterdam, Netherlands, July 2015.

18. S. Duerr*, **C. Ababei**, and D.M. Ionel, "SmartBuilds: an energy and power simulation framework for buildings and districts," *IEEE Energy Conversion Congress and Exposition (ECCE)*, Montreal, Canada, Sep. 2015.

19. **C. Ababei** and A.M. Miron, "Emulating working in a company in the classroom: a case for hands-on multiple projects oriented course" *ASEE Zone III Meeting*, Springfield, MO, Sep. 2015.

20. H. Sajjadi Kia*, **C. Ababei**, S. Srinivasan, and S. Jabeen, "A new scalable fault tolerant routing algorithm for networks-on-chip," *IEEE Int. Midwest Symposium on Circuits and Systems (MWSCAS)*, Fort Collins, CO, Aug. 2015.

21. **C. Ababei**, R. Kavasseri, and M.A. Zare, "Net reordering and multicommodity flow based global routing for FPGAs," *IEEE Int. Conf. on Reconfigurable Computing and FPGAs (ReConFig)*, Cancun, Mexico, Dec. 2014.

22. M.A. Zare, R. Kavasseri, and **C. Ababei**, "FPGA-based design and implementation of direct torque control for induction machines," *IEEE Int. Conf. on Reconfigurable Computing and FPGAs (ReConFig)*, Cancun, Mexico, Dec. 2014.

23. **C. Ababei** and N. Mastronarde, "Benefits and costs of prediction based DVFS for NoCs at router level," *IEEE Int. SoC Conference (SOCC)*, Las Vegas NV, Sep. 2014.

24. **C. Ababei** and C. Tamma, "Distributed minimum energy point tracking for systems-on-chip," *IEEE Int. Conf. on Electro Information Technology (EIT)*, Milwaukee, WI, 2014.

25. H. Sajjadi Kia*, M.A. Zare, R. Kavasseri, and **C. Ababei**, "Dynamic simulation of direct torque control of induction motors with FPGA based accelerators," *IEEE Int. Conference on Reconfigurable Computing and FPGAs (ReConFig)*, Cancun, Mexico, Dec. 2013.

26. **C. Ababei** and A.M. Miron, "Addressing early the gender gap in electrical engineering via summer camps for girls," *ASEE North Midwest Section Conference*, Fargo, ND, Oct. 2013.

27. A.Y. Yamamoto* and **C. Ababei**, "Unified system level reliability evaluation methodology for multiprocessor systems-on-chip," *IEEE Int. Green Computing Conference, Lighter-than-Green Dependable Multicore Architectures Workshop*, San Jose CA, June 2012.

28. H. Sajjadi Kia* and **C. Ababei**, "A new reliability evaluation methodology and its application to Network-on-Chip routers," *IFIP/IEEE Int. Conference on Very Large Scale Integration (VLSI-SoC)*, Santa Cruz CA, Oct. 2012.

29. H. Sajjadi Kia* and **C. Ababei**, "Efficient high-speed current-mode links for network-on-chip performance optimization," *IEEE Int. SoC Conference (SOCC)*, Niagara Falls NY, Sep. 2012.

30. R. Katti and **C. Ababei**, "Secure comparison without explicit XOR," *Ninth European Dependable Computing Conference*, Sibiu, Romania, May 2012.

31. H. Sajjadi Kia* and **C. Ababei**, "Improving fault tolerance of Network-on-Chip links via minimal redundancy and reconfiguration," *IEEE Int. Conference on Reconfigurable Computing and FPGAs (ReConFig)*, Cancun, Mexico, Dec. 2011.

32. H. Sajjadi Kia* and **C. Ababei**, "A new fault-tolerant and congestion-aware adaptive routing algorithm for regular Networks-on-Chip," *IEEE Congress on Evolutionary Computation (CEC)*, New Orleans LA, June 2011.

33. **C. Ababei**, H. Sajjadi Kia*, O.P. Yadav, and J. Hu, "Energy and reliability oriented mapping for regular Networks-on-Chip," *ACM/IEEE Int. Symposium on Networks-on-Chip (NOCS)*, Pittsburg PA, May 2011.

34. **C. Ababei**, "Efficient congestion-oriented custom Network-on-Chip topology synthesis," *IEEE Int. Conference on Reconfigurable Computing and FPGAs (ReConFig)*, Cancun, Mexico, Dec. 2010.

35. **C. Ababei**, "Network-on-Chip design and optimization using specialized influence models," *ACM/IEEE Design Automation Conference (DAC)*, Anaheim CA, June 2010.

36. **C. Ababei** and R. Kavasseri, "Efficient extreme event screening for power systems using constrained and unbalanced partitioning," *IEEE PES General Meeting*, Minneapolis MN, July 2010.

37. **C. Ababei** and R. Kavasseri, "Speeding-up network reconfiguration by minimum cost maximum flow based branch exchanges," *IEEE PES Transmission and Distribution Conference and Exposition*, New Orleans LA, Apr. 2010.

38. V. de Paulo* and **C. Ababei**, "A framework for 2.5D NoC exploration using homogeneous networks over heterogeneous floorplans," *IEEE Int. Conference on Reconfigurable Computing and FPGAs (ReConFig)*, Cancun, Mexico, Dec. 2009.

39. **C. Ababei** and R. Katti, "Achieving Network-on-Chip fault tolerance by adaptive remapping," *IEEE Int. Parallel and Distributed Processing Symposium (IPDPS), Reconfigurable Architectures Workshop (RAW)*, Rome, Italy, May 2009.

40. **C. Ababei**, "Parallel placement for FPGAs revisited," *IEEE ACM/SIGDA Symposium on Field Programmable GatJ/F67 95rrray (RPGAs051*

Grants External

Summary: Total $2,607,918 ($2,527,041 at MU); $1,024,628 ($968,751 at MU) as PI

- National Science Foundation (NSFonaAants

- OPUS College of Engineering, Marquette University, Student Centered Learning Projects Program, Working on a start-up: a case for an applied entrepreneurship oriented course for senior undergraduates, PI: **C. Ababei**, Nov. 2015 - June 2016. **$1,800**
- Altera equipment donation, DE1-SoC FPGA development boards, 2015. **$1,743**
- OPUS College of Engineering, Marquette University, Student Centered Learning Projects Program, Emulating working in a company: a case for hands-on multiple projects oriented course for senior undergraduates, PI: **C. Ababei**, Nov. 2014 - June 2015. **$1,900**
- Marquette University, Faculty Development Award to support travel to IEEE SOCC Conference, Sep. 2-5, Las Vegas, NV, PI: **C. Ababei**, Sep. 2014. **$600**
- OPUS College of Engineering, Marquette University, GPU cluster for speeding-up computational methods in electronic design automation, power systems, voice and speech recognition, machine learning, data mining, and forecasting, PI(s): **C. Ababei**, M.T. Johnson, R.J. Povinelli, and R.H. Brown, Feb. 2014. **$20,000**
- Marquette University, Summer Faculty Fellowship (SFF) and Regular Research Grant (RRG), Hardware-software co-design for energy minimization of chip multiprocessors, PI: **C. Ababei**, Dec. 2014. **$9,500**
- Altera equipment donation, DE2-115 FPGA development boards, 2013. **$1,785**
- Xilinx equipment donation, Zed FPGA development boards, 2013. **$1,185**
- North Dakota State University Development Foundation, Enhancing NDSU courses with GPU-based computing, PI: **C. Ababei**, Jan. 2012 - Dec. 2012. **$36,000**
- Altera equipment donation, DE2-70 FPGA development boards, 2009. **$8,415**
- Xilinx equipment donation, Digilab-S3E FPGA development boards, 2009. **$1,380**
- North Dakota State University, Dept. of Electrical and Computer Engineering, Travel to conference, **C. Ababei**, Dec. 2009. **$500**
- North Dakota State University, Office of Research, Creative Activities and Technology Transfer, Travel to conference, **C. Ababei**, May 2009. **$500**
- North Dakota State University, Office of the President, Travel to conference, **C. Ababei**, Feb. 2009. **$1,000**

Professional Societies

- Senior member (SM) of Institute of Electrical and Electronics Engineers (IEEE), 2000 - present (SM as of 2014)
- Member of Association for Computing Machinery (ACM), 2001 - present
- Member of Special Interest Group on Design Automation (SIGDA), 2003 - present

Awards and Honors

- Electrical Engineering and Computer Engineering (EECE) Distinguished Researcher award, 2020
- Member of Eta Kappa Nu and Sigma Xi honor societies, 2014 - present
- Recognition Award, for outstanding technical contribution from Magma, 2007
- Recognition Award, for outstanding technical contribution to the NEC campaign from Magma, 2006
- Nomination for best paper award, Design Automation Conference, 2003
- TEMPUS Scholarship from the European Union, University of Patras, Greece, Sep. 1996 - June 1997
- Top 3 graduation, from Technical University "Gh. Asachi" of Iasi, Romania, 1996
- Second place, Mathematics Olympiad, Grade 12, Botosani, Romania, 1991

Graduate and Undergraduate Research Student Advising (Current)

Chair of Thesis and Dissertation Committee
Summary: 4 Ph.D. and 2 M.S. students

- Raaz Khoshnood, Su19-F19, MU, (SURF, Research Assistant)
- Mitchell Shreiner, F18-F19, MU, (William and Nancy Stemper Scholar, Research Assistant)
- Grace Grad, S19, MU, (Research Assistant)
- Max Marischen, S18-F18, MU, (Research Assistant)
- Momammad Assad, S18-F18, MU, (William and Nancy Stemper Scholar, Research Assistant)
- Brandon Kupczyk, F17-S18, MU, (SURF, Research Assistant)
- Kyle Duckworth, S15-F15, MU, (NSF, Research Assistant)
- Vitor de Paulo, S09, NDSU, (Research Assistant)
- Alexandre Yasuo Yamamoto, S09 NDSU, (Research Assistant)

Senior Design Project Advisor (B.S.)
Summary: 7 teams at MU, 6 teams at NDSU

- John Kahmann, David Keane, Nicholas Gardetto, Matthew Petter, Cheng Yuan, Xingjian Zhao, IoT Device for Home Automation, MU, F19-S20
- Brendan Higgins, Charlie Kash, Andrew Laurita, Patrick Toennies, Voice Control of Scopes, MU, F19-S20
- Kevin Etta, Caroline Gilger, Andrew Maatman, Tuoxuan (Ray) Ren, Logan Wedel, LED Electronic Display, MU, F18-S19
- Kelsey Conley, Jon D'Souza, Alex Foyer, Patrick Hara, Tom Janik, Jason Reichard, Vibration Bracelet, MU, F18-S19
- Rodolfo Moschioni, Bryan Troup, Alex Billies, Mackenzie Jonkman, Connor Conzelman, and Kenny Krueger, Design of a solar powered vehicle, MU, F16-S17
- Curtis Bader, Peter Irgens, Theresa Le, and Devansh Saxena, Face detection on FPGAs, MU, F15-S16
- Jose Gonzalez and Zayed Al Falasi, Designing and prototyping a tri-copter drone, MU, S14
- Thomas Haselhorst, Derek Wiseman, Whitney Conmy, and Layne Berge, Wireless camera presenter tracking system, NDSU, F11-S12
- Thomas Conlin, Sharan Ghimire, and Bibek Bhattarai, FPGA assisted control of the direct torque of induction motor drives, NDSU, F10-S11
- Davis Beattie, Stephen Farnsworth, and Mohammed Albalawi, Wireless glove for sign-to-speech or gaming applications, NDSU, S10-F10
- Kody Olmstead and Felicity Lunden, A greener campus by energy consumption surveillance, NDSU, S10-F10
- Scott Barber, Matthew Bruns, and Jake Arntson, Balance monitoring and alerting system for elderly, NDSU, F09-S10
- Swati Gupta, Matthew Nitschke, and Richard Schultz, FPGA based hardware accelerator for power flow solvers, NDSU, F09-S10

Achievements of Students

- November 2020, Wenkai Guan: Jump Start Award in the Forward Thinking Virtual Poster Session 2020 at Marquette University.
- April 2019, Kelsey Conley, Alex Foyer, Patrick Hara, Tom Janik, Jason Reichard, and Jon D'Souza: 1st place at 2019 Larry Hause Poster Competition of the IEEE Milwaukee Section, in the category Undergraduate Research Projects and Senior Design Projects for their poster presentation titled Vibrating Alert Bracelet.
- March 2017, Milad Ghorbani Moghaddam: Best research assistant award in the EECE department.
- May 2016, Nathan Zimmerman: 1st place at 2016 Larry Hause Poster Competition of the IEEE Milwaukee Section, in the category Graduate: Masters Thesis and Ph.D. Dissertation Work. Poster on MarqDrone quadcopter.

- April 2016, Milad Ghorbani Moghaddam: 1st place at 2016 Sigma Xi Poster Competition, Marquette University, Electrical and Computer Engineering (ECE) Section. Poster on full-system simulation of

Service to the University

- ADVANCE Program team member, Marquette University, Fall 2019-present.
- Committee member, Internal advisory for NSF's ADVANCE adaptation program, Marquette University, Fall 2017-2019.
- Committee member, High Performance Computing (HPC) Governance Committee, Marquette University, Fall 2016-2019.
- Advocate of NDSU Advance FORWARD (Focus on Resources for Women's Advancement, Recruitment/Retention, and Development), NDSU, 2011-2012.

Service to the Professional Community

- Guest editor with R.J. Povinelli and H. Medeiros, Special Issue "Application of Machine Learning and Data Mining in Electrical Engineering", MDPI, energies, 2018-2019.
- Guest editor with R.J. Povinelli and H. Medeiros, Special Issue "Intelligent Sensors Based on Artificial Neural Network", MDPI, sensors, 2020-2021.
- Member of the editorial board: International Journal of Reconfigurable Computing, 2011-2017
- Track chair for IEEE Int. Symposium on Embedded Multicore/Many-core Systems-on-Chip (MCSoC-20), 2020.
- Track chair for IEEE Asia-Pacific Conference on Circuits and Systems (APCCAS), 2020.
- Track chair for IEEE Int. Symposium on Embedded Multicore/Many-core Systems-on-Chip (MCSOC), 2020.
- Track chair for IEEE Int. System-on-Chip Conference (SOCC), 2016-2019.
- Technical program committee member for ACM/SIGDA Ph.D. Forum at ACM/IEEE Design Automation Conference (DAC), 2005-present.
- Technical program committee member for Symposium on VLSI Design and Embedded Computing (VDEC), 2019-present.
- Technical program committee member for IEEE Int. Conference on Reconfigurable Computing and FPGAs (ReConFig), 2012-present.
- Technical program committee member for ACM/IEEE Int. Symposium on Networks-on-Chip (NOCS), 2016-present.
- Technical program committee member for ACM Int. Green and Sustainable Computing Conference (IGSC), 2015-present.

- IEEE Micro
- IEEE Potentials
- IEEE Embedded Systems Letters
-