

Zishen Wan

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RESEARCH INTERESTS

Research Areas: Computer Architecture, VLSI, Autonomous Machine, EDA, Embedded System

Research Vision: My research is at the intersection of VLSI, computer architecture, and embedded systems. I build hardware and system for autonomous machines and cognitive intelligence through cross-stack software-hardware co-design, with the vision to advance their performance, efficiency, resilience, and trustworthy.

EDUCATION

- 2020-2025 **Georgia Institute of Technology, Atlanta, GA, USA**
 (Expected) Ph.D., School of Electrical and Computer Engineering (ECE)
- *Advisor:* Prof. Arijit Raychowdhury, Prof. Tushar Krishna
 - *Research Topic:* Efficient and Reliable Hardware and System Design for Autonomous Machines and Cognitive Intelligence
 - *GPA:* 4.0/4.0
- 2018-2020 **Harvard University, Cambridge, MA, USA**
 M.S., School of Engineering and Applied Science (SEAS)
- *Advisor:* Prof. Vijay Janapa Reddi
 - *Research Topic:* Reliability and Design Automation of Autonomous Machines
 - *GPA:* 3.95/4
- 2014-2018 **Harbin Institute of Technology (HIT), Harbin, China**
 B.E. with High Honors, Department of Electrical Engineering (EE)
- *GPA:* 93.5/100 (Rank: 2/230)

PERFESSIONAL EXPERIENCE

- 2020- **Georgia Institute of Technology, Atlanta, GA, USA**
Graduate Research Assistant
- 2018-2020 **Harvard University, Cambridge, MA, USA**
Graduate Research Assistant
- 2018 **Massachusetts Institute of Technology, Cambridge, MA, USA**
Graduate Research Assistant
- 2016-2018 **Harbin Institute of Technology, Harbin, China**
Undergraduate Research Assistant
- 2017 **National Tsing-Hua University, Hsinchu, Taiwan**
Visiting Student
- 2017 **National Chiao-Tung University, Hsinchu, Taiwan**
Visiting Student

SELECTED AWARDS AND HONORS

- 2024 **Student Travel Award**, IEEE International Solid-State Circuits Conference (**ISSCC**)
- 2023 **Best Poster Award**, IBM IEEE AI Compute Symposium (**AICS**)
Paper ranked highest among 34 accepted posters at AICS'23.
- 2023 **Best Paper Award** in Workshop of IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**)
Paper ranked highest among 40 submissions in Robotics Benchmarking Workshop at IROS 2023.
- 2023 **Machine Learning and Systems Rising Star**
A cohort of 35 PhD students to develop community, foster research and career growth among the rising generation of researchers at interactions of ML and systems.
- 2023 **Student Travel Award**, International Symposium on Computer Architecture (**ISCA**)
- 2023 **Student Travel Award**, Conference on Machine Learning and Systems (**MLSys**)
- 2023 **Roger P. Webb Graduate Research Assistant Excellence Award**, Georgia Tech
Recognition of Graduate Research Assistant (GRA) who have demonstrated excellent research performance. 2-4 students each year in Georgia Tech School of ECE.
- 2023 **IEEE Micro Top Picks**, Honorable Mention
Recognition of "the most significant research papers in computer architecture based on novelty and potential for long-term impact, published in the top computer architecture conferences of 2022"
- 2022 **1st Place, ACM/SIGBED Student Research Competition**
Ranked 1st of 30 participants in ACM student research competition at Embedded Systems Week (ESWEEK), will represent SIGBED to compete in ACM Grand Finals.
- 2022 **3rd Place, ACM/SIGDA Student Research Competition** (declined)
Ranked 3rd of 40 participants in ACM student research competition at International Conference on Computer-Aided Design (ICCAD).
- 2022 **Qualcomm Fellowship**
- 2022 **Young Fellow**, ACM/IEEE Design Automation Conference (**DAC**)
- 2022 **CRNCH PhD Fellowship**, Center for Novel Computing Hierarchies, Georgia Tech
2-4 graduate students each year in Georgia Tech College of Engineering and College of Computing
- 2021 **ACM SIGDA Research Highlights Nominee**
Nominee out of top 10 papers published in ACM SIGDA sponsored conferences in 2020.
- 2021 **Best Research Video Award**, DAC Young Fellow Program
25 winners out of ~200 DAC young fellow students
- 2021 **Young Fellow**, ACM/IEEE Design Automation Conference (**DAC**)
- 2021 **4th Place**, ACM Student Research Competition at International Conference on Computer-Aided Design (**ICCAD**)
- 2020 **Best Paper Award** in IEEE Computer Architecture Letter (**CAL**)
Paper ranked highest among 42 accepted papers that year
- 2020 **Best Paper Award** in ACM/IEEE Design Automation Conference (**DAC**)
Paper ranked highest among 228 accepted papers out of 984 submissions that year
- 2020 **Dean's Fellowship**, Purdue University
2 winners out of over 1600 worldwide applicants, declined
- 2018 **Chiang Chen Overseas Graduate Scholarship**
10 of all undergraduates and graduates in China, \$50,000/person
- 2018 **Best Undergraduate Thesis Award**, HIT
100 winners out of ~4000 thesis submissions
- 2018 **First Class of Chunhui Innovation Achievement Award**
3 of all undergraduates in HIT, highest student academic honor in HIT
- 2018 **China Telecom Scholarship**

- 2018 **Outstanding Graduates**, HIT
5 of all undergraduates and graduates in HIT
Top 1% of all undergraduates
- 2017 **Innovation and Entrepreneurship Scholarship**, Ministry of Industry and Information, China
- 2016 **First Prize**, National Undergraduate Mathematical Contest in Modeling, China
Team leader, 294 winners out of ~32000 teams, ranked 1st among ~600 HIT teams
- 2016 **Siemens Academic Scholarship**
30 of all undergraduates and graduates in HIT
- 2016 **Outstanding Student** of Heilongjiang Province, China
Top 1% of all undergraduates
- 2015 **Johnson Electric Academic Scholarship**
15 of all undergraduates and graduates in HIT
- 2015-2017 **First Class Academic Excellence Scholarship**, HIT
Top 3% of all undergraduates

PUBLICATIONS

(* Indicates Equal Contributions)

Book

- Synthesis** “Robotic Computing on FPGAs”
Lectures on Shaoshan Liu, Zishen Wan, Bo Yu, Yu Wang
Computer *In Synthesis Lectures on Computer Architecture (Morgan & Claypool Publishers), pp.1-218, Jun 2021*
Architecture

Research Artifacts

- ACM SRC** “Intelligence in Robotic Computing: Agile Design Flows for Building Efficient and
Grand Final Resilient Autonomous Machines”
Zishen Wan, Vijay Janapa Reddi, Arijit Raychowdhury
ACM Student Research Competition (SRC), Grand Final, 2023
1st Place in ACM/SIGBED Student Research Competition (SRC)

Conference Publications

- ASPLOS 2024** “MulBERRY: Enabling Bit-Error Robustness for Energy-Efficient Multi-Agent Autonomous Systems”
Zishen Wan, Nandhini Chandramoorthy, Karthik Swaminathan, Pin-Yu Chen, Kshitij Bhardwaj, Vijay Janapa Reddi, Arijit Raychowdhury
In ACM Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), April 2024
Acceptance Rate: 13%
Best Poster Award, IBM IEEE AI Compute Symposium
- ASPLOS 2024** “ORIANNA: An Accelerator Generation Framework for Optimization-based Robotic Applications”
Yuhui Hao, Yiming Gan, Bo Yu, Qiang Liu, Yinhe Han, Zishen Wan, Shaoshan Liu
In ACM Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), April 2024
Acceptance Rate: 13%

- DATE 2024** “H3DFact: Heterogeneous 3D Integrated CIM for Factorization with Holographic Perceptual Representations”
Zishen Wan*, Che-Kai Liu*, Mohamed Ibrahim, Hanchen Yang, Samuel Spetalnick, Tushar Krishna, Arijit Raychowdhury
In Design, Automation and Test in Europe Conference (DATE), April 2024
Acceptance Rate: 24%
- ICCAD 2023** “SEE-MCAM: Scalable Multi-bit FeFET Content Addressable Memories for Energy Efficient Associative Search”
 Shengxi Shou, Che-Kai Liu, Sanggeon Yun, Zishen Wan, Kai Ni, Mohsen Imani, X. Sharon Hu, Jianyi Yang, Cheng Zhuo, Xunzhao Yin
In 42nd IEEE/ACM International Conference on Computer-Aided Design (ICCAD), November 2023
Acceptance Rate: 23%
- IROS 2023** (Workshop) “RobotPerf: An Open-Source, Vendor-Agnostic, Benchmarking Suite for Evaluating Robotics Computing System Performance”
 Victor Mayoral-Vilches, Jason Jabbour, Yu-Shun Hsiao, Zishen Wan, Alejandra Martinez-Farina, Martino Crespo-Alvarez, Matthew Stewart, Juan Manuel Reina-Munoz, Prateek Nagras, Gaurav Vikhe, Mohammad Bakhshalipour, Martin Pinzger, Stefan Rass, Smruti Panigrahi, Giulio Corradi, Niladri Roy, Phillip B. Gibbons, Sabrina M. Neuman, Brian Plancher, Vijay Janapa Reddi
In Robotic Benchmarking Workshop, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October 2023
Best Paper Award
- DAC 2023** “BERRY: Bit Error Robustness for Energy-Efficient Reinforcement Learning-Based Autonomous Systems”
Zishen Wan, Nandhini Chandramoorthy, Karthik Swaminathan, Pin-Yu Chen, Vijay Janapa Reddi, Arijit Raychowdhury
In ACM/IEEE Design Automation Conference (DAC), July 2023
Acceptance Rate: 23%
- ISCA 2023** (Workshop) “VPP: The Vulnerability-Proportional Protection Paradigm Towards Reliable Autonomous Machines”
Zishen Wan*, Yiming Gan*, Bo Yu, Shaoshan Liu, Arijit Raychowdhury, Yuhao Zhu
In International Workshop on Domain Specific System Architecture (DOSSA), International Symposium on Computer Architecture (ISCA), June 2023
- MLSys 2023** (Workshop) “Towards Cognitive AI Systems: A Survey and Perspective on Neuro-Symbolic AI”
Zishen Wan, Che-Kai Liu, Hanchen Yang, Chaojian Li, Haoran You, Yonggan Fu, Cheng Wan, Tushar Krishna, Yingyan (Celine) Lin, Arijit Raychowdhury
In Workshop on Systems for Next-Gen AI Paradigms, Conference on Machine Learning and Systems (MLSys), June 2023
- DATE 2023** “MAVFI: An End-to-End Fault Analysis Framework with Anomaly Detection and Recovery for Micro Aerial Vehicles”
 Yu-Shun Hsiao*, Zishen Wan*, Tianyu Jia, Radhika Ghosal, Abdulrahman Mahmoud Arijit Raychowdhury, David Brooks, Gu-Yeon Wei, Vijay Janapa Reddi
In Design, Automation and Test in Europe Conference (DATE), March 2023
Acceptance Rate: 24%
- DATE 2023** “Real-Time Fully Unsupervised Domain Adaptation for Lane Detection in Autonomous Driving”

Kshitij Bhardwaj, Zishen Wan, Arijit Raychowdhury, Ryan Goldhahn
In Design, Automation and Test in Europe Conference (DATE), March 2023
Acceptance Rate: 24%

ISSCC 2023 “A 73.53TOPS/W 14.74TOPS Heterogeneous RRAM In-Memory and SRAM Near-Memory SoC for Hybrid Frame and Event-Based Target Tracking”
 Muya Chang*, Ashwin Lele*, Samuel Spetalnick, Brian Crafton, Shota Konna, Zishen Wan, Ashwin Bhat, Win-San Khwa, Yu-der Chih, Meng-Fan Chang, Arijit Raychowdhury
In IEEE International Solid-State Circuits Conference (ISSCC), February 2023
Acceptance Rate: 33% (205/629)

ICCAD 2022 “On Resilience and Robustness of Autonomous Systems”
Zishen Wan, Karthik Swaminathan, Pin-Yu Chen, Nandhini Chandramoorthy, Arijit Raychowdhury
In 41st IEEE/ACM International Conference on Computer-Aided Design (ICCAD), November 2022

MICRO 2022 “Automatic Domain-Specific SoC Design for Autonomous Unmanned Aerial Vehicles”
 Srivatsan Krishnan, Zishen Wan, Kshitij Bhardwaj, Paul Whatmough, Aleksandra Faust, Sabrina M. Neuman, Gu-Yeon Wei, David Brooks, Vijay Janapa Reddi
In 55th IEEE/ACM International Symposium on Microarchitecture (MICRO), October 2022
2023 IEEE Micro Top Picks, Honorable Mention
Acceptance Rate: 22% (83/369)

DAC 2022 “Improving Compute In-Memory ECC Reliability with Successive Correction”
 Brian Crafton, Zishen Wan, Samuel Spetalnick, Jong-Hyeok Yoon, Wei Wu, Carlos Tokunaga, Vivek De, Arijit Raychowdhury
In 59th ACM/IEEE Design Automation Conference (DAC), July 2022
Acceptance Rate: 23% (231/987)

ICML 2022 “Multi-Task Federated Reinforcement Learning with Adversaries”
 (Workshop) Aqeel Anwar, Zishen Wan, Arijit Raychowdhury
In Adversarial Machine Learning Workshop, International Conference on Machine Learning (ICML), July 2022

AICAS 2022 “Robotic Computing on FPGAs: Current Progress, Research Challenges, and Opportunities”
Zishen Wan, Ashwin Lele, Bo Yu, Shaoshan Liu, Yu Wang, Vijay Janapa Reddi, Cong (Callie) Hao, Arijit Raychowdhury
In IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS), June 2022

ISPASS 2022 “Roofline Model for UAVs: A Bottleneck Analysis Tool for Onboard Compute Characterization of Autonomous Unmanned Aerial Vehicles”
 Srivatsan Krishnan, Zishen Wan, Kshitij Bhardwaj, Ninad Jadhav, Aleksandra Faust, Vijay Janapa Reddi
In IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), June 2022
Acceptance Rate: 29% (24/83)

NVMW 2022 “RRAM-ECC: Improving Reliability of RRAM-Based Compute In-Memory”
 (Workshop) Zishen Wan*, Brian Crafton*, Samuel Spetalnick, Jong-Hyeok Yoon, Arijit Raychowdhury

In 13th Annual Non-Volatile Memories Workshop (NVMW), May 2022

- CICC 2022** “An Energy-Efficient and Runtime-Reconfigurable FPGA-Based Accelerator for Robotic Localization Systems”
 Qiang Liu*, Zishen Wan*, Bo Yu*, Weizhuang Liu, Shaoshan Liu, Arijit Raychowdhury
In IEEE Custom Integrated Circuits Conference (CICC), April 2022
Acceptance Rate: 41% (97/235)
- DATE 2022** “FRL-FI: Transient Fault Analysis for Federated Reinforcement Learning-Based Navigation Systems”
Zishen Wan, Aqeel Anwar, Abdulrahman Mahmoud, Tianyu Jia, Yu-Shun Hsiao, Vijay Janapa Reddi, Arijit Raychowdhury
In Design, Automation and Test in Europe Conference (DATE), March 2022
Acceptance Rate: 25%
- ASP-DAC 2022** “Circuit and System Technologies for Energy-Efficient Edge Robotics”
Zishen Wan, Ashwin Lele, Arijit Raychowdhury
In Asia and South Pacific Design Automation Conference (ASP-DAC), January 2022
(Invited Paper)
- DAC 2021** “Analyzing and Improving Fault Tolerance of Learning-Based Navigation System”
Zishen Wan, Aqeel Anwar, Yu-Shun Hsiao, Tianyu Jia, Vijay Janapa Reddi, Arijit Raychowdhury
In 58th ACM/IEEE Design Automation Conference (DAC), December 2021
Acceptance Rate: 23%
Best Presentation Award as DAC Young Fellow
- AICAS 2021** “An Energy-Efficient Quad-Camera Visual System for Autonomous Machines on FPGA Platform”
Zishen Wan*, Yuyang Zhang*, Arijit Raychowdhury, Bo Yu, Yanjun Zhang, Shaoshan Liu
In IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS), June 2021
- AICAS 2021** “iELAS: An ELAS-Based Energy-Efficient Accelerator for Real-Time Stereo Matching on FPGA Platform”
 Tian Gao*, Zishen Wan*, Yuyang Zhang, Bo Yu, Yanjun Zhang, Shaoshan Liu, Arijit Raychowdhury
In IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS), June 2021
- ICLR 2021** (Workshop) “ActorQ: Quantization for Actor-Learner Distributed Reinforcement Learning”
 Max Lam*, Sharad Chitlangian*, Srivatsan Krishnan*, Zishen Wan, Gabriel Barth-Maron, Aleksandra Faust, Vijay Janapa Reddi
In Hardware-Aware Efficient Training (HEAT) Workshop, International Conference on Learning Representations (ICLR), May 2021
- DAC 2020** “Algorithm-Hardware Co-Design of Adaptive Floating-Point Encodings for Resilient Deep Learning Inference”
 Thierry Tambe, En-Yu Yang, Zishen Wan, Yuntian Deng, Vijay Janapa Reddi, Alexander Rush, David Brooks, Gu-Yeon Wei
In 57th ACM/IEEE Design Automation Conference (DAC), July 2020
Best Paper Award
ACM SIGDA Research Highlights Nominee

Acceptance Rate: 23% (228/984)

- MLSys 2020** “Quantized Reinforcement Learning (QuaRL)”
 (Workshop) Srivatsan Krishnan*, Sharad Chitlangian*, Max Lam*, Zishen Wan, Aleksandra Faust, Vijay Janapa Reddi
In Resource-Constrained Machine Learning Workshop, Conference on Machine Learning and System (MLSys), March 2020

Journal Publications

- TCAD** “Silent Data Corruption in Robot Operating System: A Case for End-to-End System-Level Fault Analysis Using Autonomous UAVs”
 Yu-Shun Hsiao*, Zishen Wan*, Tianyu Jia, Radhika Ghosal, Abdulrahman Mahmoud Arijit Raychowdhury, David Brooks, Gu-Yeon Wei, Vijay Janapa Reddi
In IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Dec, 2023
- JSSC** “A Heterogeneous RRAM In-Memory and SRAM Near-Memory SoC for Fused Frame and Event-Based Target Identification and Tracking”
 Ashwin Lele*, Muya Chang*, Samuel Spetalnick, Brian Crafton, Shota Konna, Zishen Wan, Ashwin Bhat, Win-San Khwa, Yu-der Chih, Meng-Fan Chang, Arijit Raychowdhury
In IEEE Journal of Solid-State Circuits (JSSC), July, 2023
- TMLR 2022** “QuaRL: Quantization for Fast and Environmentally Sustainable Reinforcement Learning”
 Srivatsan Krishnan*, Max Lam*, Sharad Chitlangian*, Zishen Wan, Gabriel Barth-Maron, Aleksandra Faust, Vijay Janapa Reddi
In Transactions on Machine Learning Research (TMLR), July 2022
- CAS-M 2021** “A Survey of FPGA-Based Robotic Computing”
Zishen Wan*, Bo Yu*, Thomas Yuang Li, Jie Tang, Yuhao Zhu, Yu Wang, Arijit Raychowdhury, Shaoshan Liu
In IEEE Circuits and Systems Magazine (CAS-M), June 2021
- CAL 2020** “The Sky Is Not the Limit: A Visual Performance Model for Cyber-Physical Co-Design in Autonomous Machines”
 Srivatsan Krishnan, Zishen Wan, Kshitij Bhardwaj, Paul Whatmough, Aleksandra Faust, Gu-Yeon Wei, David Brooks, Vijay Janapa Reddi
In IEEE Computer Architecture Letters (CAL), March 2020
Best Paper Award
- JJAP 2019** “Electrically Tunable Temporal Imaging in a Graphene-Based Waveguide”
 Peng Xie, Yu Wen, Zishen Wan, Xinyu Wang, Jiarui Liu, Wenqiang Yang, Xiaofeng Li, Yishan Wang
In Japanese Journal of Applied Physics, 58(5):050914, April 2019

Preprints

- Preprint 2021** “AutoSoC: Automating Algorithm-SoC Co-design for Aerial Robots”
 Srivatsan Krishnan, Thierry Tambe, Zishen Wan, Vijay Janapa Reddi
arXiv preprint arXiv:2109.05683, 2021
- Preprint 2019** “Adaptivfloat: A Floating-point Based Data Type for Resilient Deep Learning Inference”

Thierry Tambe, En-yu Yang, Zishen Wan, Yuntian Deng, Vijay Janapa Reddi, Alexander Rush, David Brooks, Gu-Yeon Wei
arXiv preprint arXiv:1909.13271, 2019

SELECTED TALKS

- Sept 2023 “Intelligence in Robotic Computing: Exploring Agile Design Flows for Building Efficient and Resilient Autonomous Systems”
At Georgia Tech Computer Architecture Research Seminar, Atlanta, GA
- Sept 2023 “Co-Design of NeuroSymbolic Cognitive AI Systems”
Guest Lecture in EE6900 Neuromorphic Computing (Host: Prof. Yan Fang), Atlanta, GA
- Aug 2023 “Intelligence in Robotic Computing: Exploring Agile Design Flows for Building Efficient and Resilient Autonomous Systems”
At ML and System Rising Stars Workshop, Google, Mountain View, CA, USA
- May 2023 “Towards Cognitive AI Systems: A Survey and Perspective on Neuro-Symbolic AI”
At CoCoSys (Center for the Co-Design of Cognitive Systems) Annual Summit, DARPA SRC JUMP 2.0, Atlanta, GA, USA
- May 2023 “Towards Cognitive AI Systems: A Survey and Perspective on Neuro-Symbolic AI”
At Georgia Tech 3D Systems Packaging Research Center Spring Meeting, Atlanta, GA, USA
- May 2023 “Intelligence in Robotic Computing: Exploring Agile Design Flows for Building Efficient and Resilient Autonomous Systems”
At Georgia Tech Chips Day, Atlanta, GA, USA
- Mar 2023 “Intelligence in Robotic Computing: Exploring Agile Design Flows for Building Efficient and Resilient Autonomous Systems”
At Georgia Tech Efficient and Intelligent Computing (EIC) Lab, Atlanta, GA, USA
- Feb 2023 “Intelligence in Robotic Computing: Exploring Agile Design Flows for Building Efficient and Resilient Autonomous Systems”
At CRNCH (Center for Research into Novel Computing Hierarchies) Annual Summit, Atlanta, GA, USA
- Nov 2022 “Intelligence in Robotic Computing: Exploring Agile Design Flows for Building Efficient and Resilient Autonomous Systems”
At ACM Student Research Competition (SRC) at ICCAD 2022, San Diego, CA, USA
- Nov 2022 “Efficient and Resilient Computing for Autonomous Systems”
At ACM Student Research Competition (SRC) at ESWEEK 2022, virtual
- Oct 2022 “Efficient Algorithm-Hardware Co-Design for Robotic Mapping and Localization”
At 5th IBM AI Compute Symposium, IBM T.J. Watson Research Center, Yorktown Heights, NY, USA
- Oct 2022 “Efficient Algorithm-Hardware Co-Design for Robotic Mapping and Localization”
At CBRIC (Center for Brain-Inspired Computing) Annual Summit, Purdue University, West Lafayette, IN, USA

- Jun 2022 “Reliability of Autonomous Machines – System Perspective”
At COMPSAC Plenary Panel, Torino, Italy (virtual)
- Mar 2022 “FPGA-Based Robotic Computing: Current Progress, Challenges, and Opportunities”
Guest Lecture in Georgia Tech ECE8893 (Parallel Programming for FPGAs), Atlanta, GA, USA
- Feb 2022 “FPGA-Based Robotic Computing: Current Progress, Challenges, and Opportunities”
At CRNCH (Center for Research into Novel Computing Hierarchies) Annual Summit, Atlanta, GA, USA
- Nov 2021 “Efficient and Reliable Computing for Autonomous Machines”
At ACM Student Research Competition (SRC) at ICCAD 2021, virtual
- Oct 2021 “Enabling Reliable and Safe Autonomous Systems”
At CBRIC (Center for Brain-Inspired Computing) Annual Summit, Purdue University, West Lafayette, IN, USA (virtual)
- Aug 2021 “Analyzing and Improving Resilience of Autonomous Systems - From Hardware Faults Perspective”
At CBRIC (Center for Brain-Inspired Computing) Industry Talk, virtual

MENTORSHIP

- Fall 2022 Maanas Purushothapu (BS - Georgia Tech), Nishant Sharma (BS - Georgia Tech)
Project: Accelerating Robotic Computing with FPGAs
- Spring 2022 Zhenkun Fan (MS - Georgia Tech)
Project: Benchmarking Unsupervised Adaptation on Edge Devices
- Spring 2022 Ying-Hao Wei (MS - Georgia Tech)
Project: Reliability Analysis and Improvement of Autonomous Intelligent Systems
- Fall 2021 Katarine Emanuela Klitzke (Undergrad - Georgia Tech)
Project: Architectural Analysis and Benchmarking for UAV Navigation Systems
- Summer 2020 Prateek Piniseti (Undergrad - Harvard)
Project: Performance Modeling for Cyber-Physical Co-Design in UAV

ACADEMIC SERVICE

- ML Commons** ML Commons (MLPerf) Research Working Group
Co-found ML Commons Resilience and Robustness Research Working Group, 2022
- DAC** IEEE/ACM Design Automation Conference (DAC)
Reviewer, 2023
- ESWEEK** IEEE/ACM Embedded Systems Week (ESWEEK)
Reviewer, 2023
- IEEE T-CAD** IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
Reviewer, 2023

IEEE TBioCAS	IEEE Transactions on Biomedical Circuits and Systems <i>Reviewer, 2023</i>
IEEE TCAS-I	IEEE Transactions on Circuits and Systems I: Regular Papers (TCAS-I) <i>Reviewer, 2023</i>
IEEE Micro	IEEE Micro <i>Reviewer, 2023</i>
ISCA	IEEE/ACM International Symposium on Computer Architecture (ISCA) <i>Artifact Evaluation Committee, 2023</i>
MICRO	IEEE/ACM International Symposium on Microarchitecture (MICRO) <i>Artifact Evaluation Committee, 2023</i> <i>Artifact Evaluation Committee, 2022</i>
ASPLOS	IEEE/ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) <i>Artifact Evaluation Committee, 2023</i> <i>Artifact Evaluation Committee, 2022</i>
ICCAD	IEEE/ACM International Conference on Computer-Aided Design (ICCAD) <i>Reviewer, 2022</i>
IISWC	IEEE International Symposium on Workload Characterization (IISWC) <i>Artifact Evaluation Committee, 2022</i> <i>Student Volunteer, 2019</i>
NPC	IFIP International Conference on Network and Parallel Computing (NPC) <i>Technical Program Committee, 2022</i>
COMPSAC	IEEE Computers, Software & Applications Conference (COMPSAC) <i>Panelist, 2022</i>
IEEE Entrep.	IEEE Entrepreneurship of China Region <i>Steering Committee, 2023</i>

SKILLS

Programming	Python, C/C++, Verilog/SystemVerilog, MATLAB
ML Framework	Pytorch, TensorFlow, Keras, Caffe
Tool	Virtuoso, Design Compiler, Innovous, Calibre, Vivado, Quartus, OrCAD, MultiSim, Altium Designer, Unreal Engine, AirSim