Department of Computer Science and Engineering &
Department of Electrical Engineering
University of Notre Dame
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YIYU SHI

EMPLOYMENT

- 2015-present University of Notre Dame, Notre Dame, IN
  Professor, Department of Computer Science and Engineering,
  Director, Sustainable Computing Laboratory,
  Site Director, NSF I/UCRC on Alternative and Sustainable Intelligent Computing (ASIC)
  Research interests: On-device learning, software/hardware co-design, sustainable and fair AI, medical applications
- 2020-present Boston Children's Hospital/Harvard Medical School, Boston, MA
  Visiting Scientist, Department of Cardiology (courtesy appointment)
- 2010- 2015 Missouri University of Science and Technology Rolla, MO
  Assistant Professor,
  Director, VLSI Laboratory,
  Co-founder and Site Associate Director, NSF I/UCRC on Net-Centric Software and Systems (NCSS)
- 2012-2014 Tsinghua University Beijing, China
  Visiting Professor (courtesy appointment),
  Institute for Interdisciplinary Information Sciences (IIIS)
  Teaching and research on smart grid and renewable energy
- 2010/05-2010/08 National Tsing Hua University Hsinchu, Taiwan
  Visiting Scholar,
  Department of Computer Science,
  Research on design automation of three-dimensional integrated circuits
- 2009/11-2010/04 Carnegie Mellon University Pittsburgh, PA
  Postdoctoral Researcher
- 2009/06-2009/10 Univ. of California, Los Angeles Los Angeles, CA
  Research Associate

EDUCATION

- 2005-2009 University of California Los Angeles, CA
  Ph.D. in Electrical Engineering
  Dissertation: Modeling and Optimization for Power Integrity Considering the Uncertainties of VLSI Circuits and Systems

- 2001-2005 Tsinghua University Beijing, China
  B.S. in Electronic Engineering

AWARDS/RECOGNITIONS

- William J. McCalla Best Paper Nomination (x2) at IEEE/ACM International Conference on Computer Aided Design, 2024 (10 out of 802 submissions)
- William J. McCalla Best Paper Award at IEEE/ACM International Conference on Computer-Aided Design, 2023 (2 out of 750 submissions)
- Second Place Winner, Tiny and Fair ML Design Contest at IEEE/ACM ESWEEK, 2023
- IEEE/ACM DAC Under-40 Innovator Award, 2023
- ACM SIGDA Meritorious Service Award, 2022
- JSPS (Japan Society for the Promotion of Science) Faculty Invitation Fellow, 2022
- ACM Distinguished Speaker, 2021-2024
- IEEE CEDA Distinguished Lecturer, 2022-2023
- Best Demonstration (First Place), University Demo, IEEE/ACM Design Automation Conference, 2021
- IEEE Transactions on Computer Aided Design Donald O Pederson Best Paper Award, 2021 (2 out of 800+ submissions between 2019 and 2020)
- Top Winning Award, IEEE SERVICES Hackathon, 2020
- MICCAI Society Young Scientist Award Nomination, 2020
- Facebook Research Award, 2020 (8 out of 161 submissions)
- Best Paper Nomination at IEEE/ACM Asia and South Pacific Design Automation Conference (ASP-DAC), 2020 (12 out of 263 submissions)
- IEEE Computer Society TCVLSI Mid-Career Research Achievement Award, 2019
- Best Paper Nomination at IEEE/ACM International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), 2019 (3 out of 74 submissions)
- Best Student Paper Award at IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshop 2019
- Best Paper Nomination at IEEE/ACM Design Automation Conference (DAC), 2019 (5 out of 815 submissions)
- August-Wilhelm Scheer visiting professorship, Technical University of Munich, summer 2018
- Air Force Visiting Faculty Research Fellowship, 2017
- Air Force Summer Faculty Fellowship, 2015, 2016
- Best Paper Nomination at IEEE/ACM Design Automation Conference (DAC) 2016 (16 out of 674 submissions)
- ACM SIGDA Outstanding Service Award, 2015
- NSF/IEEE-TCPP Early Adopter Status Award, 2015, 2014, 2012
- Best Paper Nomination at ACM International Symposium on Physical Design (ISPD) 2015
- IEEE Region 5 Outstanding Individual Achievement Award, 2015

- Missouri S&T Teaching Excellence Award, 2015
- Innovation Award, the Academy of Science, St. Louis, 2014.
- Humboldt Research Fellowship for Experienced Researchers, 2014
- Carl Friedrich von Siemens Fellowship, 2014
- Missouri S&T Faculty Excellence Award, 2014
- IEEE St. Louis Section Outstanding Educator Award, 2014
- Gold Medal, Taipei International Invention Show and Technomart, 2014
- Best Paper in Track at IEEE/ACM International Conference on Computer Aided Design (ICCAD) 2014
- National Science Foundation CAREER Award, 2014
- JSPS (Japan Society for the Promotion of Science) Invitation Fellow, 2014
- University Teaching Commendation Award, 2012, 2013
- Best Paper Nomination at ACM International Symposium on Physical Design (ISPD) 2013 (4 out of 55 submissions)
- University of Missouri Faculty Scholar, 2012
- Third place winner at ISPD Discrete Gate Sizing Contest, 2012
- Second place winner at TAU Workshop Power Grid Analysis Contest (sponsored by IBM) 2011
- IEEE/ACM Design Automation Conference Alumni Scholarship 2010
- Best Paper Nomination at IEEE/ACM Design Automation Conference (DAC) 2009 (7 out of 682 submissions)
- IBM Invention Achievement Award for First Patent Application 2009
- Best Paper Nomination at IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC) 2009 (12 out of 350 submissions)
- Best Paper Nomination at IEEE International Conference on Computer Design (ICCD) 2008
- William J. McCalla Best Paper Nomination at IEEE/ACM International Conference on Computer Aided Design (ICCAD) 2007 (9 out of 510 submissions)
- Best Paper Nomination at IEEE/ACM Design Automation Conference (DAC) 2006 (10 out of 1007 submissions)
- Outstanding M.S. Award, UCLA Henry Samueli School of Engineering and Applied Science, 2007
- UCLA University Fellowship 2005 – 2006
- Rank 1/164 for overall undergraduate GPA in the Electronic Engineering Dept., Tsinghua University, 2005
- Outstanding B.S. in Beijing (top 0.5%) 2005
- Outstanding B.S. in Tsinghua University (top 2%) 2005
- Outstanding Bachelor Thesis in Tsinghua University (top 5%) 2005
- Meritorious (First Prize) for the International Mathematical Contest in Modeling (MCM) 2005
- Jiang Nanxiang Outstanding Performance Scholarship (top 0.2%) 2004
- First Prize at the Chinese Undergraduate Mathematical Contest in Modeling (CUMCM) 2004
- Honorable Mention (Second Prize) at the International Interdisciplinary Contest in Modeling (ICM) 2004
- First Prize in Beijing at the Chinese Undergraduate Mathematical Contest in Modeling (CUMCM) 2003

- Sumsung Outstanding Performance Scholarship 2003
- Third Prize of Outstanding Academic Performance Scholarship 2003

RESEARCH GRANTS

Total awarded $9,311,985, including external $9,022,344

My share of credit $6,925,296 including external $6,519,865

- PI, 50%，“Advancing AI Diagnostics in Bladder Cancer: A Collaborative Effort Between Notre Dame and First Affiliated Hospital of Sun Yat-sen University,” Notre Dame East Asia Research Collaboration Grant, 5/1/25-4/30/26, $8,750
- Co-PI, 50%, “Viability, Imaging, Surgical, Immunomodulation, Ocular preservation and Neuroregeneration (VISION) Strategies for Whole Eye Transplant,” Advanced Research Projects Agency for Health (ARPA-H) /Stanford University, 10/01/24-09/30/29, $544,938
- Co-PI, 33%, “SHF: small: On-device Large Language Model Personalization with Algorithm-Hardware Co-design for Healthcare Applications,” National Science Foundation, 10/01/24-09/30/27, $569,268
- PI, 100%, “An Unsupervised Federated Learning Framework to Improve Fairness in AI-Assisted Healthcare,” Lucy Family Institute for Data & Society, 10/01/23-09/30/24, $50,000
- PI, 100%, “Promoting Fairness in AI-Enabled Healthcare through Unsupervised Federated Learning: A Pilot Study,” Indiana Clinical and Translational Sciences Institute (CTSI), 10/01/23-09/30/25, $14,942
- PI, 100%, “Collaborative Research: DESC: Type II: REFRESH: Revisiting Expanding FPGA Real-estate for Environmentally Sustainability Heterogeneous-Systems,” National Science Foundation, 11/01/23-10/31/26, $500,000
- PI, 33%, “FuSe-TG: Cross-layer Co-Design for Self-Evolving Implantable Devices,” National Science Foundation, 06/01/23-05/31/25, $300,000
- PI, 50%，”AI-Based EDA Tools for Co-Design of ReRAM/FeFET and CMOS based Heterogeneous Systems,” AI Chip Center for Emerging Smart Systems Limited, 09/01/2022-08/31/2026, $1,200,000
- PI, 100%, “Achieve Fairness in AI-Assisted Mobile Healthcare Apps through Unsupervised Federated Learning,” National Institute of Health, 08/15/22-08/14/26, $456,360
- Co-PI, 50%, “Machine Learning for Perfused Vascularized Composite Allografts,” Department of Defense, 9/30/22-8/31/25, $270,756
- PI, 100% “Collaborative Research: CNS Core: Small: Towards Unsupervised Learning on Resource Constrained Edge Devices with Novel Statistical Contrastive Learning Scheme,” National Science Foundation, 09/01/21-08/31/24, $299,999
- PI, 100%, “IRES Track I: International Research Experience for Students on Artificial Intelligence for Congenital Heart Diseases,” National Science Foundation, 09/01/21-08/31/25, $300,000
- PI, 100%, “RAPID: Collaborative Research: Independent Component Analysis Inspired Statistical Neural Networks for 3D CT Scan Based Edge Screening of COVID-19,” National Science Foundation, 05/01/20-04/30/22, $98,349
- PI, 100%, “Collaborative Research: CNS Core: Small: Intermittent and Incremental Inference with

Statistical Neural Network for Energy-Harvesting Powered Devices," National Science Foundation, 10/01/20 – 09/30/24, $246,272

- PI, 100%, "Low Power Embedded Learning for Cardioverter-defibrillator Design," Singular Medical Inc., 9/1/2018-8/31/2024, $24,5000
- PI, 100%, "Partial Binarziation for Deep Convolutional Neural Networks," Kneron, 9/1/2018-8/31/2022, $200,000
- Co-PI, 50%, "Blockchain with Deep Learning Based Proof-of-Useful-Work," Notre Dame Blockchain Grant, $53,918, 1/1/20 – 12/31/20, $53,918 (internal grant)
- PI, 100%, "SPX: Collaborative Research: Scalable Neural Network Paradigms to Address Variability in Emerging Device based Platforms for Large Scale Neuromorphic Computing," National Science Foundation, 9/1/19 – 8/31/24, $360,132
- PI, 100%, "STTR NAVY - N19A-018, FPGA Vulnerability Analysis Tools," Navy, 07/01/19-6/30/20, $95,738
- PI, 70%, "Phase 1 IUCRC University of Notre Dame: Center for Alternative Sustainable and Intelligent Computing (ASIC)," National Science Foundation, 9/1/2018-8/31/2023, $750,000
- PI, 100%, "Energy Efficient Smart Implantable Cardioverter-defibrillator Design," Max BioE, 9/1/2018-8/31/2020, $125,000
- Co-PI, 25%, "Novel Devices and Circuits for Side Channels," Semiconductor Research Corporation, 6/01/2018 - 5/31/2019, $168,000
- PI, 100%, "CAREER: Opportunistic Through-Silicon-Via Utilization: Device, Circuit and Design Automation Perspectives," National Science Foundation, 03/01/2014-02/28/2019, $424,932
- PI, 100%, "IRES: International Research Experience for Students on Design Automation of Three-Dimensional Integrated Circuits," National Science Foundation, 9/1/2015-10/31/2018, $249,746
- PI, 100%, "University of Notre Dame Planning Grant: I/UCRC for Alternative Sustainable and Intelligent Computing (ASIC)", National Science Foundation, 3/1/2017-2/28/2018, $14,999
- PI, 100%, "Prototyping and Evaluation of Millimeter Scale Smart Particles for Assessment of Soil Liquefaction during Earthquakes," Greater China Collaboration Grant, 7/15/2018-6/30/2019, $10,000 (internal grant)
- PI, 100%, "Smart Sands: Exploring Millimeter Scale Smart Particles for Assessment of Soil Liquefaction during Earthquakes," Greater China Collaboration Grant, 9/1/2017-8/31/2018, $10,000 (internal grant)
- PI, 100%, "A Novel Privacy-Aware Online Scheduling Strategy for Smart Homes in Santiago, Chile," Luksburg Foundation Grant, 7/1/2017-6/30/201, $10,000 (internal grant)
- PI, 100%, "Urban Microgrid Design for Major Disaster Resilience - Exploring Synergies between Electronic Design Automation and Power Systems Engineering," 3/1/2016-2/28/2017, Luksburg Collaboration Grant, $3,000 (internal grant)
- Co-PI, 49%, "Collaborative Research:XPS:CLCCA: Cross-layer Thermal Reliability Management in 3D Integrated Heterogeneous Processor for Breaking the Power and Bandwidth Walls," National Science Foundation, 08/01/2013-07/31/2017, $429,598
- Co-PI, 20%, "NSF I/UCRC: Net-Centric Software and Systems Center Site at Missouri University of

Science and Technology," National Science Foundation, 9/1/2012-8/31/2016, $300,000

- PI, 100%, "Sensor Aware Design for Power Integrity", University of Missouri Research Board, 6/1/2014-5/30/2015, $27,128 (internal grant)
- PI, 100%, "Voltage Emergency Aware Design and Runtime Techniques," Industrial Technology Research Institute, 03/01/2014-12/31/2015, $56,000
- PI, 100%, "US-Taiwan Visits: Novel Sensing Designs for Three-Dimensional Integrated Circuits," National Science Foundation, 07/01/2013-06/30/2015, $66,290
- PI, 100%, "Real-time Smart Grid Anomaly Detection via Power Law," Ameren, 09/01/2013-08/31/2015, $39,938
- PI, 100%, "TSV-Oriented Three-Dimensional Integrated Circuit Design for Mobile Computing,", Streber-Tech, Co. Ltd, 3/1/2012-2/28/2014, $90,000
- Co-PI, 50%, "Modeling and Experiment of High Power Radio-Frequency Effects on Printed Circuit Boards and their Embedded Chipsets," TechFlow Scientific, 6/1/2014-12/31/2014, $60,000
- PI, 100%, "Real-time Localized BMS for Large Battery Packs," Jianghan Petroleum Administration, a member company of SINOPEC, 3/1/2012-3/28/2014, $90,000
- PI, 100%, "Real-time Maximum-Likelihood Based Multiple Power-Line Outage Detection and Localization in Smart Grids," Energy Research and Development Center (ERDC), Missouri S&T, 10/01/2013-9/30/2014, $20,000 (internal grant)
- PI 100%, "Design of Smart Solar Lamps," Shanghai Yaming Lighting Company, 12/1/10 – 11/30/13, $172,230.
- PI 100%, "Building Chips Tall, Cool and Robust," University of Missouri Research Board, 5/1/11-4/1/13, $40,000 (internal grant)
- PI 100%, "Statistical Prediction and Estimation of Solar Energy," Jianghuan Environmental Protection Agency, 8/1/2011-7/31/2013, $53,799
- Co-PI, 25%, "Modeling and Design Exploration for 3D ICs," Cisco Systems, Inc[1], 1/1/2012-12/31/2013, $120,000
- Co-PI, 34%, "Asynchronous RDVS Cryptographic Processor," University of Missouri Research Board, 6/1/2012-5/31/2013, $41,900 (internal grant)

RESEARCH GIFTS AND OTHER GRANTS (Total: $853,706)

- Kneron Inc, $328,853
- Max Bioe, Inc., $320,000
- IEEE Council on Electronic Design Automation (CEDA), $3,000
- NSF/TCPP Early Adopter Awards, $3,500
- Industrial Technology Research Institute, 1/1/2012-12/31/2012, $19,000
- Industrial Technology Research Institute, 1/1/2013-12/31/2013, $24,000

[1] Give as a gift to avoid overhead per the company's policy.

SOCEITY COMMITTEE ASSIGNEMENTS

- Education Chair, ACM Special Interest Group on Design Automation (SIGDA) Executive Committee, 2018-2021
- Publicity Committee, IEEE Technical Council on Electronic Design Automation, 2016-
- IEEE Smart Grid R&D Committee, 2016-

ORGANIZING/EXECUTIVE COMMITTEE ASSIGNEMENTS

- Special Session Chair, IEEE Computer Society Symposium on VLSI (ISVLSI) 2014
- IEEE/ACM Design Automation Conference Ph.D. Form, 2016
- ACM Student Research Competition at IEEE/ACM International Conference on Computer-Aided Design, 2015-2016
- Special Session Co-Chair, IEEE SoC (System-on-Chip) Conference, 2018, 2020
- Publicity Co-chair, IEEE International Conference on Computer Design, 2020
- Executive committee member, IEEE/ACM International Conference on Computer-Aided Design, 2021-

EDITORIAL BOARD ASSIGNEMENTS

- Deputy Editor-in-Chief, IEEE VLSI CAS Letter, 2018-
- Associate Editor, IEEE Access, 2019-
- Associate Editor, Integration, the VLSI Journal, 2016-
- Associate Editor, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2016-2021
- Associate Editor, ACM Journal of Emerging Technologies in Computing Systems (JETC), 2015-
- Associate Editor, ACM Special Interest Group on Design Automation (SIGDA) Newsletter, 2015-2018
- Associate Editor, IEEE Technical Committee on Cybernetics for Cyber-Physical Systems (CCPS), 2015-
- Executive Associate Editor, IEEE VLSI Circuits and Systems Letter (IEEE Computer Society Technical Committee on VLSI), 2015-2017

EVENT ORGANIZER

- TinyML Contest at IEEE/ACM International Conference on Computer-Aided Design, 2022, Chair (with 150+ teams from over 10 countries)
- System Design Contest at IEEE/ACM Design Automation Conference 2018, Chair (with 140+ teams from over 10 countries)
- Hardware Design Contest at IEEE/ACM Design Automation Conference 2017, Chair (with 30+ teams from over 10 countries)
- ACM SIGDA Ph.D. Forum at Design Automation Conference, Chair 2017
- ACM Student Research Competition at International Conference on Computer-Aided Design, Co-Chair, 2015, Chair, 2016
- ACM SIGDA Live (http://www.sigda.org/live), founder 2016

TECHNICAL PROGRAM COMMITTEE ASSIGNEMENTS

- IEEE Computer Society Annual Symposium on VLSI (ISVLSI), 2016-2020 (Track chair 2018-2020)
- IEEE International Symposium on Quality Electronic Design (ISQED), 2016-
- IEEE Workshop on Modeling and Simulation of Cyber-Physical Energy Systems (MSCPES), 2014-2018
- IEEE/ACM Design, Automation and Test in Europe (DATE), 2016
- IEEE/ACM Design Automation Conference (DAC), 2014-2016, 2018 (LBR), 2019-
- ACM International Symposium on Physical Design (ISPD), 2011-2013
- IEEE International Symposium on VLSI Design, Automation & Test (VLSI-DAT), 2011-2016
- IEEE Asia Symposium & Exhibits on Quality Electronic Design (ASQED), 2011-2013
- IEEE International Conference on Computer Design (ICCD), 2011-2014, 2016
- ACM/IEEE International Workshop on Timing Issues (TAU), 2012
- ACM/IEEE International Conference on Computer-Aided Design (ICCAD), 2012-2014, 2018-2019
- ACM/IEEE Design Automation Conference Ph.D. Form, 2012-2016
- ACM/IEEE Asia and South Pacific Design Automation Conference (ASPDAC), 2014-2016 (Track chair 2016)
- ACM/IEEE Asia and South Pacific Design Automation Conference (ASPDAC) Best Paper Selection Committee, 2013
- SEMICON China, 2013-2017 (TPC Co-chair, 2016, TPC Chair 2017)
- IEEE International Symposium on VLSI Design and Test, 2014
- ACM/IEEE Design Automation Conference Ph.D. Forum Best Paper Selection Committee, 2014

REVIWER FOR JOURNALS/PROPOSALS

- IEEE Transactions on Computer-Aided-Design of Integrated Circuits and Systems.
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Computers
- IEEE Transactions on Very Large Scale Integrated Circuits and Systems.
- IEEE Transactions on Circuits and Systems I, and II.
- IEEE Transactions on Neural Networks and Learning Systems
- ACM Transactions on Design Automation of Electronic Systems.
- ACM Journal of Emerging Technologies in Computing
- Elsevier Microelectronics Journal
- Medical Image Analysis
- Nature
- Nature Electronics
- Scientific Reports
- UTSA Limited Submission DoD Basic Research Program for HBCU/MI, 2019
- National Science Foundation, 2013, 2016, 2018, 2019, 2020, 2021, 2022, 2023
- Research Grants Council, Hong Kong, 2020, 2022
- Israel Science Foundation (ISF), Israel, 2021

- Swiss National Science Foundation, Switzerland, 2021
- Dutch Research Council (DRC), Netherland, 2021

SESSION CHAIR/MODERATOR/

- ACM International Symposium on Physical Design (ISPD), 2011, 2012
- IEEE/ACM International Conference on Computer-aided Design (ICCAD), 2011, 2012
- IEEE/ACM Asia and South Pacific Design Automation Conference, 2012
- IEEE/ACM Design, Automation and Test in Europe, 2016

WORKSHOP/SPECIAL SESSION/PANEL ORGANIZER

- "Hardware Aware Learning for Medical Imaging and Computer Assisted Intervention," Workshop at International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2020
- "Reaching Beyond Device Scaling: CMOS Perspectives," IEEE Computer Society Annual Symposium on VLSI (ISVLSI, 2014)
- "Memcomputing: the Cape of Good Hope", IEEE/ACM Design, Automation & Test in Europe (DATE) 2014
- DAC Workshop on Embedded Systems for Energy-Efficient Smart Infrastructure (ESSI), 2013
- "Computing in the Random Noise: the Bad, the Good, and the Amazing Grace", IEEE/ACM International Conference on Computer-aided Design (ICCAD), 2012
- "Design for Reconfigurability and Adaptivity: Device, Circuit and System Perspectives", IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), 2012
- "Three-dimensional Stacking: Theories, Tools and Tapeouts", IEEE SOC Design Conference (ISOCC), 2011

TUTORIALS/SHORT COURSES

- Yiyu Shi, "Efficient Deployment of Large Language Models on Resource Constrained Edge Computing Platforms," Tutorial at IEEE/ACM Asia and South Pacific Design Automation Conference 2025
- Masanori Hashimoto and Yiyu Shi, "Toward Robust Neural Network Computation on Emerging Crossbar-based Hardware and Digital Systems", Tutorial at IEEE/ACM Asia and South Pacific Design Automation Conference 2024
- Yiyu Shi, "Short Course on More-than-Moore Technologies", full-day short course at the 225th ECS Meeting, Florida, May 2014.
- Yiyu Shi, "Short Course on More-than-Moore Technologies: Are We Ready for the Showdown?", full-day short course at Yuan Ze University, Taiwan, sponsored by National Science Council, April 2013
- Yiyu Shi and Guojie Luo, "2013 Short Course on More-than-Moore Technologies: Device, Circuit, System and Design Automation perspectives", half-day tutorial in IEEE International Symposium on VLSI Design, Automation & Test, April 2013.
- Yiyu Shi, "Order Statistics 101: from Horse Racing to At-Speed Testing," guest lecture for Yao Class

(founded by Turing Award Winner Prof. Andrew Chi-Chih Yao), Tsinghua University, China, May 2012

- Jun So Pak, Yiyu Shi and Kwang-Seong Choi, “3D IC Technologies”, embedded tutorial in IEEE Electrical Design of Advanced Pakcaging & Systems (EDAPS), Hangzhou, China, Dec 2011
- John F. Park, Martin D. F. Wong, Yao-Wen Chang, Yiyu Shi and Lei He, “Beyond-Die Designs: Solutions and Challenges”, embedded tutorial in IEEE/ACM International Conference on Computer-aided Design, San Jose, CA, 2010
- Yiyu Shi and Lei He, “2010 Short Courses for 3D IC Design, Modeling and Optimization", sponsored by IEEE CASS Taipei Chapter and Natoinal Tsing Hua University, Hsin Chu, Taiwan, 09/06/2010 - 09/08/2010

PATENTS

- Yiyu Shi, Jinjun Xiong, Chandu Visweswariah and Vladimir Zolotov, "Method and Apparatus for Selecting Paths for Use in At-Speed Testing," US12,340,072 (**2009 IBM Invention Achievement Award**)
- Rajit Gadh, Siddhartha Mal, Shivanand Prabhu, Chi-Cheng Chu, Omar Sheikh, Ching-Yen Chung, Lei He, Bingjun Xiao, Yiyu Shi, "Smart Electric Vehicle Charging and Grid Integration Apparatus and Methods," US 9,026,347
- Chiao-Ling Lung, Yu-Shih Su, Shih-Chieh Chang and Yiyu Shi, "Fault-tolerant Unit and Method for Through-Silicon Via," US 13,236,661 (**Gold Medal at 2014 Taipei International Invention Show and Technomart)**
- Yiyu Shi, Travis Schulze, Kevin Kwiat and Charles Kamhoua, “Method and Apparatus for Partially Resisting Hardware Trojan Induced Data Leakage in Sequential Logics,” US15,397,142
- Yiyu Shi, Travis Schulze, Kevin Kwiat and Charles Kamhoua, “Secure Logic Chip for Resisting Hardware Trojan Induced Leakage in Combinational Logics,” US 11,354,451
- Yiyu Shi, Travis Schulze, Kevin Kwiat and Charles Kamhoua, “Secure Logic Chip for Resisting Hardware Trojan Induced Leakage in Combinational Logic,” US 11,354,452
- Sakyasingha Dasgupta, Weiwen Jiang and Yiyu Shi, “Hardware and Neural Architecture Co-search,” US 11,521,052

PUBLISHED BOOK CHAPTERS

[B1] Yawen Wu, Yue Tang, Dewen Zeng, Xinyi Zhang, Peipei Zhou, Yiyu Shi, and Jingtong Hu, “Efficient Hardware and Software Design for On-device Learning,” chapter in Embedded Machine Learning for Cyber-Physical, IoT, and Edge Computing, edited by Sudeep Pasricha and Muhammad Shafique, Springer, 2023

[B2] Zheyu Yan, Qing Lu, Weiwen Jiang, Lei Yang, X. Sharon Hu, Jingtong Hu, and Yiyu Shi, “Hardware–Software Co-design of Deep Neural Architectures: From FPGAs and ASICs to Computing-in-Memories,” chapter in Embedded Machine Learning for Cyber-Physical, IoT, and Edge Computing, edited by Sudeep Pasricha and Muhammad Shafique, Springer, 2023

[B3] Zheyu Yan, X. Sharon Hu and Yiyu Shi, "On the Reliability of Computing-in-Memory Accelerators for Deep Neural Networks", chapter in System Dependability and Analytics: Approaching System Dependability from Data, System and Analytics Perspectives, edited by Long Wang, Karthik Pattabiraman, Catello Di Martino, Arjun Athreya and Saurabh Bagchi, Springer, 2023.

[B4] Jie Wu, Jinjun Xiong, Yiyu Shi, "On Improving the Reliability of Smart grids for Multiple Power Line Outages and Anomaly Detection," chapter in System Dependability and Analytics: Approaching System Dependability from Data, System and Analytics Perspectives, edited by Long Wang, Karthik Pattabiraman, Catello Di Martino, Arjun Athreya and Saurabh Bagchi, Springer, 2023.

[B5] Umamaheswara Rao Tida, Cheng Zhuo, and Yiyu Shi, "Green On-chip Inductors for Three-Dimensional Integrated Circuits: Concepts, Algorithms and Applications," chapter in CMOS and Post-CMOS Perspectives of Electronic Device Scaling, edited by Saraju Mohanty and Ashok Srivastava, IET Publishing 2015.

[B6] Yuguang Chen, Shi-Chieh Chang and Yiyu Shi," Live Free or Die Hard: Design for Reliability in Three-Dimensional Integrated Circuits," chapter in Physical Design for 3D Integrated Circuits, edited by Aida Todri-Sanial and Chuan Seng Tan, CRC Publishing 2015.

[B7] Sungkyu Lim and Yiyu Shi, "Design Challenges and Solutions for Monolithic 3D ICs," chapter in Physical Design for 3D Integrated Circuits, edited by Aida Todri-Sanial and Chuan Seng Tan, CRC Publishing 2015.

[B8] Yiyu Shi, Yang Shang and Hao Yu, "IC-Package-System Integration Design," chapter in Advanced Flip Chip Packaging, edited by Ho-Ming Tong, Yi-Shao Lai and C. P. Wong, Springer Publishing 2013.

[B9] Yiyu Shi, Jinjun Xiong and Lei He, "Stochastic Optimization Over Correlated Data Set: A Case Study on VLSI Decoupling Capacitance Budgeting," chapter in Stochastic Optimization - Seeing the Optimal for the Uncertain, Intech publishing 2011 (ISBN: 978-953-307-829-8).

[B10] Yiyu Shi, Hao Yu and Lei He, "Noise Driven In Package Decoupling Capacitor Optimization for Power Integrity", chapter in Recent Advancements in Modeling of Semiconductor Processes, Circuits and Chip-Level Interactions, edited by Rasit Onur Topaloglu and Peng Li, pp. 167-188, Bentham Publishing 2010 (ISBN 978-1-60805-695-8).

REFEREED JOURNAL ARTICLES

[J1] Jiawei Zhang, Yanchun Zhang, Hailong Qiu, Tianchen Wang, Xiaomeng Li, Shanfeng Zhu, Meiping Huang, Jian Zhuang, Yiyu Shi and Xiaowei Xu, "Constrained Multi-scale Dense Connections for Biomedical Image Segmentation," Pattern Recognition (in print)

[J2] Yuanbo Guo, Zheyu Yan, Qingpeng Kong, Xiaoting Yu, Joy Xie, Kevin Luo, Dewen Zeng, Yawen Wu, Zhenge Jia, and Yiyu Shi, “Hardware Design and the Fairness of A Neural Network,” Nature Electronics (in print)

[J3] Jinming Zhuang, Jason Lau, Hanchen Ye, Zhuoping Yang, Shixin Ji, Jack Lo, Kristof Denolf, Stephen Neuendorffer, Alex Jones, Jingtong Hu, Yiyu Shi, Deming Chen, Jason Cong, Peipei Zhou, "CHARM: Composing Heterogeneous Accelerators for Matrix Multiply in Deep Learning on Versal ACAP Architecture," ACM Transactions on Reconfigurable Technology and Systems, 2024

[J4] Ching-Hao Chiu, Yu-Jen Chen, Yawen Wu, Yiyu Shi and Tsung-Yi Ho, "Achieve Fairness without Demographics for Dermatological Disease Diagnosis," Medical Image Analysis (in print)

[J5] Xunzhao Yin, Franz Muller, Ann Franchesca Laguna, Chao Li, Qingrong Huang, Zhiguo Shi, Maximilian Lederer, Nellie Laleni, Shan Deng, Zijian Zhao, Mohsen Imani, Yiyu Shi, Michael Niemier, Xiaobo Sharon Hu, Cheng Zhuo, Thomas Kampfe and Kai Ni, "Deep Random Forest with Ferroelectric Analog Content Addressable Memory," Science Advances, 2024

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[C5] Quan Cheng, Longyang Lin, Mingqiang Huang, Qiufeng Li, Zhengke Yang, Liuyao Dai, Hao Yu, Yu-Jen Chen, Yiyu Shi and Masanori Hashimoto, "A 13-34 TOPS/W Edge-Ai Processor Featuring Booth-Value-Confined Accelerator, Near-Memory Computing, and Contiguity-Aware Mapping," in Proc. of IEEE Asian Solid-State Circuits Conference (A-SSCC), 2024

[C6] Hongyu Cheng, Limin Zheng, Yiyu Shi, Qing Lu, Bo Meng and Xiaowei Xu, "Fusion of Machine Learning and Deep Neural Networks for Pulmonary Arteries and Veins Segmentation in Lung Cancer Surgery Planning," in Proc. of International Conference on Pattern Recognition, 2024

[C7] Yifan Qin, Zheyu Yan, Wujie Wen, X. Sharon Hu and Yiyu Shi, "Sustainable Deployment of Deep Neural Networks on Non-Volatile Compute-in-Memory Accelerators," in Proc. of International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), 2024 (invited paper)

[C8] Peiyan Dong, Jinming Zhuang, Zhuoping Yang, Shixin Ji, Yanyu Li, Dongkuan Xu, Heng Huang, Jingtong Hu, Alex K. Jones, Yiyu Shi, Yanzhi Wang, Peipei Zhou, "EQ-ViT: Algorithm-Hardware Co-Design for End-to-End Acceleration of Real-Time Vision Transformer Inference on Versal ACAP Architecture," in Proc. of International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), 2024

[C9] Dewen Zeng, Xinrong Hu, Yawen Wu, Xiaowei Xu and Yiyu Shi, "Contrastive Learning with Synthetic Positives," in Proc. of European Conference on Computer Vision (ECCV), 2024

[C10] Yiwen Liu, Ke Wang, Qingyue Jiao, Yiyu Shi, and Shangjie Guo, "A Comparison on Constrain Encoding Methods for Quantum Approximate Optimization Algorithm," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2024 (invited paper)

[C11] Likai Pei*, Yifan Qin* (equal contribution), Zephan M. Enciso, Boyang Cheng, Jianbo Liu, Steven Davis, Zhenge Jia, Michael Niemier, Yiyu Shi, X. Sharon Hu and Ningyuan Cao, "Towards Uncertainty-Quantifiable Biomedical Intelligence: Mixed-signal Compute-in-Entropy for Bayesian Neural Networks," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2024 (acceptance rate 24%) (**Nominated for Best Paper Award**)

[C12] Ruiyang Qin, Zheyu Yan, Dewen Zeng, Zhenge Jia, Dancheng Liu, Jianbo Liu, Zhi Zheng, Ningyuan Cao, Kai Ni, Jinjun Xiong, Yiyu Shi, "Robust Implementation of Retrieval-Augmented Generation on Edge-based Computing-in-Memory Architectures," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2024 (acceptance rate 24%) (**Nominated for Best Paper Award**)

[C13] Yifan Qin, Zheyu Yan, Zixuan Pan, Wujie Wen, X. Sharon Hu and Yiyu Shi, "TSB: Tiny Shared Block for Efficient DNN Deployment on NVCIM Accelerators," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2024 (acceptance rate 24%)

[C14] Jun Xia, Yi Zhang and Yiyu Shi, "Towards Energy-Aware Federated Learning via MARL: A Dual-Selection Approach for Model and Client," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2024 (acceptance rate 24%)

[C15] Jianwei Jia, Zhenge Jia, Omkar Phadke, Gihun Choe, Yiyu Shi and Shimeng Yu, "A Reconfigurable Bandpass Filter with Ferroelectric Devices for Intracardiac Electrograms Monitoring," in Proc. of IEEE Midwest Symposium on Circuits and Systems (MWSCAS), 2024

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[C17] Yuanbo Guo, Zhenge Jia, Jingtong Hu, Yiyu Shi, "FairQuantize: Achieving Fairness Through Weight Quantization for Dermatological Disease Diagnosis," in Proc. of Medical Image Computing and Computer Assisted Intervention (MICCAI), 2024

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[C19] Shixin Ji, Zhuoping Yang, Xingzhen Chen, Stephen Cahoon, Jingtong Hu, Yiyu Shi, Alex Jones and Peipei Zhou, "Towards Carbon Modeling of Cloud Servers with Accelerators," in Proc. of IEEE Computer Society Annual Symposium on VLSI (ISVLSI), 2024

[C20] Ruiyang Qin, Jun Xia, Zhenge Jia, Meng Jiang, Ahmed Abbasi, Peipei Zhou, Jingtong Hu, and Yiyu Shi "Enabling On-Device Large Language Model Personalization with Self-Supervised Data Selection and Synthesis," in Proc. of IEEE/ACM Design Automation Conference (DAC), 2024 (acceptance rate 22%)

[C21] Zhiding Liang, Zhixin Song, Jinglei Cheng, Hang Ren, Tianyi Hao, Rui Yang, Tongyang Li, and Yiyu Shi, "Combining Parameterized Pulses and Contextual Subspace for More Practical VQE," in Proc. of IEEE/ACM Design Automation Conference (DAC), 2024 (acceptance rate 22%)

[C22] Jinming Zhuang, Zhuoping Yang, Shixin Ji, Heng Huang, Alex K. Jones, Jingtong Hu, Yiyu Shi, and Peipei Zhou, "SSR: Spatial Sequential Hybrid Architecture for Latency Throughput Tradeoff Design Space Exploration," in Proc. of ACM/SIGDA International Symposium on Field Programmable Gate Arrays (FPGA), 2024 (acceptance rate 27%).

[C23] Kaikai Liu, Yiyu Shi, Jian Zhuang, Meiping Huang, Hongwen Fei, Qing Lu, Erlei Zhang, Xiaoshan Li, Xiaowei Xu, "Automatic Segment-level Assessment of Regional Wall Motion Abnormality from Echocardiography Images," in Proc. of IEEE International Symposium on Biomedical Imaging, 2024

[C24] Ruiyang Qin, Yuting Hu, Zheyu Yan, Jinjun Xiong, Ahmed Abbasi, and Yiyu Shi, "Towards Fairness of Neural Architecture Search via LLMs," in Proc. of the Asia and South Pacific Design Automation Conference (ASP-DAC), 2024 (**Invited Paper**).

[C25] Peipei Zhou, Jinming Zhuang, Stephen Cahoon, Yue Tang, Zhuoping Yang, Xingzhen Chen, Yiyu Shi, Jingtong Hu, Alex K. Jones, "REFRESH FPGAs: Sustainable FPGA Chiplet Architectures," in Proc. of IEEE International Green and Sustainable Computing (IGSC) Conference, 2023 (**Best Work-In-Progress Paper Finalist)**.

[C26] Limin Zheng, Bo Meng, Hongyu Cheng, Yiyu Shi, Qing Lu, Jian Zhuang, Xiaowei Xu, "Automatic Segmentation of Aortic and Mitral Valves for Heart Surgery Planning of Hypertrophic Obstructive Cardiomyopathy," in Proc. of Asian Conference on Machine Learning (ACML), 2023.

[C27] Kaikai Liu, Yiyu Shi, Jian Zhuang, Meiping Huang, Hongwen Fei, Boyang Li, Jin Hong, Qing Lu, Erlei Zhang, and Xiaowei Xu, "Enhance Regional Wall Segmentation by Style Transfer for Regional Wall Motion Assessment," in Proc. of British Machine Vision Conference (BMVC), 2023.

[C28] Xinrong Hu, Corey Wang and Yiyu Shi, "Contrastive Image Synthesis and Self-supervised Feature Adaptation for Cross-Modality Biomedical Image Segmentation, " International Conference on Computer Vision (ICCV) Workshop on Computer Vision for Automated Medical Diagnosis, 2023

[C29] Zheyu Yan, Yifan Qin, Wujie Wen, X. Sharon Hu and Yiyu Shi, "Improving Realistic Worst-Case Performance of NVCiM DNN Accelerators through Training with Right-Censored Gaussian Noise," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2023 (acceptance rate 23%, **William J. McCalla Best Paper Award**).

[C30] Xuan Wang, Zheyu Yan, Chang Meng, Yiyu Shi and Weikang Qian, "DASALS: Differentiable Architecture Search-driven Approximate Logic Synthesis," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2023 (acceptance rate 23%).

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[C32] Yu-Jen Chen, Xinrong Hu, Yiyu Shi and Tsung-Yi Ho, "AME-CAM: Attentive Multiple-Exit CAM for Weakly Supervised Segmentation on MRI Brain Tumor," In Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI), 2023.

[C33] Ching-Hao Chiu, Hao-Wei Chung, Yu-Jen Chen, Yiyu Shi and Tsung-Yi Ho, "Toward Fairness Through Fair Multi-Exit Framework for Dermatological Disease Diagnosis," In Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI), 2023.

[C34] Xueyang Li, Hai Xiao, Weixiang Weng, Xiaowei Xu and Yiyu Shi, "MPBD-LSTM: A Predictive Model For Colorectal Liver Metastases Using Time Series Multi-phase Contrast-Enhanced CT Scans," In Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI), 2023.

[C35] Xinrong Hu, Yu-Jen Chen, Tsung-Yi Ho and Yiyu Shi, "Conditional Diffusion Models for Weakly Supervised Medical Image Segmentation," In Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI), 2023 (early accept, acceptance rate 14%).

[C36] Dewen Zeng, Yawen Wu, Xinrong Hu, Xiaowei Xu, Jingtong Hu and Yiyu Shi, "Additional Positive Enables Better Representation Learning for Medical Images," In Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI), 2023 (early accept, acceptance rate 14%).

[C37] Zhiding Liang, Zhixin Song, Jinglei Cheng, Zichang He, Ji Liu, Hanrui Wang, Ruiyang Qin, Yiru Wang, Song Han, Xuehai Qian and Yiyu Shi, "Hybrid Gate-Pulse Model for Variational Quantum Algorithms," in Proc. of IEEE/ACM Design Automation Conference (DAC), 2023 (acceptance rate 23%)

[C38] Xuan Wang, Sijun Tao, Jingjing Zhu, Yiyu Shi and Weikang Qian, "AccALS: Accelerating Approximate Logic Synthesis by Selection of Multiple Local Approximate Changes," in Proc. of IEEE/ACM Design Automation Conference (DAC), 2023 (acceptance rate 23%)

[C39] Yi Sheng, Junhuan Yang, Lei Yang, Yiyu Shi, Jingtong Hu and Weiwen Jiang, "Muffin: A Framework Toward Multi-Dimension AI Fairness by Uniting Off-the-Shelf Models," in Proc. of IEEE/ACM Design Automation Conference (DAC), 2023 (acceptance rate 23%)

[C40] Ching-Hao Chiu, Hao-Wei Chung, Yu-Jen Chen, Yiyu Shi and Tsung-Yi Ho, "Fair Multi-Exit Framework for Facial Attribute Classification," in Proc. of AAAI Workshop on Artificial Intelligence for Social Good, 2023.

[C41] Yawen Wu, Zhepeng Wang, Dewen Zeng, Yiyu Shi, and Jingtong Hu, "Synthetic Data Can Also Teach: Synthesizing Effective Data for Unsupervised Visual Representation Learning," in Proc. of AAAI Conference on Artificial Intelligence, WA, 2023 (Acceptance rate: 20%)

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[C43] Yejia Zhang, Xinrong Hu, Nishchal Sapkota, Yiyu Shi, and Danny Chen, "Unsupervised Feature Clustering Improves Contrastive Representation Learning for Medical Image Segmentation," in Proc. of IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2022 (Acceptance rate: 20%).

[C44] Qing Lu, Zhenge Jia, Jingtong Hu and Yiyu Shi, "ICD-BAS: Detecting Ventricular Arrhythmia using Binary Architecture Search for Implantable Cardioverter Defibrillators," in Proc. of IEEE/ACM international conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE), 2022 (**Invited Paper**)

[C45] Hanrui Wang, Zhiding Liang, Jiaqi Gu, Zirui Li, Yongshan Ding, Weiwen Jiang, Yiyu Shi, David Z. Pan, Frederic T. Chong and Song Han, "TorchQuantum Case Study for Robust Quantum Circuits," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2022 (**Invited Paper**)

[C46] Zheyu Yan, X. Sharon Hu and Yiyu Shi, "Computing-In-Memory Neural Network Accelerators for Safety-Critical Systems: Can Small Device Variations Be Disastrous?," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2022 (acceptance rate 22%).

[C47] Zhiding Liang, Hanrui Wang, Jinglei Cheng, Yongshan Ding, Hang Ren, Zhengqi Gao, Zhirui Hu, Duane Boning, Xuehai Qian, Song Han, Weiwen Jiang and Yiyu Shi, "Variational Quantum Pulse Learning," in Proc. of IEEE International Conference on Quantum Computing and Engineering (QCE), 2022

[C48] Qing Lu, Weiwen Jiang, Meng Jiang, Jingtong Hu and Yiyu Shi, "Hardware/Software Co-Exploration for Graph Neural Architectures on FPGAs," in Proc. of IEEE Computer Society Annual Symposium on VLSI, Pafos, Cyprus, July 2022 (**Invited Paper**)

[C49] Qing Lu, Xiaowei Xu, Shunjie Dong, Callie Hao, Lei Yang, Cheng Zhuo, and Yiyu Shi, "RT-DNAS: Real-time Constrained Differentiable Neural Architecture Search for 3D Cardiac Cine MRI Segmentation," In Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI), 2022

[C50] Yawen Wu*, Dewen Zeng* (equal contribution), Xiaowei Xu, Yiyu Shi and Jingtong Hu. “FairPrune: Achieving Fairness Through Pruning for Dermatological Disease Diagnosis," In Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI), 2022 (early accept, acceptance rate 13%)

[C51] Yawen Wu, Zhepeng Wang, Dewen Zeng, Meng Li, Yiyu Shi and Jingtong Hu, "Decentralized Unsupervised Learning of Visual Representations," International Joint Conference on Artificial Intelligence (IJCAI), 2022 (acceptance rate 15%)

[C52] Zheyu Yan, X. Sharon Hu and Yiyu Shi, "SWIM: Selective Write-Verify for Computing-in-Memory Neural Accelerator," in Proc. of IEEE/ACM Design Automation Conference (DAC), 2022 (acceptance rate 22.6%)

[C53] Yi Sheng, Junhuan Yang, Yawen Wu, Kevin Mao, Yiyu Shi, Jingtong Hu, Weiwen Jiang and Lei Yang, "The Larger The Fairer? Small Neural Networks Can Achieve Fairness for Edge Devices," in Proc. of IEEE/ACM Design Automation Conference (DAC), 2022 (acceptance rate 22.6%)

[C54] Bingqian Lu, Jianyi Yang, Weiwen Jiang, Yiyu Shi and Shaolei Ren, "One Proxy Device Is Enough for Hardware-Aware Neural Architecture Search," in Proc. of ACM SIGMETRICS/Performance, 2022

[C55] Zheyu Yan, Weiwen Jiang, Xiaobo Sharon Hu, Yiyu Shi , "RADARS: Memory Efficient Reinforcement Learning Aided Differentiable Neural Architecture Search," in Proc. of the Asia and South Pacific Design Automation Conference (ASP-DAC), 2022

[C56] Yu-Jen Chen, Yen-Jung Chang, Shao-Cheng Wen, Xiaowei Xu, Tsung-Yi Ho, Meiping Huang, Haiyun Yuan, Jian Zhuang, Yiyu Shi and Tsung-Yi Ho, "One-Shot Reduction of Additive Artifacts in Medical Images," in Proc. of IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2021 (Acceptance rate: 19%)

[C57] Zhiding Liang, Zhepeng Wang, Jinjun Xiong, Yiyu Sh, Weiwen Jiang, “Can Noise on Qubits Be Learned in Quantum Neural Network? A Case Study on QuantumFlow," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2021 (Acceptance rate 25%).

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[C59] Yawen Wu, Dewen Zeng, Zhepang Wang, Yi Sheng, Lei Yang, and Alaina J James, Yiyu Shi and Jingtong Hu, "Federated Contrastive Learning for Dermatological Disease Diagnosis via On-device Learning," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2021 (acceptance rate 25%).

[C60] Dewen Zeng, John N Kheir, Peng Zeng and Yiyu Shi, "Contrastive Learning with Temporal Correlated Medical Images: A Case Study using Lung Segmentation in Chest X-Rays," in Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD), 2021 (acceptance rate 25%).

[C61] Zhenge Jia, Yiyu Shi, Samir Saba and Jingtong Hu, "On-Device Prior Knowledge Incorporated Learning for Personalized Atrial Fibrillation Detection," in Proc. of International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES), 2021

[C62] Tianchen Wang, Zhihe Li, Meiping Huang, Jian Zhuang, Shanshan Bi, Jiawei Zhang, Xiaowei Xu, Hongwen Fei and Yiyu Shi, “EchoCP: An Echocardiography Dataset in Contrast Transthoracic Echocardiography for Patent Foramen Ovale Diagnosis,” in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Strasburg, France, 2021 (early accept, acceptance rate 13%)

[C63] Yukun Ding, Dewen Zeng, Mingqi Li, Hongwen Fei, Haiyun Yuan, Meiping Huang, Jian Zhang and Yiyu Shi, “Towards Efficient Human-Machine Collaboration: Real-Time Correction Effort Prediction for Ultrasound

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[C64] Dewen Zeng, Yawen Wu, Xinrong Hu, Xiaowei Xu, Haiyun Yuan, Meiping Hunag, Jian Zhuang, Jingtong Hu and Yiyu Shi, "Positional Contrastive Learning for Volumetric Medical Image Segmentation," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Strasburg, France, 2021 (early accept, acceptance rate 13%)

[C65] Xinrong Hu, Dewen Zeng, Xiaowei Xu and Yiyu Shi, "Semi-supervised Contrastive Learning for Label-efficient Medical Image Segmentation," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Strasburg, France, 2021 (early accept, acceptance rate 13%)

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[C67] Zhenge Jia, Zhepeng Wang, Feng Hong, Lichuan Ping, Yiyu Shi and Jingtong Hu, "Learning to Learn Personalized Neural Network for Ventricular Arrhythmias Detection on Intracardiac EGMs," in *Proc. of International Joint Conference on Artificial Intelligence (IJCAI),* 2021 (acceptance rate 13.9%).

[C68] Boyang Li, Qing Lu, Weiwen Jiang, Taeho Jung and Yiyu Shi, "A Mining Pool Solution for Novel Proof-of-Neural-Architecture Consensus," in *Proc. of IEEE International Conference on Blockchain and Cryptocurrency, Australia (ICBC)*, 2021.

[C69] Yawen Wu, Zhepeng Wang, Dewen Zeng, Yiyu Shi and Jingtong Hu, "Enabling On-Device Self-supervised Contrastive Learning With Selective Data Contrast," in *Proc. of IEEE/ACM Design Automation Conference (DAC)*, 2021.

[C70] Zhenge Jia, Feng Hong, Lichuan Ping, Yiyu Shi and Jingtong Hu, "Enabling On-Device Model Personalization for Ventricular Arrhythmias Detection by Generative Adversarial Networks," in *Proc. of IEEE/ACM Design Automation Conference (DAC)*, 2021.

[C71] Yuhong Song, Weiwen Jiang, Bingbing Li, Panjie Qi, Qingfeng Zhuge, Edwin Hsing-Mean Sha, Sakyasingha Dasgputa, Yiyu Shi and Caiwen Ding, "Dancing along Battery: Enabling Transformer with Run-time Reconfigurability on Mobile Devices," in *Proc. of IEEE/ACM Design Automation Conference (DAC)*, 2021

[C72] Dewen Zeng, Yukun Ding, Haiyun Yuan, Meiping Huang, Xiaowei Xu, Jian Zhuang and Yiyu Shi, "H ardware-aware Real-time Myocardial Segmentation Quality Control in Contrast Echocardiography," in *Proc. of IEEE/ACM Design Automation Conference (DAC)*, 2021 **(Invited Paper)**

[C73] Dewen Zeng, Mingqi Li, Yukun Ding, Xiaowei Xu, Qiu Xie, Ruixue Xu, Hongwen Fei, Meiping Huang, Jian Zhuang, and Yiyu Shi, "Segmentation with Multiple Acceptable Annotations: A Case Study of Myocardial Segmentation in Contrast Echocardiography," in *Proc. of International Conference on Information Processing in Medical Imaging (IPMI)*, 2021 (acceptance rate 30%)

[C74] Yu-Jen Chen, Cheng-Yen Tsai, Xiaowei Xu, Yiyu Shi, Tsung-Yi Ho, Meiping Huang, Haiyun Yuan, Jian Zhuang, "CT Image Denoising with Encoder-Decoder Based Graph Convolutional Networks," in *Proc. of IEEE International Symposium on Biomedical Imaging (ISBI*), 2021.

[C75] Weiwen Jiang, Jinjun Xiong and Yiyu Shi, "When Machine Learning Meets Quantum Computers: A Case Study," in *Proc. of IEEE/ACM Asia and South Pacific Design Automation Conference (ASP-DAC),* 2021 **(Invited Paper)**

[C76] Zhepeng Wang, Yawen Wu, Zhenge Jia, Yiyu Shi, Jingtong Hu, "Lightweight Run-Time Working Memory Compression for Deployment of Deep Neural Networks on Resource-Constrained MCUs," in *Proc. of* IEEE/ACM Asia and South Pacific Design Automation Conference (ASP-DAC), pp. 607 - 614, 2021 (**Invited Paper**)

[C77] Grace Li Zhang, Bing Li, Ying Zhu, Tianchen Wang, Yiyu Shi, Xunzhao Yin, Cheng Zhuo, Huaxi Gu, Tsung-Yi Ho, Ulf Schlichtmann, "Robustness of Neuromorphic Computing with RRAM-based Crossbars and Optical Neural Networks," in *Proc. of IEEE/ACM Asia and South Pacific Design Automation Conference (ASP-DAC)*, 2021 **(Invited Paper)**

[C78] Zheyu Yan, Da-Cheng Juan, X. Sharon Hu and Yiyu Shi, "Uncertainty Aware Architecture Search for Emerging Device based Computing-in-Memory Neural Accelerators," *in Proc. of the Asia and South Pacific Design Automation Conference (ASP-DAC),* 2021 **(Invited Paper)**

[C79] Shao-Cheng Wen, Yu-Jen Chen, Zihao Liu, Wujie Wen, Xiaowei Xu, Yiyu Shi, Tsung-Yi Ho, Meiping Huang, Haiyun Yuan, and Jian Zhuang, "Do noises bother human and neural networks in the same way? A medical image analysis perspective", in *Proc. of International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020.

[C80] Dewen Zeng, Weiwen Jiang, Tianchen Wang, Xiaowei Xu, Haiyun Yuan, Meiping Huang, Jian Zhuang, Jingtong Hu and Yiyu Shi, "Towards Cardiac Intervention Assistance: Hardware-Aware Neural Architecture Exploration for Real-Time 3D Cardiac Cine MRI Segmentation," in *Proc. of IEEE/ACM International Conference on Computer-Aided Design*, 2020 **(Invited Paper**)

[C81] Zhenge Jia, Zhepeng Wang, Feng Hong, Lichuan Ping, Yiyu Shi and Jingtong Hu, "Personalized Deep Learning for Ventricular Arrhythmias Detection on Medical IoT Systems," in *Proc. of IEEE/ACM International Conference on Computer-Aided Design*, 2020 (**Invited Paper**)

[C82] Weiwen Jiang, Lei Yang, Sakyasingha Dasgupta, Jingtong Hu and Yiyu Shi, "Standing on the Shoulders of Giants: Hardware and Neural Architecture Co-Search with Hot Start," in *Proc. of IEEE/ACM International Conference on Hardware/Software Codesign and System Synthesis* (CODES+ISSS), 2020

[C83] Yawen Wu, Zhepeng Wang, Yiyu Shi and Jingtong Hu, "Enabling On-Device CNN Training by Self-Supervised Instance Filtering and Error Map Pruning," in *Proc. of International Conference on Compilers, Architecture, and Synthesis of Embedded Systems (CASES*), 2020

[C84] Grace Li Zhang, Bing Li, Ying Zhu, Shuhang Zhang, Tianchen Wang, Yiyu Shi, Tsung-Yi Ho, Hai (Helen) Li, Ulf Schlichtmann, "Reliable and Robust RRAM-based Neuromorphic Computing," in *Proc. of the ACM Great Lakes Symposium on VLSI*, Beijing, China, 2020 (**invited paper**)

[C85] Xinrong Hu, Zeyang Yao, Furong Liu, Wen Xie, Hailong Qiu, Yuhao Dong, Qianjun Jia, Meiping Huang, Jian Zhuang, Xiaowei Xu and Yiyu Shi, "Joint Clinical Data and CT Image based Prognosis: A Case Study on Postoperative Pulmonary Venous Obstruction Prediction," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI) Workshop on Predictive Intelligence in Medicine (PRIME),* 2020

[C86] Xiaowei Xu, Tianchen Wang, Jian Zhuang, Haiyun Yuan, Meiping Huang, Qianjun Jia, Jianzheng Cen, Yuhao Dong and Yiyu Shi, "ImageCHD: A 3D Computed Tomography Image Dataset for Classification of Congenital Heart Disease," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (early accept, acceptance rate 25%).

[C87] Tianchen Wang, Jinjun Xiong, Xiaowei Xu, Qianjun Jia, Haiyun Yuan, Meiping Huang, Jian Zhuang, and Yiyu Shi, "ICA-UNet: ICA Inspired Statistical UNet for Real-time 3D Cardiac Cine MRI Segmentation," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (early accept, acceptance rate 25%).

[C88] Zihao Liu, Sicheng Li, Yen-Kuang Chen, Tao Liu, Qi Liu, Xiaowei Xu, Yiyu Shi and Wujie Wen, "Orchestrating Medical Image Compression and Remote Segmentation Networks," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (early accept, acceptance rate 25%, **Nominated for MICCAI Society Young Scientist Award**).

[C89] Qi Liu, Han Jiang, Tao Liu, Zihao Liu, Sicheng Li, Wujie Wen and Yiyu Shi, "Defending Deep Learning-based Biomedical Image Segmentation from Adversarial Attacks: A Low-cost Frequency Refinement Approach," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (early accept, acceptance rate 25%).

[C90] Shunjie Dong, Jinlong Zhao, Maojun Zhang, Zhengxue Shi, Jianing Deng, Yiyu Shi and Cheng Zhuo, "DeU-Net: Deformable U-Net for 3D Cardiac MRI Video Segmentation," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (acceptance rate 30%)

[C91] Song Bian, Xiaowei Xu, Weiwen Jiang, Yiyu Shi and Takashi Sato, "BUNET: Blind Medical Image Segmentation Based on Secure UNET," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (acceptance rate 30%)

[C92] Xingang Yan, Weiwen Jiang, Yiyu Shi and Cheng Zhuo, "MS-NAS: Multi-Scale Neural Architecture Search for Medical Image Segmentation," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (acceptance rate 30%)

[C93] Yukun Ding, Jinglan Liu, Jinjun Xiong and Yiyu Shi, "Uncertainty-Aware Training of Neural Networks for Selective Medical Image Segmentation," in *Proc. of Medical Imaging with Deep Learning (MIDL),* Montreal, Canada, 2020 (oral presentation, acceptance rate 12%)

[C94] Song Bian, Tianchen Wang, Masayuki Hiromoto, Yiyu Shi, and Takashi Sato, "ENSEI: Efficient Secure Inference via Frequency-Domain Homomorphic Convolution for Privacy-Preserving Visual Recognition," in *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* Seattle, WA, 2020 (acceptance rate 22.1%).

[C95] Yawen Wu, Zhepeng Wang, Zhenge Jia, Yiyu Shi and Jingtong Hu, "Intermittent Inference with Nonuniformly Compressed Multi-Exit Neural Network for Energy Harvesting Powered Devices," in *Proc. of IEEE/ACM Design Automation Conference (DAC)*, 2020 **(**acceptance rate 23%)

[C96] Lei Yang, Weiwen Jiang, Zheyu Yan, Meng Li, Jun Hyouk Kwon, Jiangzheng Lai, Tushar Krishna, Vikas Chandra and Yiyu Shi, "Co-Exploration of Neural Architectures and Heterogeneous ASIC Accelerator Designs Targeting Multiple Tasks," in *Proc. of IEEE/ACM Design Automation Conference (DAC)*, 2020 **(**acceptance rate 23%)

[C97] Yukun Ding, Jinglan Liu, Jinjun Xiong and Yiyu Shi, "Revisiting the Evaluation of Uncertainty Estimation and Its Application to Explore Model Complexity-Uncertainty Trade-Off," in *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, Seattle, WA, 2020.

[C98] Song Bian, Weiwen Jiang, Qing Lu, Yiyu Shi and Takashi Sato, "NASS: Optimizing Secure Inference via Neural Architecture Search," in *Proc. of European Conference on Artificial Intelligence (ECAI),* Santiago, Spain, 2020 (acceptance rate 26.8%)

[C99] Yu-Jen Chen, Yen-Jeng Chang, Shao-Cheng Wen, Xiaowei Xu, Tsung-Yi Ho, Qianjun Jia, Meiping Huang, Jian Zhuang, Yiyu Shi,"Zero-Shot Medical Image Artifact Reduction," in *Proc. of IEEE International Symposium on Biomedical Imaging (ISBI)*, Iowa city, 2020.

[C100] Jinglan Liu, Yukun Ding, Jinjun Xiong, Qianjun Jia, Meiping Huang, Jian Zhuang, Bike Xie, Chun-Chen Liu, Yiyu Shi, "Multi-Cycle-Consistent Adversarial Networks for CT Image Denoising," in *Proc. of IEEE International Symposium on Biomedical Imaging (ISBI),* Iowa city, 2020 (oral presentation, acceptance rate 15%).

[C101] Ying Zhu, Li Zhang, Tianchen Wang, Bing Li, Yiyu Shi, Tsung-Yi Ho, and Ulf Schlichtmann, "Statistical Training for Neuromorphic Computing using Memristor-based Crossbars Considering Process Variations and Noises," in *Proc. of Design, Automation & Test in Europe (DATE)*, Switzerland, 2020.

[C102] Zheyu Yan, Yiyu Shi, Wang Liao, Masanori Hashimoto, Xichuan Zhou, Cheng Zhuo, "When Single Event Upset Meets Deep Neural Networks: Observations, Explorations, and Remedies" in *Proc. of the Asia and South Pacific Design Automation Conference (ASP-DAC)*, Beijing, China, 2020

[C103] Lei Yang, Weiwen Jiang, Weichen Liu, Edwin Sha, Yiyu Shi, Jingtong Hu, "Co-Exploring Neural Architecture and Network-on-Chip Design for Real-Time Artificial Intelligence" in *Proc. of the Asia and South Pacific Design Automation Conference (ASP-DAC)*, Beijing, China, 2020 (**Nominated for Best Paper Award**)

[C104] Qingkai Zeng, Mengxia Yu, Wenhao Yu, Jinjun Xiong, Yiyu Shi, Meng Jiang, "Faceted Hierarchy: A New Graph Type to Organize Scientific Concepts and a Construction Method", in *Proc. of the Workshop on Graph-Based Natural Language Processing (TextGraphs)*, Hong Kong, 2019.

[C105] Xiaowei Xu, Tianchen Wang, Yiyu Shi, Haiyun Yuan, Qianjun Jia, Meiping Huang, and Jian Zhuang, "Whole-Heart and Great Vessel Segmentation in Congenital Heart Disease using Deep Neural Networks and Graph Matching," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Shenzhen, China, 2019 (acceptance rate 31%).

[C106] Tianchen Wang, Jinjun Xiong, Xiaowei Xu, Meng Jiang, Yiyu Shi, Haiyun Yuan, Meiping Huang, and Jian Zhuang, "MSU-Net: Multiscale Statistical U-Net for Real-time 3D Cardiac MRI Video Segmentation," in *Proc. of Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Shenzhen, China, 2019 (acceptance rate 31%).

[C107] Weiwen Jiang, Edwin Sha, Xinyi Zhang, Lei Yang, Qingfeng Zhuge, Yiyu Shi and Jingtong Hu, "Achieving Super-Linear Speedup across Multi-FPGA for Real-Time DNN Inference," in *Proc. of IEEE/ACM International Conference on Hardware/Software Codesign and System Synthesis* (CODES+ISSS), New York, NY, 2019 (**Nominated for Best Paper Award**) (acceptance rate 29%).

[C108] Xiaowei Xu, Meiping Huang, Qianjun Jia, Hailong Qiu, Haiyun Yuan, Yuhao Dong, Jian Zhuang and Yiyu Shi, "Accurate Congenital Heart Disease Model Generation for 3D Printing," in *Proc. of IEEE International*

Workshop in Signal Processing Systems, Nanjing, China, 2019. (**Invited Paper**)

[C109] Qing Lu, Weiwen Jiang, Jingtong Hu and Yiyu Shi, "On Neural Architecture Search for Resource-Constrained Hardware Platforms," in *Proc. of IEEE/ACM International Conference On Computer-Aided Design*, Westminster, CO, Nov. 2019. (**Invited Paper**)

[C110] Tianhao Shen, Di Gao, Yiyu Shi and Cheng Zhuo, "Power Delivery Resonant Virus: Concept and Application, " in *Proc. of ACM/IEEE International Symposium on Low Power Electronics and Design*, Lausanne, Switzerland, July 2019

[C111] Xinyi Zhang, Weiwen Jiang, Yiyu Shi and Jingtong Hu, "When Neural Architecture Search Meets Hardware Implementation: from Hardware Awareness to Co-Design," in *Proc. of IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Miami, FL, Aug. 2019. (**Invited Paper**)

[C112] Yuan Gong, Boyang Li, Christian Poellabauer and Yiyu Shi, "Real-Time Adversarial Attacks," in *Proc. of International Joint Conference on Artificial Intelligence (IJCAI)*, Macao, China, 2019 (acceptance rate 18%).

[C113] Boyang Li, Jie Wu and Yiyu Shi, "Privacy-Aware Cost-Effective Scheduling Considering Non-Schedulable Appliances in Smart Home," in *Proc. of IEEE International Conference on Embedded Software and Systems*, Las Vegas, NV, 2019

[C114] Boyang Li, Changhao Chenli, Xiaowei Xu, Taeho Jung and Yiyu Shi, "Exploiting Computation Power of Blockchain for Biomedical Image Segmentation," in *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, Long Beach, CA, 2019. (**Best Student Paper Award**)

[C115] Zihao Liu, Xiaowei Xu, Tao Liu, QI Liu, Yanzhi Wang, Yiyu Shi, Wujie Wen, Meiping Huang, Haiyan Yuan and Jian Zhuang, "Machine Vision Guided 3D Medical Image Compression for Efficient Transmission and Accurate Segmentation in the Clouds," in *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Long Beach, CA, 2019 (acceptance rate 25%).

[C116] Changhao Chenli, Boyang Li, Yiyu Shi and Taeho Jung, "Energy-recycling Blockchain with Proof-of-Deep-Learning," in Proc. of *International Conference on Blockchain and Cryptocurrency*, Seoul, South Korea, 2019 .

[C117] Weiwen Jiang, Xinyi Zhang, Edwin H.-M. Sha, Qingfeng Zhuge, Lei Yang, Yiyu Shi and Jingtong Hu, "Accuracy vs. Efficiency: Achieving Both through FPGA-Implementation Aware Neural Architecture Search," in Proc. of *IEEE/ACM Design Automation Conference (DAC)*, 2019 (**Nominated for Best Paper Award) (**acceptance rate 25%)

[C118] Xueying Wang, Haiqiao Zhang, Qi Li, Yiyu Shi and Meng Jiang, "A Novel Unsupervised Approach for Precise Temporal Slot Filling from Incomplete and Noisy Temporal Contexts," *the Web Conference (WWW)*, San Francisco, CA, 2019 (acceptance rate 20%).

[C119] Yukun Ding, Jinglan LIu, Jinjun Xiong and Yiyu Shi, "On the Universal Approximability and Complexity Bounds of Quantized ReLU Neural Networks," *International Conference on Learning Representations (ICLR)*, New Orleans, LA, 2019 (acceptance rate 31%).

[C120] Tianchen Wang, Jinjun Xiong, Xiaowei Xu and Yiyu Shi, "SCNN: A General Distribution based Statistical Convolutional Neural Network with Application to Video Object Detection," *AAAI Conference on Artificial Intelligence (AAAI)*, Honolulu, HI, 2019 (acceptance rate 16%).

[C121] Baixin Chen, Umamaheswara Rao Tida, Cheng Zhuo and Yiyu Shi, "Modeling and optimization of

magnetic core TSV-inductor for on-chip DC-DC converter," in Proc. of *IEEE/ACM International Conference On Computer-Aided Design*, San Diego, CA, 2018 (acceptance rate 25%).

[C122] Yukun Ding, Jinglan LIu, Jinjun Xiong, Meng Jiang and Yiyu Shi, "Optimizing Boiler Control in Real-Time with Machine Learning for Sustainability", *ACM International Conference on Information and Knowledge Management* (CIKM'18), Turin, Italy, 2018 (acceptance rate 26%)

[C123] Xiaowei Xu, Qing Lu, Lin Yang, Sharon Hu, Danny Chen, Yiyu Shi, "Quantization of Fully Convolutional Networks for Accurate Biomedical Image Segmentation," in *Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (CVPR), Salt lake city, Utah, 2018 (acceptance rate 29.6%)

[C124] Xiaowei Xu, Tianchen Wang, Qing Lu, Yiyu Shi, "Resource Constrained Cellular Neural Networks for Real-time Obstacle Detection using FPGAs," in Proc. of *International Symposium on Quality Electronic Design* (ISQED), pp. 437-440, 2018 (**Invited Paper**)

[C125] Travis E. Schulze, Kevin Kwiat, Charles Kamhoua,, Daryl Beetner, Laurent Njilla, and Yiyu Shi, "Combating Data Leakage Trojans in Sequential Circuits Through Randomized Encoding," in *Proc. of IEEE International Conference on Dependable, Autonomic and Secure Computing*, 2017.

[C126] Xiaowei Xu, Qing Lu, Tianchen Wang, Jinglan LIu, Cheng Zhuo, Sharon Hu, Yiyu Shi, "Empowering Mobile Telemedicine with Compressed Cellular Neural Networks," in *Proc. of IEEE/ACM 2017 International Conference On Computer-Aided Design*, CA, 2017 (**Invited Paper)**.

[C127] Jinglan LIu, Yukun Ding, JianLei Yang, Ulf Schlichtmann, Yiyu Shi, "Generative adversarial network based scalable on-chip noise sensor placement," in Proc. of *IEEE International System-on-Chip Conference,* pp. 239-242, 2017 (**Invited Paper**).

[C128] Baris Yigit, Grace Li Zhang, Bing Li, Yiyu Shi, Ulf Schlichtmann, "Application of machine learning methods in post-silicon yield improvement," in Prof. of *IEEE International System-on-Chip Conference* (SoCC), pp. 243-248, 2017 (**Invited Paper**).

[C129] Shaoheng Luo, Baixin Chen, Ke Li, Cheng Zhuo, Yiyu Shi, "Novel LC Resonant Clocking for 3D IC using TSV-Inductor and Capacitor," in Proc. of *Electrical Design of Advanced Packaging and Systems Symposium* (EDAPS), pp. 1-3, 2017

[C130] Xiaowei Xu, Dewen Zeng, Wenyao Xu, Yiyu Shi, Yu Hu, "An Efficient Memristor-based Distance Accelerator for Time Series Data Mining on Data Centers," in *Proc. of the 54th Annual Design Automation Conference (DAC'17)*, TX, 2017 (acceptance rate 24%)

[C131] Yu-Guang Chen, Michihiro Shintani, Takashi Sato, Yiyu Shi and Shih-Chieh Chang, "Pattern Based Runtime Voltage Emergency Prediction: An Instruction-Aware Block Sparse Compressed Sensing Approach," in *Proc of Asia and South Pacific Design Automation Conference*, Japan, 2017 (**Invited Paper**).

[C132] Kassan Unda, Chung-Han Chou, Shih-Chieh Chang, Cheng Zhuo and Yiyu Shi, "CN-SIM: A Cycle-Accurate Full System Power Deliver Noise Simulator," in *Proc. of Asia and South Pacific Design Automation Conference*, Japan, 2017 (**Invited Paper**).

[C133] Tianchen Wang, Kangli Hao, Chun-Chen Liu and Yiyu Shi, "Resource Constrained Real-time Lane-Vehicle Detection for Advanced Driver Assistance on Mobile Devices," in *Proc. of ACM SIGAPP Symposium On Applied Computing,* Morocco, 2017

[C134] Travis Schulze, Kevin Kwiat, Charles Kamhoua and Yiyu Shi, "RECORD: Temporarily Randomized Encoding of Combinational Logic for Resistance to Data Leakage from Hardware Trojan," in *Proc. of IEEE Asian Hardware Oriented Security and Trust Symposium*, Taiwan, 2016

[C135] Jie Wu, Jinglan LIu, Sharon X. Hu and Yiyu Shi, "Privacy Protection via Appliance Scheduling in Smart Homes," in *Proc. of IEEE/ACM International Conference on Computer-Aided Design*, Austin, TX, 2016 (**Invited Paper**)

[C136] Jie Wu, Ulf Schlichtmann and Yiyu Shi, "On the Measurement of Power Grid Robustness Under Load Uncertainties," in *Proc. of IEEE Smatgridcomm*, Sydney, Australia, 2016

[C137] Zhuo Cheng, Kassan Unda, Yiyu Shi and Wei-Kai Shih, "A Novel Cross-Layer Framework for Early-Stage Power Delivery and Architecture Co-Exploration," in *Proc. of IEEE/ACM Design Automation Conference*, Austin, TX, 2016. (**Nominated for Best Paper Award)** (acceptance rate 22.6%)

[C138] Bingjun Xiao, Jinjun Xiong, Yiyu Shi, "Novel applications of deep learning hidden features for adaptive testing," in *Proc. of the Asia and South Pacific Design Automation Conference*, ASP-DAC, pp. 743-748. 2016

[C139] Jie Wu, Peter Feldmann, Jinjun Xiong and Yiyu Shi, "Multi-Threading Based Parallel Dynamic Simulator for Transient Behavior Analysis of Power Systems," in *Proc. of IEEE SmartGridComm,* Miami, FL, 2015.

[C140] Tao Wang, Jinglan LIu, Cheng Zhuo, and Yiyu Shi "1-Bit Compressed Sensing Based Framework for Built-in Resonance Frequency Prediction Using On-Chip Noise Sensors," in *Proc. of IEEE/ACM International Conference on Computer-Aided Design*, pp. 721-728, Austin, TX, 2015.

[C141] Jinglan LIu, Da-Cheng Juan, and Yiyu Shi "Effective EDA Research in the Sea of Papers," in *Proc. of IEEE/ACM International Conference on Computer-Aided Design*, pp. 781-785, Austin, TX, 2015 (**Invited Paper**).

[C142] Tianchen Wang, Sandeep K. Samal, Sungkyu Lim and Yiyu Shi," A Novel Entropy Production Based Full-Chip TSV Fatigue Analysis," in *Proc. of IEEE/ACM International Conference on Computer-Aided Design*, pp. 744-751, Austin, TX, 2015.

[C143] Yang Liu, Shiyan Hu, Jie Wu, Yiyu Shi, Yier Jin, Yu Hu and Xiaowei Li, "Impact Assessment of Net Metering on Smart Home Cyberattack Detection," in *Proc. of IEEE/ACM Design Automation Conference*, San Francisco, CA, 2015 (acceptance rate 20.5%).

[C144] Jie Wu, Jinjun Xiong, Prasenjit Shil and Yiyu Shi, "Optimal Selection of Phasor Measurement Units for Identifying Multiple Line Outages in Smart Grid," in *Proc. of IEEE PES Conference on Innovative Smart Grid Technologies*, Washington, DC, 2015.

[C145] Chang Xu, Peixin Li, Guojie Luo, Yiyu Shi and Iris Hui-Ru Jiang, "Analytical Clustering Score with Application to Post-Placement Multi-Bit Flip-Flop Merging," in *Proc. of ACM International Symposium on Physical Design*, pp. 93-100, Monterey, CA, 2015.

[C146] Yu-Guang Chen, Wan-Yu Wen, Tao Wang, Yiyu Shi and Shih-Chieh Chang, "Q-Learning Based Dynamic Voltage Scaling for Designs with Graceful Degradation," in *Proc. of ACM International Symposium on Physical Design*, pp. 41-48, Monterey, CA, 2015. (**Nominated for Best Paper Award**)

[C147] Yu-Wei Wu, Yiyu Shi and Tsung-Yi Ho, "Obstacle-Avoiding Wind Turbine Placement for Power-Loss and Wake-Effect Optimization," in *Proc. of Asia and South Pacific Design Automation Conference*, pp. 202-207, Japan, 2015.

[C148] Khalid Al-Jabery, Donald C. Wunsch, Jinjun Xiong and Yiyu Shi, "A Novel Grid Load Management Technique Using Electric Water Heaters and Q-Learning," in *Proc. of IEEE SmartGridComm*, pp. 776-781, Italy, 2014.

[C149] Jie Wu, Jinjun Xiong, Prasenjit Shil and Yiyu Shi, "Real Time Anomaly Detection in Wide Area Monitoring of Smart Grids," in Proc. of International Conference on Computer-Aided Design, pp. 197-204, San Jose, CA, 2014. (**Invited Paper**) (Acceptance rate 25%)

[C150] Umamaheswara Rao Tida, Varun Mittapalli, Cheng Zhuo and Yiyu Shi, "Opportunistic Through-Silicon-Via Inductor Utilization in Resonant Clock: Concept and Algorithms," in *Proc. of International Conference on Computer-Aided Design*, pp. 750-757, San Jose, CA, 2014. (Acceptance rate 25%)

[C151] Tao Wang, Chun Zhang, Jinjun Xiong, Pei-wen Luo, Liang-Chia Cheng and Yiyu Shi, "Variation Aware Optimal Threshold Voltage Computation for On-Chip Noise Sensors," in *Proc. of International Conference on Computer-Aided Design*, pp. 205-212, San Jose, CA, 2014. (**Best Paper in Track**) (Acceptance rate 25%)

[C152] Wenjian Yu, Chao Zhang, Qing Wang and Yiyu Shi, "Extraction for 3D ICs with Cylindrical Inter-Tier-Vias," in *Proc. of International Conference on Computer-Aided Design*, pp. 702-709, San Jose, CA, 2014. (Acceptance rate 25%)

[C153] Hsuesh-Ling Yu, Yih-Lang Li, Tzu-Yi Liao, Tianchen Wang, Yiyu Shi, and Shu-Fei Tsai, "Fast and Accurate Emissivity and Absolute Temperature Maps Measurement for Integrated Circuits," in *Proc. of International Conference on Computer-Aided Design*, pp. 542-549, San Jose, CA, 2014. (Acceptance rate 25%)

[C154] Jie Wu, Jinjun Xiong, Prasenjit Shil and Yiyu Shi, " Optimal PMU Placement for Identification of Multiple Power Line Outages in Smart Grids," in *Proc. of International Midwest Symposium on Circuits and Systems*, pp. 354-357, College Station, TX, 2014. (**Invited Paper**)

[C155] Umamaheswara Rao Tida, Varun Mittapalli, Cheng Zhuo and Yiyu Shi, " "Green" On-chip Inductors in Three-Dimensional Integrated Circuits," in Proc. of *IEEE Computer Society Annual Symposium on VLSI*, pp. 571-576, Tampa, FL, 2014. (**Invited Paper**)

[C156] Yuguang Chen, Tao Wang, Kuan-Yu Lai, Wen-Yu Wen, Yiyu Shi and Shih-Chieh Chang, "Critical Path Monitor Enabled Dynamic Voltage Scaling for Graceful Degradation in Sub-Threshold Designs," in *IEEE/ACM Design Automation Conference*, pp. 1-6, San Francisco, CA, 2014

[C157] Jie Wu, Jinjun Xiong and Yiyu Shi, "Ambiguity Group Based Location Recognition of Multiple Power Line Outages in Smart Grids," in *IEEE PES Innovative Smart Grid Technologies Conference*, 2014, Washington, DC, 2014

[C158] Umamaheswara Rao Tida, Varun Mittapalli, Cheng Zhuo and Yiyu Shi, " "Green" On-chip Inductors in Three-Dimensional Integrated Circuits," in *IEEE Computer Society Annual Symposium on VLSI*, pp. 1-5, Tampa, FL, 2014. (**Invited Paper**)

[C159] Hui Geng, Luke Marecsa, Brian Cronquist, Zvi Or-Bach and Yiyu Shi, "Monolithic Three-Dimensional Integrated Circuits: Process and Design Implications," in *ECS Transactions, 225th Electrochemical Society Meeting*, Florida, 2014 (**Invited Paper**)

[C160] Yiyu Shi and Hung-Ming Chen, "Memcomputing: the Cape of Good Hope," in *Proc. of Design, Automation & Test in Europe*, Germany, 2014 (**Invited Paper**) (Acceptance rate 23.1%)

[C161] Chun Zhang, Jinjun Xiong and Yiyu Shi, "Cycle Accurate Simulator for Memcomputing," in *Proc. of Design, Automation & Test in Europe*, Germany, 2014 (**Invited Paper**) (Acceptance rate 23.1%)

[C162] Yu-Guang Chen, Kuan-Yu Lai, Ming-Chao Lee, Yiyu Shi, Wing-Kai Hon and Shih-Chieh Chang, "Yield and Timing Constrained Spare TSV Assignment for Three-Dimensional Integrated Circuits," in *Proc. of Design, Automation & Test in Europe*, Germany, 2014 (Acceptance rate 23.1%)

[C163] Jie Wu, Jinjun Xiong and Yiyu Shi, "Ambiguity Group Based Location Recognition of Multiple Power Line Outages in Smart Grids," in *IEEE PES Innovative Smart Grid Technologies Conference,* Washington, DC, 2014.

[C164] Hao Zhu and Yiyu Shi, "Phasor Measurement Unit Placement for Identifying Power Line Outages in Wide-Area Transmission System Monitoring," in *Proc. of Hawaii International Conference on System Sciences*, pp. 2483-2492, Hawaii, 2014 (Acceptance rate ~50%)

[C165] Umamaheswara Rao Tida, Cheng Zhuo and Yiyu Shi, "Through-Silicon-Via Inductor: Is it Real or Just A Fantasy?" in *Proc. of Asia and South Pacific Design Automation Conference*, pp. 837-842, Singapore, 2014 (Acceptance rate 31.4%)

[C166] Tao Wang, Chun Zhang, Jinjun Xiong and Yiyu Shi, "Eagle-Eye: A Near-Optimal Statistical Framework for Noise Sensor Placement," in *Proc. of International Conference on Computer-Aided Design*, pp. 437-443, San Jose, 2013 (Acceptance rate: 26%)

[C167] Chun Zhang, Moongon Jung, Sung Kyu Lim and Yiyu Shi, "Novel Crack Sensor for TSV-based 3D Integrated Circuits: Design and Deployment Perspectives," in *Proc. of International Conference on Computer-Aided Design*, San Jose, pp. 371-378, 2013 (Acceptance rate: 26%)

[C168] Chung-Han Chou, Nien-Yu Tsai, Hao Yu, Yiyu Shi, Jui-Hung Chien and Shih-CHieh Chang, "On the Futility of Thermal Through-Silicon-Vias", in *Proc. of International Symposium on VLSI Design, Automation and Test*, 2013

[C169] Chang-Cheng Tsai, Yiyu Shi, Guojie Luo and Iris Hui-Ru Jiang, "FF-Bond: Multi-bit Flip-Flop Bonding at Placement", in *Proc. of International Symposium on Physical Design*, pp. 147-153, 2013 (**Nominated for Best Paper Award**, **4 out of 55 submissions**) (Acceptance rate: 30%)

[C170] Pei-Wen Luo, Chun Zhang, Yung-Tai Chang, Liang-Chia Cheng, Hung-Hsie Lee, Bih-Lan Sheu, Yu-Shih Su, Ding-Ming Kwai, and Yiyu Shi, "Benchmarking for Research in Power Delivery Networks of Three-Dimensional Integrated Circuits", in *Proc. of International Symposium on Physical Design*, pp. 17-24, 2013 (Acceptance rate: 30%)

[C171] Shuai Tao, Xiaoming Chen, Yu Wang, Yuchun Ma, Yiyu Shi, Hui Wang, Huazhong Yang, " HS3DPG: Hierarchical Simulation for 3D P/G Network," in *Proc. of IEEE/ACM Asia and South Pacific Design Automation Conference*, pp. 509-514, 2013 (Acceptance rate 31%)

[C172] Hui Geng, Yiyu Shi, Ming Dong and Runsheng Liu, "A Mater-Slave SOC Structure for HMM Based Speech Recognition," in *Proc. of International Symposium on VLSI Design, Automation and Test*, pp. 1-4, April, 2012

[C173] Hui Geng, Jun Wu, Minsu Choi and Yiyu Shi, "Randomized Computing in Cryptography: Where is the Tofu?," in *Proc. of IEEE/ACM International Conference on Computer-aided Design*, pp. 163-167, 2012 (**Invited Paper**) (Acceptance rate: 24%)

[C174] Yu-Guang Chen, Yiyu Shi, Kuan-Yu Lai, Geng Hui and Shih-Chieh Chang, "Efficient Multiple-Bit Retention Register Assignment for Power Gated Design: Concept and Algorithms, " in *Proc. of IEEE/ACM International Conference on Computer-aided Design*, pp. 309-316, Nov., 2012 (Acceptance rate: 24%)

[C175] Pei-Wen Luo, Tao Wang, Chin-Long Wey, Liang-Chia Cheng, Bih-Lan Sheu, and Yiyu Shi,"Reliable Power Delivery System Design for Three-Dimensional Integrated Circuits", in *Proc. of IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, pp. 356-361, Aug., 2012 (**Invited Paper**)

[C176] Zhihao Li, Chenye Wu, Jiong Chen, Yiyu Shi, Jinjun Xiong and Amy Yuexuan Wang, "Power Distribution Network Reconfiguration for Bounded Transient Power Loss," in *Proc. of IEEE PES Innovative Smart Grid Technologies Asia*, pp. 1-5, May, 2012

[C177] Zhihao Li, Chenye Wu, Jiong Chen, Yiyu Shi, Jinjun Xiong and Amy Yuexuan Wang, "Power Distribution Network Reconfiguration for Bounded Transient Power Loss," in *Proc. of IEEE PES Innovative Smart Grid Technologies Asia*, pp. 1-5, May, 2012

[C178] Ming-Chao Lee, Yiyu Shi, Yu-Guang Chen, Diana Marculescu and Shih-Chieh Chang, "Efficient On-line Module-Level Wake-Up Scheduling for High Performance Multi-Module Designs, " in *Proc. of International Symposium on Physical Design*, pp. 97-104, Napa Valley, Mar., 2012 (Acceptance rate: 35.7%)

[C179] Tao Wang, Pei-Wen Luo, Yu-Shih Su, Liang-Chia Cheng, Ding-Ming Kwai and Yiyu Shi, "Capturing the Phantom of the Power Grid - On the Runtime Adaptive Techniques for Noise Reduction," in *Proc. of IEEE/ACM Asia and South Pacific Design Automation Conference*, pp. 640-645, Australia, Feb., 2012 (**Invited Paper**) (Acceptance rate: 34.4%)

[C180] Chiao-Ling Lung, Jui-Hung Chien, Yiyu Shi and Shih-Chieh Chang, "TSV Fault-tolerant Mechanisms and an Application on 3D Clock Trees," in *Proc. of International SOC Design Conference*, pp. 127-130, South Korea, Oct., 2011 (**Invited Paper**)

[C181] Siyu Yue, Jiong Chen, Yuantao Gu, Chenye Wu and Yiyu Shi, "Dual-Pricing Policy for Controller-Side Strategies in Demand Side Management," in *Proc. of IEEE SmartGridComm*, pp. 357-362, Belgium, Oct, 2011 (Acceptance rate: 40%)

[C182] Yiyu Shi and Jinjun Xiong, "Contingency Constrained Economic Dispatch in Smart Grids with Correlated Demands," in *Proc. of IEEE SmartGridCo*mm, pp. 333-338, Belgium, Oct., 2011 (Acceptance rate: 40%)

[C183] Chung-Han Chou, Nien-Yu Tsai, Hao Yu, Che-Rung Lee, Yiyu Shi and Shih-Chieh Chang, "On the Preconditioner of Conjugate Gradient Method - A Power Grid Simulation Perspective," in *Proc. of*

International Conference on Computer-aided Design, pp. 494-497, San Jose, 2011 (**Invited Paper**) (Acceptance rate: 30%)

[C184] Chunchun Sui, Jun Wu, Yiyu Shi, Yong-Bin Kim and Minsu Choi, " Random Dynamic Voltage Scaling Design to Enhance Security of NCL S-Box," in *Proc. of International Midwest Symposium on Circuits and Systems*, Seoul, Korea, Aug., 2011

[C185] Tao Wang, Jingook Kim, Jun Fan and Yiyu Shi, "Compressed Sensing Based Analytical Modeling for Through-Silicon-Via Pairs," in *Proc. of International Midwest Symposium on Circuits and Systems*, Seoul, Korea, Aug., 2011 (**Invited Paper**)

[C186] Tao Wang, Yiyu Shi, Songping Wu and Jun Fan, "Estimation of Crosstalk among Multiple Stripline Traces Crossing a Split by Compressed Sensing," in *Proc. of EMC Symposium*, pp.156-160, Long Beach, Aug., 2011

[C187] Hanfeng Wang, Jingook Kim, Yiyu Shi and Jun Fan, "The Effects of Substrate Doping Density on the Electrical Performance of Through-SIlicon Vias," in *Proc. of Asia-Pacific EMC Symposium*, Jeju Island, Korea, 2011

[C188] Chiao-Ling Lung, Yu-Shih Su, Hsih-Hsiu Huang, Yiyu Shi and Shih-Chieh Chang, "Fault Tolerant 3D Clock Scheme," in *Proc. of Design Automation Conference*, pp. 645-651, San Diego, Jun., 2011 (Acceptance rate: 23%)

[C189] Jason Cong, Guojie Luo and Yiyu Shi, "Thermal-aware Cell and Through-Silicon-Va Co-Placement for 3D ICs," in *Proc. of Design Automation Conference*, pp. 670-675, San Diego, Jun., 2011 (Acceptance rate: 23%)

[C190] Jun Wu, Yiyu Shi and Minsu Choi, "FPGA-based Measurement and Evaluation of Power Analysis Attack Resistant Asynchronous S-Box," in *Proc. of International Instrumentation and Measurement Technology Conference*, Hangzhou, China, Dec., 2011

[C191] Yiyu Shi and Lei He, "Modeling and Design for Beyond-the-Die Power Integrity," in *Proc. of International Conference on Computer-aided Design*, pp. 411-416, San Jose, Nov., 2010 (**Tutorial**) (Acceptance rate: 30%)

[C192] Bingjun Xiao, Yiyu Shi and Lei He, "A Universal State-of-Charge Algorithm for Batteries," in *Proc. of Design Automation Conference*, pp. 687-692, Anaheim, Jun., 2010 (Acceptance rate: 22%)

[C193] Fang Gong, Hao Yu, Yiyu Shi, Daesoo Kim, Junyan Ren and Lei He, "QuickYield: An Efficient Global-Search Based Parametric Yield Estimation with Performance Constraints," in *Proc. of Design Automation Conference,* pp. 392-397, Anaheim, Jun., 2010 (Acceptance rate: 22%)

[C194] Jinjun Xiong, Yiyu Shi, Vladimir Zolotov and Chandu Visweswariah, "Pre-ATPG Path Selection for Near Optimal Post-ATPG Process Space Coverage," in *Proc. of International Conference on Computer-aided Design,* pp. 89-96, San Jose, Nov., 2009 (Acceptance rate: 26%)

[C195] Wei Yao, Yiyu Shi, Lei He and Sudhakar Pamarti, "Joint Design-time and Post-silicon Optimization for Digitally Tuned Analog Circuits," in *Proc. of International Conference on Computer-aided Design*, pp. 725-730, San Jose, 2009 (Acceptance rate: 26%)

[C196] Yiyu Shi, Wei Yao, Lei He and Sudhakar Pamarti, "Joint Design-time and Post-silicon Optimization for Analog Circuits: A Case Study Using A High-speed Transmitter," *SRC Techcon Conference*, Austin, Jul., 2009

[C197] Wei Yao, Yiyu Shi and Lei He and Sudhakar Pamarti, "Worst Case Timing Jitter and Amplitude Noise in Differential Signaling," *SRC Techcon Conference*, Austin, Jul., 2009.

[C198] Jinjun Xiong, Yiyu Shi, Vladimir Zolotov and Chandu Visweswariah, "Statistical Multilayer Process Space Coverage for At-Speed Test," in *Proc. of Design Automation Conference*, pp. 340-345, San Francisco, Jul., 2009 (**Nominated for Best Paper Award, 7 out of 682 submissions**) (Acceptance rate: 22%)

[C199] Wei Yao, Yiyu Shi, Lei He and Sudhakar Pamarti, "Worst Case Timing Jitter and Amplitude Noise in Differential Signaling," in *Proc. of International Symposium on Quality Electronic Design*, pp. 40-46, San Jose, Mar., 2009 (Acceptance rate: 29%)

[C200] Yiyu Shi, Wei Yao, Jinjun Xiong and Lei He, "Incremental and On-demand Random Walk for Iterative Power Distribution Network Analysis," in *Proc. of Asia and South Pacific Design Automation Conference*, pp. 185-190, Feb., 2009 (Acceptance rate: 33%)

[C201] Yiyu Shi, Jinjun Xiong, Howard Chen and Lei He, "Clock Frequency Actuator with Efficient Stochastic Current Prediction for Runtime Resonance Noise Reduction," in *Proc. of Asia and South Pacific Design Automation Conference*, pp. 373-378, Japan, 2009 (**Nominated for Best Paper Award, 12 out of 350 submissions**) (Acceptance rate: 33%)

[C202] Yiyu Shi, Lei He and C.-J. Richard Shi, "Scalable Symbolic Model Order Reduction," in *Proc. of International Behavioral Modeling and Simulation Conference*, pp. 112-117, Sept., 2008.

[C203] Chunchen Liu, Junjie Su and Yiyu Shi, "Temperature Aware Routing Synthesis Considering Spatiotemporal Hotspot," in *Proc. of International Conference on Compute Design*, pp. 107-113, Lake Tahoe, Oct., 2008. (**Nominated for Best Paper Award**, **<6%**) (Acceptance rate: 31%)

[C204] Yiyu Shi, Jinjun Xiong, Chunchen Liu and Lei He, "Efficient Decoupling Capacitance Budgeting Considering Operation and Process Variations," in *Proc. of International Conference on Computer-Aided Design*, pp. 803-810, San Jose, Nov., 2007. (**Nominated for Best Paper Award, 9 out of 510 submissions**) (Acceptance rate: 27%)

[C205] Yiyu Shi and Lei He, "EMPIRE: An Efficient and Compact Multiple-Parameterized Model Order Reduction Method for Physical Optimization," *SRC Techcon Conference*, Texas, July, 2007.

[C206] Yiyu Shi and Lei He, "EMPIRE: An Efficient and Compact Multiple-Parameterized Model Order Reduction Method for Physical Optimization," in *Proc. of International Symposium on Physical Desi*gn, pp. 25-32, Texas, Mar., 2007 (Acceptance rate: 34%)

[C207] Hao Yu, Yiyu Shi and Lei He, "A First Order Block Structure Preserving Model Order Reduction with Inversed Inductance," in *Proc. of International Conference on Computer-Aided Design*, pp. 7-12, San Jose, Nov., 2006 (Acceptance rate: 23%)

[C208] Hao Yu, Yiyu Shi, Lei He and Tanay Karnik, "A Hotspot-Driven Thermal Via Allocation for 3D ICs by Parameterized Sensitivity," in *Proc. of International Symposium on Low Power Electronics and Design*, pp. 156-161, Germany, 2006 (Acceptance rate: 35%)

[C209] Hao Yu, Yiyu Shi and Lei He, "Fast Analysis of Structured Power Grid by Triangularization Based Structure Preserving Model Order Reduction," in *Proc. of Design Automation Conference*, pp. 205-210, San Francisco Jul., 2006. (**Nominated for Best Paper Award, 10 out of 1007 submissions**) (Acceptance rate: 21%)

[C210] Yiyu Shi, Paul Mesa, Hao Yu and Lei He, "Circuit Simulation Based Obstacle-aware Steiner Routing," in *Proc. of Design Automation Conference*, pp. 385-388, San Francisco, Jul., 2006 (Acceptance rate: 21%)

[C211] Yiyu Shi, Hao Yu, and Lei He, "SAMSON: A Generalized Second-Order Arnoldi Method for Reducing Multiple Source Linear Network with Susceptance," in *Proc. of International Symposium on Physical Design*, pp. 25-32, San Jose, Mar., 2006 (Acceptance rate: 35%)

[C212] Zhen Cao, Tong Jing, Yu Hu, Yiyu Shi, Xianlong Hong, Xiaodong Hu, and Guiying Yan, "DraXRouter: Global Routing in X-Architecture with Dynamic Resource Assignment," in *Proc. of Asia and South Pacfic Design Automation Conference*, pp. 618-623, Japan, Feb., 2006 (Acceptance rate: 42%)

[C213] Yiyu Shi, Tong Jing, Lei He and Zhe Feng, "CDCTree: Novel Obstacle-Avoiding Routing Tree Construction based on Current Driven Circuit Model," in *Proc. of Asia and South Pacific Design Automation Conference*, pp. 630-635, Japan, Feb., 2006 (Acceptance rate: 42%)

WORKSHOP PRESENTATIONS

[W1] Xiaowei Xu, Qing Lu, Tianchen Wang, Jinglan LIu, Yu Hu and Yiyu Shi, "Efficient Hardware Implementation of Cellular Neural Networks with Powers-of-Two Based Incremental Quantization", Neuromorphic Computing Symposium, Knoxville, Tennessee, July 2017.

[W2] Zhongyang Liu, Shaoheng Luo, Xiaowei Xu, Yiyu Shi and Cheng Zhuo, "A Multi-Level Optimization Framework for Efficient FPGA-Based Cellular Neural Network Implementation", Neuromorphic Computing Symposium, Knoxville, Tennessee, July 2017.

[W3] Yu-Wei Wu, Yiyu Shi, Sudip Roy and Tsung-Yi Ho, "Obstacle-Avoiding Wind Turbine Placement for Power-Loss and Wake-Effect Optimization," in *Proc. of the 19th Workshop on Synthesis And System Integration of Mixed Information Technologies*, Taiwan, 2015.

[W4] Tao Wang, Chun Zhang, Jinjun Xiong and Yiyu Shi, "A Near-Optimal Statistical Framework for Noise Sensor Placement," *International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, Lake Tahoe, 2013

[W5] Yu-Guang Chen, Yiyu Shi, Kuan-Yu Lai and Shih-Chieh Chang, "Efficient Retention Register Assignment for Power Gated Designs," *International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, Taiwan, 2012

[W6] Chung-Han Chou, Nien-Yu Tsai, Hao Yu, Jui-Hung Chien, Yiyu Shi and Shih-Chieh Chang, " On the Futility of Thermal Through-Silicon-Vias," *International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, Taiwan, 2012

[W7] Chung-Han Chou, Nien-Yu Tsai, Hao Yu, Che-Rung Lee, Yiyu Shi and Shih-Chieh Chang, "On the Preconditioner of Conjugate Gradient Method - A Power Grid Simulation Perspective, " *International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, Taiwan, 2012 (**Invited**)

[W8] Ming-Chao Lee, Yiyu Shi, Yu-Guang Chen, Shih-Chieh Chang and Diana Marculescu, "Efficient Wake-Up Scheduling for Multi-Core Systems," *International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, Santa Babara, 2011

[W9] Chiao-Ling Lung, Yu-Shih Su, Hsih-Hsiu Huang, Yiyu Shi and Shih-Chieh Chang, "Fault Tolerant 3D Clock Scheme," *International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, Santa Babara, 2011

[W10] Jinjun Xiong, Yiyu Shi, Vladimir Zolotov and Chandu Visweswariah, "Statistical Multilayer Process Space Coverage for At-Speed Test," *International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, Austin, 2009

POSTDOCTORAL RESEARCHERS ADVISED

Jie Wu (2014-2017, first job: Kneron)

Chun Zhang (2013-2014, first job: Xilinx)

Xiaowei Xu (2015-2019, first job: assistant professor at Guangdong General Hospital)

Kangli Hao (2015-2018, first job: Kneron)

Weiwen Jiang (2019-2021, first job: assistant professor at George Mason University)

Lei Yang (2019-2021, first job: assistant professor at University of New Mexico)

Yawen Wu (2022-2023, first job: Qualcomm)

Zhenge Jia (2022-2024, first job: assistant professor at Chinese University of Hong Kong)

Jun Xia (2023-)

Shaocong Wang (2024-)

Ph.D. STUDENTS GRADUATED

Hui Geng (Ph.D. 2015, first job Broadcom)

Tao Wang (Ph.D. 2015, first job Cadence)

Travis Schulz (Ph.D. 2015, co-advised with Daryl Beetner,)

Umamaheswara Rao Tida (Ph.D. 2019, first job assistant professor at North Dakota State University)

Tianchen Wang (Ph.D. 2020, first job Norfolk Southern Railway)

Jinglan Liu (Ph.D. 2020, first job Google)

Yukun Ding (Ph.D. 2021, first job Meta)

Boyang Li (Ph.D Fall 2022, first job Meta)

Qing Lu (Ph.D. Spring 2023, first job Meta)

Zheyu Yan (Ph.D. Fall 2023, first job assistant professor at Zhejiang University)

Xinrong Hu (Ph.D. Spring 2024, first job TikTok)

Zhiding Liang (Ph.D. Summer 2024, first job assistant professor at Rensselaer Polytechnic Institute)

Ph.D. STUDENTS CURRENTLY ADVISING

Dewen Zeng (Expected graduation Feb 2024)

Yuanbo Guo (Expected graduation 2025)

Ruiyang Qin (Expected graduation 2027)

Zixuan Pan (Expected graduation 2027)

Yifan Qin (Expected graduation 2027)

Gelei Xu (Expected graduation 2028)

Xueyang Li (Expected graduation 2028)

Qinyue Jiao (Expected graduation 2029)

Jiahao Zheng (Expected graduation 2029)

M.S. STUDENTS ADVISED

Kassan Unda (M.S. 2020)

Shengsheng Yuan (M.S. 2019)

Haiqiao Zhang (M.S. 2019)

Rongbo Yang (M.S. 2014)

HIGH SCHOOL STUDENTS ADVISED

Joy Xie (2022-2024)

Leo Deng (2022-2023)

Kevin Luo (2022-2024)

VISITING STUDENTS ADVISED

Yu Fu (2023), Gelei Xu (2022), Xuan Wang, (2022-2023), Yu-Guang Chen (2015-2016), Chung-Han Chou (2016), Tingyu Li (2017), Yueyi Li (2017), Shihan Xu (2017), Jiaxin Zhang (2017), Jiaqi Liu (2017), Baris Yigit (2017)

COURSES TAUGHT

Courses taught at University of Notre Dame

CSE 60321, Advanced Computer Architecture , Graduate	SS 2024
CSE 60685, Machine Learning for Embedded Systems, Senior/Graduate	SS 2024
CSE 60321, Advanced Computer Architecture , Graduate	SS 2023
CSE 40522, Capstone Design, Senior	FS 2023
CSE 40522, Capstone Design, Senior	FS 2022
CSE 40625, Machine Learning, Senior/Graduate	SS 2021
CSE 40522, Capstone Design, Senior	FS 2021

CSE 60685, Machine Learning for Embedded Systems, Graduate	SS 2020
CSE 40522, Capstone Design, Senior	FS 2019
CSE 40522, Capstone Design, Senior	FS 2018
CSE 60321, Advanced Computer Architecture , Graduate	SS 2018
CSE 40522, Capstone Design, Senior	FS 2017
CSE 20221, Digital Logic, Sophomore	SS 2017
CSE 40522, Capstone Design, Senior	SS 2017
CSE 20221, Digital Logic, Sophomore	SS 2016
CSE 40522, Capstone Design, Senior	SS 2016
Courses taught at Missouri University of Science and Technology	
CpE 6220, Design Automation of VLSI System, Graduate	WS 2015
CpE 5220, Digital System Modeling, Senior/Graduate	WS 2015
CpE 6210, Digital Logic, Graduate	FS 2014
CpE 5210, Introduction to VLSI Design, Senior/Graduate	FS 2014
CpE 318, Digital System Modeling, Senior/Graduate	WS 2014
CpE 111, Introduction to Computer Engineering, Sophomore	FS 2013
CpE 311, Introduction to VLSI Design, Senior/Graduate	FS 2013
CpE 409, Design Automation of VLSI Systems, Graduate	WS 2013
CpE 311, Introduction to VLSI Design, Senior/Graduate	FS 2012
CpE 318, Digital System Modeling, Senior/Graduate	WS 2012
CpE 111, Introduction to Computer Engineering, Sophomore	FS 2011
CpE 318, Digital System Modeling, Senior/Graduate	WS 2011
CpE 311, Introduction to VLSI Design, Senior/Graudate	FS 2010

OTHER UNIVERSITY SERVICES

President, Association of Faculty and Staff of Chinese Heritage, University of Notre Dame, 2024

President-elect, Association of Faculty and Staff of Chinese Heritage, University of Notre Dame, 2022 - 2023

Executive Committee, Engineering Innovation Hub, University of Notre Dame, 2021 -

Graduate Studies Committee, 2018-

Graduate Admission Committee, 2016-2018

Chair, IEEE Rolla Subsection, 2014

Treasurer and secretary, IEEE Rolla Subsection, 2012-2013

Freshman Engineering Advisor, 2010-2014

PRO advisor, 2012-2014

Radio Control Club advisor, 2012-2014