CURRICULUM VITAE

A. BIOGRAPHIC INFORMATION

Business Address: Home Address:
Lehigh University   1965 Delancey St., Hellertown, PA 18055
19 Memorial Drive W., Bethlehem, PA 18015   Phone: +1 (412) 482-0072
Phone: +1 (610) 758-5092
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Email: wuw219@lehigh.edu, wenwujie@gmail.com
Website: https://www.lehigh.edu/~wuw219/
Google Scholar: https://scholar.google.com/citations?user=QKQrD1wAAAAJ&hl=en

EDUCATION

Ph.D. in Computer Engineering, University of Pittsburgh, 09/2011-07/2015
　　Dissertation: Error Characterization and Correction Techniques for Reliable STT-RAM Designs
　　Advisor: Yiran Chen (Duke University)
　　Department of Electrical & Computer Engineering, University of Pittsburgh, Pittsburgh PA USA
M.S. in Electronic Engineering, Tsinghua University, 09/2007- 07/2010
　　Thesis: Channel Equalization and VLSI Chip Design of SC-UWB
　　Department of Electronic Engineering, Tsinghua University, Beijing, China
B.S.* in Electronic Engineering, Beijing Jiaotong University, 09/2002-07/2006
　　School of Electronic and Information Engineering, Beijing Jiaotong University, Beijing, China
　　*honor class

EMPLOYMENT & PROFESSIONAL EXPERIENCE

Assistant Professor, Department of ECE, 08/2019 – Present
Lehigh University, Bethlehem, PA USA
Assistant Professor, Department of ECE, 09/2015– 08/2019.
Florida International University, Miami, FL USA
Visiting Faculty Research Fellow, 06/2017 – 08/2017.
Air Force Research Laboratory, Rome, NY USA
Research Assistance, Department of ECE, 09/2011-07/2015
University of Pittsburgh, Pittsburgh, PA USA
Intern Engineer, Broadcom Corp., 01/2013-04/2013.
Wireless Connectivity Group, San Diego, CA USA
Intern Engineer, Broadcom Corp., 05/2012-08/2012
Wireless Connectivity Group, San Diego, CA USA,
ASIC Design Engineer, Advance Micro Devices (AMD), 07/2010–07/2011.
GPU Design Group, Shanghai, China.

B. PUBLICATIONS AND CREATIVE ACTIVITIES

Google Scholar	Citation	h-index	i10-index
All	2103	24	47
Since 2017	1770	23	39
Web of Science	664		

*The citation data is updated as of 07/2022
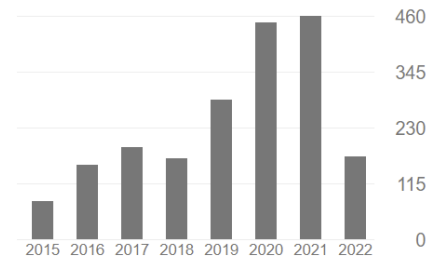
PPostdoctoral researcher, DDoctoral student (D*Co-advised), VDVisiting doctoral student, MMaster student, DAFaculty member's doctoral adviser, PAFaculty member's postdoctoral adviser, IIndustrial partner.

*Publishing in top conferences is more competitive than in journals for Computer Engineering Research.

B.1 Book:

B1. Y. Zhang, W. Wen, and Y. ChenDA, "Asymmetry in STT-RAM Cell Operations," (in Emerging Memory Technologies: Design, Architecture, and Applications, Editor: Yuan Xie), Springer, Oct. 22, 2013, ISBN: 978-14-419-9550-6.

B2. W. Wen, Y. Zhang, and Y. ChenDA, "Statistical Reliability/Energy Characterization in STT-RAM Cell Designs," (in Spintronics Based Computing, Editors: Weisheng Zhao and Guillaume Prenat), Springer, Jun. 14, 2015. ISBN:978-3-319-15179-3.

B3. Y. Zhang, W. Wen, H. Li, and Y. ChenDA, "The Prospect of STT-RAM Scaling, (in Metallic Spintronic Devices," Editor: Xiaobin Wang), CRC Press, Aug. 4, 2014. ISBN: 978-14-665-8844-8.

B.2 Articles in referred journals: (Total 20)

B.2.1 *Work published at Lehigh:*

J1. **TNNLS:** Q. LiuD and **W. Wen**, "Model Compression Hardens Deep Neural Networks: A New Perspective to Prevent Adversarial Attacks", *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, June 2021, pp. 1-12. (DOI:10.1109/TNNLS.2021.3089128, **IF: 8.793**)

J2. **CCF-Trans:** T. LiuD, G. Quan and **W. Wen**, "FPT-spike: a Flexible Precise-time-dependent Single-spike Neuromorphic Computing Architecture", *CCF Transactions on High Performance Computing (HPC)*, June 2020, pp. 254-271. (DOI:10.1007/s42514-020-00037-6)

J3. **TODES:** S. Sha, A. Bankar, W. Wen and G. Quan, "On Fundamental Principles for Thermal-Aware Design on Periodic Real-Time Multi-Core Systems", *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, 2020, vol. 25, no. 2, pp. 23:1-23:23. (DOI: 10.1145/3378063)

B.2.2 *Work published prior to joining Lehigh:*

J4. **JETC:** B. Li, M. Mao, X. Liu, T. LiuD, Z. LiuD, W. Wen, Y. ChenDA and H. Li, "Thread Batching for High-performance Energy-efficient GPU Memory Design", *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, Dec. 2019, vol. 15, no. 4, pp. 39:1-39:21. (DOI: 10.1145/3330152)

J5. **TCAD**: C. Yang, B. Liu, H. Li, Y. ChenDA, M. Barnell, Q. Wu, W. Wen, and J. Rajendran, "Thwarting Replication Attack against Memristor-based Neuromorphic Computing System", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* **(TCAD)**, Oct. 2019, vol. 39, no. 10, pp. 2192-2205. (DOI: 10.1109/TCAD.2019.2937817, **IF: 2.8**)

J6. **PARCO:** S. Sha, W. Wen, G. Chaparro-Baquero and G. Quan, "Thermal-Constrained Energy Efficient Real-Time Scheduling on Multi-Core Platforms", *Parallel Computing (PARCO)*, vol. 85, 2019, pp. 231-242. (ISSN 0167-8191, DOI: 10.1016/j.parco.2019.01.003)

J7. **TPDS:** S. Sha, W. Wen, S. Ren, and G. Quan, "M-Oscillating: Performance Maximization on Temperature-Constrained Multi-Core Processors", *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Nov. 2018, vol. 29, no. 11, pp. 2528-2539. (DOI: 10.1109/TPDS.2018.2835474, **IF: 4.181**)

J8. **TCAD:** Z. Liu[D], M. Mao, T. Liu[D], X. Wang, **W. Wen**, Y. Chen[DA], H. Li, D. Wang, Y. Pei, and N. Ge, "TriZone: A Design of MLC STT-RAM Cache for Combined Performance, Energy, and Reliability Optimizations", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, Oct. 2018, vol. 37, no. 10, pp. 1985-1998. (DOI: 10.1109/TCAD.2017.2783860, **IF: 2.8**)

J9. **JETC:** B. Li[VD], Y. Pei, and **W. Wen**, "Efficient LDPC Code Design for Combating Asymmetric Errors in STT-RAM", *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, Mar. 2018, vol. 14, no. 1, pp. 10:1-10:20. (DOI: 10.1145/3154836)

J10. **TC:** M. Mao, W. Wen, Y. Zhang, Y. Chen[DA] and H. Li, "An Energy-Efficient GPGPU Register File Architecture Using Racetrack Memory", *IEEE Transactions on Computers (TC)*, Apr. 2017, vol. 66, no. 9, pp. 1478-1490. (DOI: 10.1109/TC.2017.2690855, **IF: 3.746**)

J11. **JETC:** X. Yang, W. Wen**,** and F. Ming, "Improving AES Core Performance via An Advanced ASBUS Protocol", *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, Dec. 2017, vol. 14, no. 1, pp. 6:1-6:23. (DOI: 10.1145/3110713)

J12. **TC:** X. Chen, N. Khoshavi, R. DeMara, J. Wang, J. Zhou, D. Huang, W. Wen, Y. Chen[DA], "Energy-Aware Adaptive Restore Schemes for MLC STT-RAM Cache", *IEEE Transactions on Computers (TC)*, Nov. 2016, vol. 66, no. 5, pp. 786-798. (DOI: 10.1109/TC.2016.2625245, **IF: 3.746, Feature Paper of Month-May 2017**))

J13. **TCAD:** J. Guo, W. Wen, J. Hu, D. Wang, H. Li and Y. Chen[DA], "FlexLevel NAND Flash Storage System Design to Reduce LDPC Latency", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, Oct. 2016, vol. 36, no. 7, pp. 1167-1180. (DOI: 10.1109/TCAD.2016.2619480, **IF: 2.8**)

J14. **TCAD:** W. Wen, Y. Zhang, Y. Chen[DA], Y. Wang and Y. Xie, "PS3-RAM: A Fast Portable and Scalable Statistical STT-RAM Reliability/Energy Analysis Method", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, Nov. 2014, vol. 33, no. 11, pp. 1644-1656. (DOI: 10.1109/TCAD.2014.2351581, **IF: 2.8**)

J15. **TMAG:** E. Eken, Y. Zhang, W. Wen, R. Joshi, H. Li, and Y. Chen[DA], "A Novel Self-reference Technique for STT-RAM Read and Write Reliability Enhancement", *IEEE Transaction on Magnetics (TMAG)*, Nov. 2014, vol. 50, no. 11, 3401404. (DOI: 10.1109/TMAG.2014.2323196)

J16. **TMAG:** Y. Zhang, W. Wen, and Y. Chen[DA], "The Prospect of STT-RAM Scaling from Read ability Perspective", *IEEE Transaction on Magnetics (TMAG)*, vol. 48, no. 1, Nov. 2012, pp. 3035-3038. (DOI: 10.1109/TMAG.2012.2203589)

J17. **SPIN:** Y. Zhang, W. Wen, and Y. Chen[DA], "STT-RAM Cell Design Considering MTJ Asymmetric Switching", SPIN, vol. 2, no. 3, Nov. 2012, 1240007. (DOI: 10.1142/S2010324712400073)

J18. **JETC:** Y. Chen[DA], W. Wong, H. Li, C.-K. Koh, Y. Zhang, and W. Wen, "On-chip Caches built on Multi-Level Spin-Transfer Torque RAM Cells and Its Optimizations", *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, vol. 9, no 2, article 16, May 2013, pp. 1-22. (DOI: 10.1145/2463585.2463592)

J19. **IET:** C. Geng, Y. Pei, W. Wen, Z. Luan, N. Ge, "ASIC implementation of fractionally spaced Rake receiver for high data rate UWB", IET Electronic Letters, vol. 47, no. 3, 2011, pp. 215-217. (DOI: 10.1049/el.2010.2001)

J20. W. Wen, Y. Pei, and N. Ge, "ASIC design optimization of a decision feedback equalizer at Single-Carrier Ultra-wideband", Journal of Tsinghua University (Science and Technology), vol. 50, no. 4, 2010, pp. 577-580.

B.3   Referred conference publications: (Total 69 published + 8 under review/revision)

B.3.1   *Work done at Lehigh:*

Published (Total 17)

C1. **DAC22:** H. Peng, S. Huang, S. Chen, B. Li, W. Jiang, W. Wen, J. Bi, H. Liu, and C. Ding, "A Length Adaptive Algorithm-Hardware Co-design of Transformer on FPGA Through Sparse Attention and Dynamic Pipelining", *Proc. ACM/IEEE 59th Design Automation Conference (DAC)*, San Francisco, CA, July 2022, pp. 1-6. (Acceptance Rate: 223/987=**~23%**, **Top Ranked, Selected as Publicity Paper**)

C2. **ASPDAC22:** A. Yu[D*], N. Lyu, **W. Wen,** and **Z. Yan**, "Reliable Memristive Neural Network Accelerators Based on Early Denoising and Sparsity Induction", *Proc. ACM/IEEE 27th Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2022, pp. 598-603. (DOI: 10.1109/ASP-DAC52403.2022.9712525)

C3. **HOST21:** F. Hosseini, Q. Liu[D], F. Meng, C. Yang, and W. Wen, "Safeguarding the Intelligence of Neural Networks with Built-in Light-weight Integrity MArks (LIMA)", *IEEE International Symposium on Hardware Oriented Security and Trust (HOST)*, Dec. 2021, pp. 1-12. (Full paper, Acceptance Rate: ***~25%***, **Top Conference in Hardware Security Research**, DOI: 10.1109/HOST49136.2021.9702292)

C4. **DAC21:** P. Zhao, G. Yuan, Y. Cai, W. Niu, Q. Liu[D], W. Wen, B. Ren, Y. Wang, and X. Lin, "Neural Pruning Search for Real-Time Object Detection of Autonomous Vehicles", *Proc. ACM/IEEE 58th Design Automation Conference (DAC)*, San Francisco, CA, Dec. 2021, pp. 835-840. (Acceptance Rate: **23%**, DOI: 10.1109/DAC18074.2021.9586163).

C5. **EMSOFT21:** F. Hosseini, F. Meng, C. Yang, W. Wen, and R. Cammarota, "Tolerating Defects in Low-power Neural Network Accelerators via Retraining-free Weight Approximation", *the 21st ACM SIGBED International Conference on Embedded Software (EMSOFT)*, Oct 2021, pp. 1-21 (Acceptance rate ~23%, published in ACM Transactions on Embedded Computing Systems-ACM TECS vol. 20, issue 5, article no. 85, DOI:10.1145/3477016).

C6. **DAC21:** J. Xie, P. He and W. Wen, "Efficient Implementation of Finite Field Arithmetic for Binary Ring-LWE Post-Quantum Cryptography Through a Novel Lookup-Table-Like Method", *Proc. ACM/IEEE 58th Design Automation Conference (DAC)*, San Francisco, CA, Dec. 2021, pp. 1279-1284. (Acceptance Rate: **23%**, DOI: 10.1109/DAC18074.2021.9586151).

C7. **BIBM20:** S. Wen, Y. Chen, Z. Liu[D], W. Wen, X. Xu, Y. Shi, T. Ho, Q. Jia, M. Huang and J. Zhuang, "Do Noises Bother Human and Neural Networks In the Same Way? A Medical Image Analysis Perspective", *Proc. IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, Dec. 2020, pp. 1166-1170. (DOI:10.1109/BIBM49941.2020.9313560)

C8. **ACSAC20:** T. Liu[D], Z. Liu[D], Q. Liu[D], **W. Wen**, W. Xu, and M. Li, "StegoNet: Turn Deep Neural Network into a Stegomalware", *Proc. ACM 36th Annual Computer Security Application Conference (ACSAC)*, Austin, TX, Dec. 2020, pp. 928-938. (Acceptance Rate: 70/302=**23%**, DOI: 10.1145/3427228.3427268)

C9. **ICCAD20:** Q. Liu[D], **W. Wen** and Y. Wang, "Concurrent Weight Encoding-based Detection for Bit-Flip Attack on Neural Network Architecture", *Proc. ACM/IEEE 39th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2020, pp. 1-8. (Acceptance Rate: 127/470=**27%**, DOI: 10.1145/3400302.3415726)

C10. **ICCAD20:** C. Zhang, K. Abdelaal, A. Chen, X. Zhao, W. Wen, and X. Guo, "ECC Cache: A Lightweight Error Detection for Phase-Change Memory Stuck at Faults", *Proc. ACM/IEEE 39th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2020, pp. 1-9. (Acceptance Rate: 127/470=**27%**, DOI: 10.1145/3400302.3415650)

C11. **ECCV20:** X. Ma, W. Niu, T. Zhang, S. Liu, S. Lin, H. Li, W. Wen, X. Chen, J. Tang, K. Ma, B. Ren, and Y. Wang, "An Image Enhancing Pattern-based Sparsity for Real-time Inference on Mobile

Devices", *Proc. of the 16th European Conference on Computer Vision (ECCV)*, Sep. 2020, pp. 1-16. (Acceptance Rate: 1361/5025=**27%**, DOI: 10.1007/978-3-030-58601-0_37)

C12. **MICCAI20:** Q. Liu[D], H. Jiang[M], T. Liu[D], Z. Liu[D], S. Li, **W. Wen,** and Y. Shi, "Defending Deep Learning-based Biomedical Image Segmentation from Adversarial Attacks: A Low-cost Frequency Refinement Approach", *the 23rd International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, Lima, Peru, Oct 2020, pp. 342-351. (***Early Accept***, DOI:10.1007/978-3-030-59719-1_34, code: https://github.com/qiliu08/frequency-refinement-defense)

C13. **MICCAI20:** Z. Liu[D], S. Li, Y. Chen, T. Liu[D], Q. Liu[D], X. Xu, Y. Shi, and **W. Wen**, "Orchestrating Medical Image Compression and Remote Segmentation Networks", *the 23rd International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, Lima, Peru, Oct 2020, pp. 406-416. (Early Accept, ***Nominated and Shortlisted for 2020 MICCAI Society Young Scientist Award,*** DOI: 10.1007/978-3-030-59719-1_40)

C14. **DAC20:** N. Xu[D], Q. Liu[D], T. Liu[D], Z. Liu[D], X. Guo and **W. Wen**, "Stealing Your Data from Compressed Machine Learning Models", *Proc. ACM/IEEE 57th Design Automation Conference (DAC)*, San Francisco, CA, 2020, pp. 1-6. (Acceptance Rate: 228/984=**23.0%**, DOI: 10.1109/DAC18072.2020.9218633)

C15. **DAC20:** Q. Liu[D], T. Liu[D], Z. Liu[D], **W. Wen** and C. Yang, "Monitoring the Health of Emerging Neural Network Accelerators with Cost-effective Concurrent Test", *Proc. ACM/IEEE 57th Design Automation Conference (DAC)*, San Francisco, CA, 2020, pp. 1-6. (Acceptance Rate: 228/984=**23.0%**, ***Best Paper Nomination from the Track***, DOI:10.1109/DAC18072.2020.9218675)

C16. **ASPDAC20:** X. Ma, G. Yuan, S. Lin, C. Ding, F. Yu, T. Liu[D], W. Wen, X. Chen, and Y. Wang, "Tiny but Accurate: A Pruned, Quantized and Optimized Memristor Crossbar Framework for Ultra Efficient DNN Implementation", *Proc. ACM/IEEE 25th Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2020, pp. 301-306. (Acceptance Rate: 86/279=**30%**, DOI: 10.1109/ASP-DAC47756.2020.9045658)

C17. **ICCAD19:** T. Liu[D] and **W. Wen**, "Making the Fault-Tolerance of Emerging Neural Network Accelerators Scalable", *Proc. ACM/IEEE 38th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2019, pp. 1-5. (Invited Tutorial Paper, DOI: 10.1109/ICCAD45719.2019.8942073)

Manuscripts under review/revision at Lehigh (Total 8 as of 06/2022, All in Top Conferences):

R1. **USENIX Security 2023:** Q. Liu[D], J. Yin, **W. Wen**, C. Yang and S. Sha, "NeuroPots: Realtime Proactive Defense against Bit-Flip Attacks in Neural Networks", *the 31st USENIX Security Symposium (USENIX Security)*, June 2022, pp. 1-19. (Under Review, **Major Revision Decision after Two-round review, submitted revision likely being accepted, one of Flagship Conferences in Security, Acceptance Rate ~15-19%**)

R2. **NeurIPS2022:** R. Ran[D], W. Wang, G. Quan, J. Yin, N. Xu[D] and **W. Wen**, "CryptoGCN: Fast and Scalable Homomorphically Encrypted Graph Convolutional Network Inference", *the Thirty-Sixth Annual Conference on Neural Information Processing Systems (NeurIPS 2022)*, pp 1-10. (Under Review, **one of Flagship Conferences in AI**)

R3. **NeurIPS2022:** Q. Liu[D], R. Ran[D], W. Wen, P. Venkitasubramaniam, and **W. Wen**, "Exposing Vulnerabilities in Spatial Temporal Graph Neural Networks for Practical Applications: A Novel Attack Framework", *the Thirty-Sixth Annual Conference on Neural Information Processing Systems (NeurIPS 2022)*, pp 1-11. (Under Review, **one of Flagship Conferences in AI**)

R4. **MICRO2022:** Y. Luo, N. Xu[D], H. Peng, S. Duan, K. Mahmood, W. Wen, C. Ding and X. Xu, "DeepLeaF: An End-to-end Two-party Computation Framework Enabling Secure Deep Learning on FPGAs", *the 55th IEEE/ACM International Symposium on Microarchitecture (MICRO-55)*, Apr. 2022, pp. 1-14. (Under Review, **one of Flagship Conferences in Computer Architecture)**

R5. **ICCAD2022:** H. Peng, S. Zhou, Y. Luo, S. Duan, N. Xu[D], R. Ran[D], S. Huang, C. Wang, T. Geng, A. Li, W. Wen, X. Xu and C. Ding, "PASNet: Polynomial Architecture Search for Two-party Computation-based Secure Neural Network Deployment," *Proc. ACM/IEEE 41st International Conference on Computer-Aided Design (ICCAD)*, May. 2022, pp. 1-9. (Under Review, **one of Top Conferences in Electronic Design Automation-EDA**)

R6. **ICCAD2022:** S. Islam, S. Zhou, R. Ran[D], Y. Jin, W. Wen, C. Ding and M. Xie, "EVE: Environmental Adaptive Neural Network Models for Low-power Energy Harvesting System," *Proc. ACM/IEEE 41st International Conference on Computer-Aided Design (ICCAD)*, May. 2022, pp. 1-8. (Under Review, **one of Top Conferences in Electronic Design Automation-EDA**)

R7. **ACSAC2022:** N. Xu[D], B. Wang, R. Ran[D], **W. Wen** and P. Venkitasubramaniam, "NeuGuard: Lightweight Neuron-Guided Defense against Membership Inference Attacks", *Proc. ACM 38th Annual Computer Security Application Conference (ACSAC 2022)*, Jun. 2022, pp. 1-15. (Submitted, under review, *One of Top Conferences in Computer Security*, Acceptance Rate ~20-25%).

R8. **COLING2022:** N. Xu[D], Y. Wang, S. Huang, K. Mahmood, D. Guo, **W. Wen**, C. Ding, S. Rajasekaran, "Exploration and Defense of Membership Inference Attack in Natural Language Processing", *the 29th International Conference on Computational Linguistics (COLING'2022)*, May 2022, pp 1-13. (Under Review, **One of Great Conferences in Natural Language Processing-NLP**).

B.3.2 *Work done before joining Lehigh*

Published (Total 52—DAC(11), ICCAD(7), DATE (3), HPCA, ICCP, CVPR, AAAI, ECCV)

C18. **CVPR19:** Z. Liu[D], X. Xu, T. Liu[D], Q. Liu[D], Y. Wang, Y. Shi, **W. Wen**, M. Huang, H. Yuan and J. Zhuang, "Machine Vision Guided 3D Medical Image Compression for Efficient Transmission and Accurate Segmentation in the Clouds", *Proceedings of the IEEE/CVF Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, Long Beach, CA, 2019, pp. 12687-12696. (Acceptance Rate: **25.2%**, DOI: 10.1109/CVPR.2019.01297)

C19. **CVPR19:** Z. Liu[D], T. Liu[D], Q. Liu[D], N. Xu[D], X. Lin, Y. Wang and **W. Wen**, "Feature Distillation: DNN-Oriented JPEG Compression Against Adversarial Examples", *Proceedings of the IEEE/CVF Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, Long Beach, CA, 2019, pp. 860-868. (Acceptance Rate: **25.2%**, DOI: 10.1109/CVPR.2019.00095, Code: https://github.com/zihaoliu123/Feature-Distillation-DNN-Oriented-JPEG-Compression-Against-Adversarial-Examples)

C20. **DAC19:** T. Liu[D], **W. Wen**, L. Jiang, Y. Wang, C. Yang and G. Quan, "A Fault-Tolerant Neural Network Architecture", *Proc. ACM/IEEE 56th Design Automation Conference (DAC)*, Las Vegas, NV, 2019, pp. 1-6. (Acceptance Rate: 202/815=**24.8%**, DOI: 10.1145/3316781.3317742)

C21. **HPCA19:** Z. Li, C. Ding, S. Wang, W. Wen, Y. Zhuo, C. Liu, Q. Qiu, W. Xu, X. Lin, X. Qian, Y. Wang, "E-RNN: Design Optimization for Efficient Recurrent Neural Networks in FPGAs", *Proc. of the 25th IEEE International Symposium on High-Performance Computer Architecture (HPCA)*, Feb. 2019, pp. 69-80. (Acceptance Rate: 46/233=**19.7%**, DOI: 10.1109/HPCA.2019.00028)

C22. **CCGRID19:** S. Homsi, G. Quan, W. Wen, G. Chapparo-Baquero and L. Njilla, "Game Theoretic-Based Approaches for Cybersecurity-Aware Virtual Machine Placement in Public Cloud Clusters", *19th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID)*, May 2019, pp. 272-281. (Acceptance Rate: 47/207=**22.7%,** DOI: 10.1109/CCGRID.2019.00041)

C23. **AAAI19:** Y. Wang, Z. Zhan, J. Tang, B. Yuan, L. Zhao, W. Wen, S. Wang, and X. Lin, "Universal Approximation Property and Equivalence of Stochastic Computing-based Neural Networks and Binary Neural Networks," *the 33rd AAAI Conference on Artificial Intelligence (AAAI-19)*, Feb. 2019, pp. 5369-5376. (Acceptance Rate: 1150/7095=**16.2%,** DOI: 10.1609/aaai.v33i01.33015369)

C24. **WiSec19:** T. Liu[D] and **W. Wen**, "Deep-evasion: Turn deep neural network into evasive self-contained cyber-physical malware: poster", *Proceedings of the 12th Conference on Security and*

Privacy in Wireless and Mobile Networks (WiSec), May 2019, pp. 320-321. (DOI: 10.1145/3317549.3326311)

C25. **ASPDAC19:** T. Liu[D], N. Xu[D], Q. Liu[D], Y. Wang, and **W. Wen**, "A System-level Perspective to Understand the Vulnerability of Deep Learning Systems", *Proc. ACM/IEEE 24th Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2019, pp. 506-511. (*Invited Special Session*, DOI: 10.1109/ASP-DAC47756.2020.9045658)

C26. **ICCAD18:** S. Wang, X. Wang, P. Zhao, W. Wen, D. Kaeli, P. Chin, and X. Lin, "Defensive dropout for hardening deep neural networks under adversarial attacks", *Proc. ACM/IEEE 37th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2018, pp. 71:1-71:8. (Acceptance Rate: 98/396=**25%**, *Best Paper Award Nomination***,** DOI: 10.1145/3240765.3264699)

C27. **ICCAD18:** Q. Lou, W. Wen, and L. Jiang, "3DICT: A Reliable and QoS Capable Mobile Process-In-Memory Architecture for Lookup-based CNNs in 3D XPoint ReRAMs", *Proc. ACM/IEEE 37th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2018, pp. 53:1-53:8. (Acceptance Rate: 98/396=**25%**, *Best Paper Award Nomination from the track-Hardware for Embedded Systems***,** DOI: 10.1145/3240765.3240767)

C28. **ECCV18:** T. Zhang, S. Ye, K. Zhang, J. Tang, W. Wen, M. Fardad and Y. Wang, "A Systematic DNN Weight Pruning Framework using Alternating Direction Method of Multipliers", *Proc. of the 15th European Conference on Computer Vision (ECCV),* Sep. 2018, pp. 1-16. (Acceptance Rate: 717/2439=**29%,** DOI: 10.1007/978-3-030-01237-3_12)

C29. **DAC18:** Z. Liu[D]**,** T. Liu[D], **W. Wen**, L. Jiang, J. Xu, Y. Wang, and G. Quan, "DeepN-JPEG: A Deep Neural Network Favorable JPEG-based Image Compression Framework", *Proc. ACM/IEEE 55th Design Automation Conference (DAC)*, June 2018, pp. 1-6. (Acceptance Rate: 168/691=**24.3%**, Code: https://github.com/zihaoliu123/DeepN-Jpeg, DOI: 10.1145/3195970.3196022)

C30. **HOST18:** T. Liu[D], **W. Wen**, and Y. Jin, "SIN^2: Stealth Infection on Neural Network-A Low-cost Agile Neural Trojan Attack Methodology", *Proc. IEEE International Symposium on Hardware Oriented Security and Trust (HOST)*, May 2018, pp. 227-230. (Acceptance Rate: 22/84=**26.2%**, DOI: 10.1109/HST.2018.8383920)

C31. **ASPDAC18:** Q. Liu[D], T. Liu[D], Z. Liu[D], Y. Wang, Y. Jin, and **W. Wen**, "Security Analysis and Enhancement of Model Compressed Deep Learning Systems under Adversarial Attacks", *Proc. ACM/IEEE 23rd Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2018, pp. 721-726. (*Best Paper Award Nomination*, DOI: 10.1109/ASPDAC.2018.8297407)

C32. **ASPDAC18:** T. Liu[D], L. Jiang, Y. Jin, G. Quan and **W. Wen**, "PT-Spike: A Precise-Time-Dependent Single Spike Neuromorphic Architecture with Efficient Supervised Learning", *Proc. ACM/IEEE 23rd Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2018, pp. 568-573. (*Best Paper Award Nomination*, top 11 out of 271, DOI: 10.1109/ASPDAC.2018.8297383)

C33. **ISVLSI18:** Z. Liu[D], T. Liu[D], J. Guo, N. Wu and **W. Wen**, "An ECC-Free MLC STT-RAM Based Approximate Memory Design for Multimedia Applications", *Proc. of the 17th IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Jul. 2018, pp. 142-147. (Oral Acceptance Rate: 57/192**=29%**, DOI: 10.1109/ISVLSI.2018.00035)

C34. **ISVLSI18:** T. Liu[D], Z. Liu[D], Q. Liu[D], and **W. Wen**, "Enhancing the Robustness of Deep Neural Networks from ``Smart'' Compression", Proc. of 17th IEEE Computer Society Annual Symposium on VLSI *(ISVLSI)*, Jul. 2018, pp. 528-532. (Invited Special Session, DOI: 10.1109/ISVLSI.2018.00102)

C35. **GOMACTech18:** T. Liu[D], Y. Jin and **W. Wen,** "Trojan Attacks and Defenses on Deep Neural Network based Intelligent Computing Systems," Government Microcircuit Applications & Critical Technology Conference *(GOMACTech)*, Miami, FL, Mar. 2018, pp. 1-2.

C36. **SPIE18:** Q. Liu[D], T. Liu[D], and **W. Wen**, "Understanding Adversarial Attack and Defense Towards Deep Compressed Neural Networks," *Proceedings of the International Society for Optics and Photonics (SPIE),* Orlando, FL, Apr. 2018, pp. 1-12. (Invited paper, DOI:10.1117/12.2305226)

C37. **ICC18:** H. Wu, L. Chen, C. Shen, W. Wen, and J. Xu, "Online Geographical Load Balancing for Energy-Harvesting Mobile Edge Computing", *Proc. of IEEE International Conference on Communications (ICC) 2018 Green Communications Systems and Networks Symposium*, May 2018, pp.1-6. (DOI: 10.1109/ICC.2018.8422299)

C38. **ICCAD17:** T. Liu[D], Z. Liu[D], F. Lin, Y. Jin, G. Quan, and **W. Wen**, "MT-Spike: A Multilayer Time-based Spiking Neuromorphic Architecture with Temporal Error Backpropagation", *Proc. of ACM/IEEE 36th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2017, pp. 450-457. (Acceptance Rate: 105/399=**26%**, ***Best Paper Award Nomination from the track--Hardware for Embedded Systems***, DOI: 10.1109/ICCAD.2017.8203812)

C39. **ISLPED17:** L. Jiang, M. Kim, W. Wen**,** and D. Wang, "XNOR-POP: A Processing-in-Memory Architecture for Binary Convolutional Neural Networks in Wide-IO2 DRAMs", *Proc. ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED),* Aug. 2017, pp. 1-6. (Acceptance Rate: *24%,* DOI: 10.1109/ISLPED.2017.8009163)

C40. **ASPDAC17:** Z. Liu[D], **W. Wen**, L. Jiang, Y. Jin, and G. Quan, "A Statistical STT-RAM Retention Model for Fast Memory Subsystem Designs", *Proc. ACM/IEEE 22nd Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2017, pp. 720-725. (Acceptance Rate: 111/358 = **31%**, DOI: 10.1109/ASPDAC.2017.7858409)

C41. **ASPDAC17:** X. Yang[VD] and **W. Wen**, "Design of A Pre-scheduled Data Bus (DBUS) for Advanced Encryption Standard (AES) Encrypted System-on-Chips (SoCs)", *Proc. ACM/IEEE 22nd Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2017, pp. 506-511. (Acceptance Rate: 111/358 = **31%**, DOI: 10.1109/ASPDAC.2017.7858373)

C42. **ASPDAC17:** A. Ren, S. Liu, R. Cai, W. Wen, P. Varshney and Y. Wang, "Algorithm-Hardware Co-optimization of Memristor-Based Framework for Solving SOCP and Homogeneous QCQP Problems", *Proc. ACM/IEEE 22nd Asia and South Pacific Design Automation Conference (ASP-DAC)*, 2017, pp. 788-793. (Accept Rate: 111/358=**31%**, DOI: 10.1109/ASPDAC.2017.7858420)

C43. **GLSVLSI17:** L. Jiang, S. Mittal, and W. Wen, "Building a Fast and Power Efficient Inductive Charge Pump System for 3D Stacked Phase Change Memories", *Proc. of ACM Great Lakes Symposium on VLSI (GLSVLSI)*, May 2017, pp. 275-280. (Regular Paper Acceptance Rate: **24.4%**, DOI: 10.1145/3060403.3060412)

C44. **GLSVLSI17:** S. Sha, W. Wen, S. Ren and G. Quan, "A Thermal-Balanced Variable-Sized-Bin-Packing Approach for Energy Efficient Multi-Core Real-Time Scheduling", *Proc. of ACM Great Lakes Symposium on VLSI (GLSVLSI)*, May 2017, pp. 257-262. (Regular Paper Acceptance Rate: **24.4%**, DOI: 10.1145/3060403.3060444)

C45. **ISLQED17:** T. Liu[D], and **W. Wen**, "A Fast and Ultra Low Power Time-Based Spiking Neuromorphic Architecture for Embedded Applications", *Proc. IEEE 18th International Symposium on Quality Electronic Design (ISQED)*, Mar. 2017, pp. 19-22. (Invited Special Session, DOI: 10.1109/ISQED.2017.7918286)

C46. **ISLQED17:** G. Chaparro-Baquero, S. Sha, S. Homsi, W. Wen, and G. Quan, "Processor/Memory Co-scheduling Using Periodic Resource Server for Real-Time System Under Peak Temperature Constraints", *Proc. IEEE 18th International Symposium on Quality Electronic Design (ISQED)*, Mar. 2017, pp. pp. 360-365. (DOI: 10.1109/ISQED.2017.7918342)

C47. **ICCAD16:** C. Yang, B. Liu, W. Wen, M. Barnell, Q. Wu, H. Li, Y. Chen[DA] and J. Rajendran, "Security of Neuromorphic Computing: Thwarting Learning Attacks Using Memristor's Obsolescence Effect", *Proc. ACM/IEEE 35th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2016, pp. 1-6. (Acceptance Rate: 97/408=**24%**, DOI: 10.1145/2966986.2967074)

C48. **ICCAD16:** S. Li, W. Wen, Y. Wang, Q. Qiu, Y. Chen[DA] and H. Li, "A Data Locality-aware Design Framework for Reconfigurable Sparse Matrix-Vector Multiplication Kernel", *Proc. ACM/IEEE 35th International Conference on Computer-Aided Design (ICCAD)*, Nov. 2016, pp. 1-6. (Acceptance Rate: 97/408=**24%**, DOI: 10.1145/2966986.2966987)

C49. **ICPP16:** S. Sha, W. Wen, M. Fan, S. Ren and G. Quan, "Performance Maximization via Frequency Oscillation on Temperature Constrained Multicore Processors", *Proc. of the 45th ACM/IEEE International Conference on Parallel Processing (ICPP)*, Aug. 2016, pp. 526-535. (Acceptance Rate: 53/251=**21%**, DOI: 10.1109/ICPP.2016.67)

C50. **DAC16:** T. Wang, Q. Han, S. Sha, W. Wen, G. Quan and M. Qiu, "On Harmonic Fixed-Priority Scheduling of Periodic Real-Time Tasks with Constrained Deadlines", *Proc. ACM/IEEE 53rd Design Automation Conference (DAC)*, June 2016, pp. 1-6. (Acceptance Rate: 152/878=**17.3%**, DOI: 10.1145/2897937.2898055)

C51. **DAC16:** X. Chen, N. Khoshavi, J. Zhou, D. Huang, R. DeMara, J. Wang, W. Wen and Y. Chen[DA], "AOS: Adaptive Overwrite Scheme for Energy-Efficient MLC STT-RAM Cache", *Proc. ACM/IEEE 53rd Design Automation Conference (DAC)*, June 2016, pp. 1-6. (Acceptance Rate: 152/878=**17.3%**, DOI: 10.1145/2897937.2897987)

C52. **DAC16:** E. Eken, L. Song, I. Bayram, C. Xu, W. Wen, Y. Xie and Y. Chen[DA], "NVSim-VXs: An Improved NVSim for Variation Aware STT-RAM Simulation", *Proc. ACM/IEEE 53rd Design Automation Conference (DAC)*, June 2016, pp. 1-6. (Acceptance Rate: 152/878=**17.3%**, DOI: 10.1145/2897937.2898053)

C53. **DAC16:** M. Mao, W. Wen, X. Liu, J. Hu, D. Wang, Y. Chen[DA] and H. Li, "TEMP: Thread Batch Enabled Memory Partitioning for GPU", *Proc. ACM/IEEE 53rd Design Automation Conference (DAC)*, June 2016, pp. 1-6. (Acceptance Rate: 152/878=**17.3%**, DOI: 10.1145/2897937.2898103)

C54. **DATE16: W. Wen**, M. Mao, H. Li, Y. Chen[DA], Y. Pei and N. Ge, "A Holistic Tri-region MLC STT-RAM Design with Combined Performance, Energy, and Reliability Optimizations", *Proc. ACM/IEEE Design, Automation & Test in Europe (DATE),* Mar. 2016, pp. 1285-1290. (***Best Paper Award Nomination,*** 13 out of 829, **top 1.5%**)

C55. **DATE16:** X. Wang, M. Mao, E. Eken, W. Wen, H. Li, and Y. Chen[DA], "Sliding Basket: An Adaptive ECC Scheme for Runtime Write Failure Suppression of STT-RAM Cache", *Proc. ACM/IEEE Design, Automation & Test in Europe (DATE),* Mar. 2016, pp.762-767. (Acceptance rate: 199/824 = **24%**)

C56. **ASPDAC16:** L. Jiang, W. Wen and and L. Duan, "Improving Read Performance of STT-MRAM based Main Memories through Smash Read and Flexible Read", *Proc. ACM/IEEE 21st Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2016, pp. 31-36. (Acceptance Rate: 94/274 = **34%**, DOI: 10.1109/ASPDAC.2016.7427985)

C57. **ASPDAC16:** X. Zhang, G. Sun, Y. Zhang, W. Wen, Y. Chen[DA], and H. Li, "A Novel PUF based on Cell Error Rate Distribution of STT-RAM," *Proc. ACM/IEEE 21st Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2016, pp. 342-347. (Acceptance Rate: 94/274 = **34%**, DOI: 10.1109/ASPDAC.2016.7428035)

C58. **ISVLSI16:** K. Shamsi, Y. Jin, and W. Wen, "Hardware Security Challenges Beyond CMOS: Attacks and Remedies", *Proc. of the 15th IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Jul. 2016, pp. 200-205. (Invited Special Session, DOI: 10.1109/ISVLSI.2016.93)

C59. **ISVLSI16:** B. Li[VD], Y. Pei, and **W. Wen**, "`Efficient Low-Density Parity-Check (LDPC) Code Decoding for Combating Asymmetric Errors in STT-RAM", *Proc. of the 15th IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Jul. 2016, pp. 266-271.

C60. **DAC15:** J. Guo, W. Wen, J. Hu, D. Wang, H. Li and Y. Chen[DA], "FlexLevel: a Novel NAND Flash Storage System Design for LDPC Latency Reduction", *Proc. ACM/IEEE 52nd Design Automation Conference (DAC)*, June 2015, pp. 1-6. (Acceptance Rate: 162/789=**20.5%**, DOI: 10.1145/2744769.2744843)

C61. **DAC14:** W. Wen, Y. Zhang, M. Mao and Y. Chen[DA], "State-Restrict MLC STT-RAM Designs for High-Reliable High-Performance Memory System", *Proc. ACM/IEEE 51st Design Automation Conference (DAC)*, June 2014, pp. 1-6. (***Best Paper Award Nomination, 7 out of 787 submissions, Top 0.9%***, DOI: 10.1145/2593069.2593220)

C62. **DAC14:** M. Mao, W. Wen, Y. Zhang, H. Li and Y. Chen[DA], "Exploration of GPGPU Register File Architecture Using Domain-wall-shift-write based Racetrack Memory", *Proc. ACM/IEEE 51st Design Automation Conference (DAC)*, June 2014, pp. 1-6. (Acceptance Rate:174/787=**22.1%**, DOI: 10.1145/2593069.2593137)

C63. **DAC14:** E. Eken, Y. Zhang, W. Wen, R. Joshi, H. Li and Y. Chen[DA], "A New Field-Assisted Access Scheme of STT-RAM with Self-Reference Capability", *Proc. ACM/IEEE 51st Design Automation Conference (DAC)*, June 2014, pp. 1-6. (Acceptance Rate:174/787=**22.1%**, DOI: 10.1145/2593069.2593075)

C64. **ISCE14:** W. Wen, Y. Zhang, M. Mao and Y. Chen[DA], "STT-RAM Reliability Enhancement through ECC and Access Scheme Optimization", *the 18th IEEE International Symposium on Consumer Electronics (ISCE)*, Jun. 2014, pp. 1-2. (Invited Paper, DOI: 10.1109/ISCE.2014.6884324).

C65. **ICCAD13: W. Wen**, M. Mao, X. Zhu, S. Kang, D. Wang and Y. Chen[DA], "CD-ECC: Content-Dependent Error Correction Codes for Combating Asymmetric Nonvolatile Memory Operation Errors", *Proc. ACM/IEEE 32nd International Conference on Computer-Aided Design (ICCAD)*, Nov. 2013, pp. 1-8. (Acceptance Rate: 92/354=**26%**, DOI: 10.1109/ICCAD.2013.6691090)

C66. **DATE13:** J. Guo, W. Wen, and Y. Chen[DA], "DA-RAID-5: A Disturb Aware Data Protection Technique for NAND Flash Storage Systems", *Proc. ACM/IEEE Design, Automation & Test in Europe (DATE),* Mar. 2013, pp. 380-385. (Acceptance Rate: 92/354 = **26%**, DOI: 10.7873/DATE.2013.087)

C67. **ASPDAC13:** W. Wen, Y. Zhang, L. Zhang and Y. Chen[DA], "Loadsa: A Yield-Driven Top-Down Design Method for STT-RAM Array", *Proc. ACM/IEEE 18th Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2013, pp. 291-296. (Acceptance Rate: **31.2%**, DOI: 10.1109/ASPDAC.2013.6509611)

C68. **DAC12:** W. Wen, Y. Zhang, Y. Chen[DA], Y. Wang and Y. Xie, "PS3-RAM: A Fast Portable and Scalable Statistical STT-RAM Reliability Analysis Method", *Proc. ACM/IEEE 49th Design Automation Conference (DAC)*, June 2012, pp. 1-6. (Acceptance Rate:168/741=**23%**, DOI: 10.1145/2228360.2228580)

C69. **ICCAD12:** Y. Zhang, L. Zhang, W. Wen, G. Sun and Y. Chen[DA], "Multi-level Cell STT-RAM: Is It Realistic or Just a Dream?", *Proc. ACM/IEEE 31st International Conference on Computer-Aided Design (ICCAD)*, Nov. 2013, pp. 526-532. (Acceptance Rate: 82/338=**24.3%**, DOI: 10.1145/2429384.2429498)

B.4   Patents

- Y. Chen[DA]**,** E. Eken**,** H. Li**,** W. Wen, and X. Bi, "Magnetic-Assisted Nondestructive Self-reference Sensing Method for Spin-transfer Torque Memory," US Provisional Patent Application Granted (US9627024 B2), Apr 18, 2017.

C. HONORS AND AWARDS

- *MICCAI Society Young Scientist Award Nomination and Shortlist* for Work- "Orchestrating Medical Image Compression and Remote Segmentation Networks" (*First author by Ph.D. student-Zihao Liu*), Lima, Peru, Oct. 2020.

- *Best Paper Award Nomination from Track at 57th DAC* (First author by Ph.D. student-Qi Liu, Topic- "Machine Learning/AI, Design"), San Francisco, CA, June 2020.

- *Best Paper Award Nomination* at ASP-DAC (First author by Ph.D. student-Qi Liu, Topic- "Machine Learning Security"), Jeju Island, Korea, Jan. 2018.

- *Best Paper Award Nomination* at ASP-DAC (First author by Ph.D. student-Tao Liu, Topic-"Neuromorphic Computing"), Jeju Island, Korea, Jan. 2018.

- *Best Paper Nomination from Track-*"Hardware for Embedded Systems" at ICCAD (First author by Ph.D. student-Tao Liu, Topic-"Neuromorphic Computing"), Irvine, CA, Nov. 2017.

- *Best Paper Award Nomination at ICCAD* (Topic-"Deep Learning Security"), San Diego, CA, Nov. 2018.

- *Best Paper Nomination from Track-*" Hardware for Embedded Systems" at ICCAD (Topic-"Hardware Acceleration of Deep Learning"), San Diego, CA, Nov. 2018.

- *Best Paper Award Nomination* at DATE (First author by me, Topic-"Emerging Memory Subsystem Design"), Dresden, Germany, Mar. 2016.

- *Best Paper Award Nomination* at 51st DAC (First author by me, Topic-"Emerging Memory Subsystem Design"), San Francisco, CA, June 2014.

- *Visiting Faculty Research Program Fellowship*, Air Force Research Lab, Rome, NY, June 2017.

- *Best Ph.D. Forum Poster Presentation at DAC*, San Francisco, CA, June 2015.

- *ACM Special Interest Group on Design Automation (SIGDA) Student Research Competition (SRC) Bronze Medal*, ICCAD, San Jose, CA, Nov. 2014.

- *John A. Jurenko Graduate Fellowship*, University of Pittsburgh, 2013.

- *49th Design Automation Conference (DAC) A. Richard Newton Graduate Scholarship* ($**24,000**), **the only awardee for outstanding research in EDA Domain**, San Francisco, CA, June 2012.

D. RESEARCH FUNDING AND GRANTS

Total funding amount (*2015-to date*): **$1,763,110,** Personal Share-**$978,803**

Total funding amount (*After joining Lehigh*): **$1,524,795,** Personal Share-**$802,988,** including *Leading PI ($715K/4Y), Sole PI and PI roles for 3 NSF Research Grants.*

D.1 Competitive Awarded Research Grants (Extramural)

Total funding amount: **$1,600,615**, PI Share-**$912,975**

At Lehigh University (08/2019-06/2022)

G.1 National Science Foundation (**NSF**), Wujie Wen (**Leading PI**, Lehigh**,** $355,475), Yiyu Shi (PI, U. of Notre Dame, $344,142), "*SPX: Collaborative Research: Scalable Neural Network Paradigms to Address Variability in Emerging Device based Platforms for Large Scale Neuromorphic Computing*", SPX-2006748, 11/26/2019-09/30/2023, Total amount: $699,617 ($715,617 with REU Supplemental).

G.2 National Science Foundation (**NSF**), Wujie Wen (**PI,** Lehigh, $235,000), Chengmo Yang (Lead PI, U. of Delaware, $264,998), *"SHF: Small: Collaborative Research: Retraining-free Concurrent Test and Diagnosis in Emerging Neural Network Accelerators"*, CCF-2011236, 10/05/2019-09/30/2023, Total amount: $499,998.

G.3 National Science Foundation **(NSF)**, Wujie Wen (**Sole PI,** Lehigh), *"EAGER: Invisible Shield: Can Compression Harden Deep Neural Networks Universally Against Adversarial Attacks?"*, CNS-2011260, 11/07/2019-08/31/2021, Total amount: $149,180.

At Florida International University (08/2015-07/2019)

G.4 National Science Foundation **(NSF)**, Wujie Wen (**Sole PI**, FIU), *"EAGER: Invisible Shield: Can Compression Harden Deep Neural Networks Universally Against Adversarial Attacks?"*, CNS-CNS-1840813, 09/01/2018-11/06/2019, Total amount: $100,820.

G.5 The Florida Center for Cybersecurity **(FC2)**, Wujie Wen (**PI**, FIU, $37,500), *"Towards Robust Deep Learning Systems Against Adversarial Attacks"*, 07/01/2019-06/30/2020, Total amount: $75,000.

G.6 The Florida Center for Cybersecurity **(FC2)**, Wujie Wen (**PI**, FIU, $25,000), *"Helmet: Deep Neural Network Protection Against Adversarial Attacks"*, 07/01/2017-12/31/2018, Total amount: $50,000.

G.7 Air Force Research Lab **(AFRL)**, Wujie Wen (**Sole PI**, FIU), *"Security Analysis of Model Compressed Deep Neural Networks Under Adversarial Attacks,"* 09/15/2017-11/15/2017, $10,000.

D.2 Competitive Awarded Research Grants at Lehigh (Intramural)

G.8 Lehigh Collaborative Research Opportunity **(CORE)** Grant Program, *"Privacy Implications of Hardware Functionality in Deep Learning",* Parv Venkitasubramaniam (PI), Wujie Wen (**Co-PI,** 50%), 09/01/2020-08/31/2023, $60,000.

G.9 Lehigh **Accelerator** Grant Program, *"Addressing Unreliability in Memristor Crossbars for Deep Neural Network Accelerators",* Zhiyuan Yan (PI), Wujie Wen (**Co-PI,** 33%), Jieming Yin (Co-PI), 01/2022-12/2023, $100,000.

D.3 Awarded Equipment Grants (Extramural)

G.10 Xilinx University Program Donation, *"Hardware-software Co-design for Enhancing the Performance and Robustness of Deep Compressed Neural Networks",* Wujie Wen (**PI,** FIU), 03/07/2017-03/06/2018, $2,495.

E. EDITOR/EDITORIAL REVIEW BOARD MEMBERSHIP (5)

- Associate Editor, IEEE Circuits and Systems (CAS) Magazine (IF: 4.04), 2020-Present

- Associate Editor, Neurocomputing (IF: 5.71), 2018-Present

- Guest Editor, IEEE Transactions on Circuits and Systems I: Regular Papers, Special Issue, 2022-Present

- Guest Editor, IEEE Transactions on Circuits and Systems II (TCAS): Express Briefs, Special Issue, 2020

- Guest Editor, ACM Journal on Emerging Technologies in Computing (JETC) Special Issue on New Trends in Nanoelectronic Device, Circuit and Architecture Design, 2019-2020

F. SCHOLARLY PRESENTATIONS

Invited Presentations

1. Mar. 2022, "Rethinking Efficiency and Security Challenges in Accelerated Machine Learning Services", CSE Department Seminar (Virtual), The Chinese University of Hong Kong.

2. Dec. 2021, "Hidden Security and Privacy Vulnerabilities in Accelerated Machine Learning Services", ECE Department Seminar (Virtual), University of Miami, Miami, FL.

3. Oct. 2021, "Understanding the Security and Privacy Concerns in Accelerated Machine Learning Services", Invited Talk (Virtual), IEEE Lehigh Valley Section.

4. Oct. 2019, "A New Path Towards Efficient, Sustainable and Secure Deep Learning System Design", Guest Lecture, Duke University.

5. Dec. 2018, "Machine Vision, NOT Human Vision, Guided Compression towards Energy-Efficient and Robust Deep Learning Systems", Seminar, Peking University, Beijing, China.

6. Dec. 2018, "Machine Vision, NOT Human Vision, Guided Compression towards Energy-Efficient and Robust Deep Learning Systems", Seminar, Shanghai Jiaotong University, Shanghai, China.

7. Dec. 2018, "Machine Vision, NOT Human Vision, Guided Compression towards Energy-Efficient and Robust Deep Learning Systems", Seminar, University of Science and Technology Beijing, Beijing, China.

8. May 2018, "Understanding Adversarial Attack and Defense towards Deep Compressed Neural Networks", Invited Talk, SPIE Defense + Commercial Sensing, Orlando, FL.

9. Apr 2018, "Beyond Adversarial Attacks: A System-level Perspective to Understand the Vulnerability of Deep Learning Systems", ECE Department Spring Seminar Series, University of Delaware, Newark, DE.

10. Apr 2018, "Exploiting Deep Learning System-level Vulnerabilities from the Intelligent Supply Chain", Special Session Talk, IEEE VLSI Test Symposium, San Francisco, CA.

11. Aug. 2017, "Security Analysis and Enhancement of Model Compressed Deep Learning Systems under Adversarial Attacks", Invited Talk, Air Force Research Lab, Rome, NY.

12. June 2016, "Robust Cross-layer Designs and Applications of Emerging Memories", Seminar, Tsinghua University, Beijing, China.

13. June 2016, "Robust Cross-layer Designs and Applications of Emerging Memories", Seminar, University of Science and Technology Beijing, Beijing China.

14. Nov. 2015, "RENO: A High-efficient Reconfigurable Neuromorphic Computing Accelerator Design", Invited Talk, University of Pittsburgh, PA.

Referred Presentations

15. Jan. 2018, "PT-Spike: A Precise-Time-Dependent Single Spike Neuromorphic Architecture with Efficient Supervised Learning", T. Liu[D], L. Jiang, Y. Jin, G. Quan and **W. Wen**, ACM/IEEE Asia and South Pacific Design Automation Conference (ASP-DAC), Jeju Island, Korea

16. Jan. 2018, "Security Analysis and Enhancement of Model Compressed Deep Learning Systems under Adversarial Attacks", Q. Liu[D], T. Liu[D], Z. Liu[D], Y. Wang, Y. Jin, and **W. Wen**, ACM/IEEE Asia and South Pacific Design Automation Conference (ASP-DAC), Jeju Island, Korea

17. May 2017, "Building a Fast and Power Efficient Inductive Charge Pump System for 3D Stacked Phase Change Memories", L. Jiang, S. Mittal, and **W. Wen**, ACM Great Lakes Symposium on VLSI (GLSVLSI), Banff, Alberta, Canada.

18. Mar. 2017, "A Fast and Ultra Low Power Time-Based Spiking Neuromorphic Architecture for Embedded Applications", T. Liu[D] and **W. Wen**, Special Session, IEEE 18th International Symposium on Quality Electronic Design (ISQED), Santa Clara, CA.

19. Jan. 2017, "A Statistical STT-RAM Retention Model for Fast Memory Subsystem Designs", Z. Liu[D], **W. Wen**, L. Jiang, Y. Jin, and G. Quan, ACM/IEEE 22nd Asia and South Pacific Design Automation Conference (ASP-DAC), Chiba, Tokyo, Japan.

20. Jan. 2017, "Design of A Pre-scheduled Data Bus (DBUS) for Advanced Encryption Standard (AES) Encrypted System-on-Chips (SoCs)", X. Yang and **W. Wen**, ACM/IEEE 22nd Asia and South Pacific Design Automation Conference (ASP-DAC), Chiba, Tokyo, Japan.

21. July 2016, "Hardware Security Challenges Beyond CMOS: Attacks and Remedies", Special Session, K. Shamsi, Y. Jin, and **W. Wen**, IEEE 15th Computer Society Annual Symposium on VLSI (ISVLSI), Pittsburgh, PA.

22. June 2016, "TEMP: Thread Batch Enabled Memory Partitioning for GPU", M. Mao, **W. Wen**, X. Liu, J. Hu, D. Wang, Y. Chen[DA] and H. Li, IEEE/ACM 53rd Design Automation Conference (DAC), Austin, TX.

G. TEACHING AND RESEARCH ADVISING

G.1   Courses Taught (Total 7)

G.1.1 At Lehigh University (*4 different courses, 09/2019-06/2022*)

ECE450: Software-Hardware Co-design of Deep Learning Systems[N1]   Fall2019   (4.93 out of 5.0)
      9 graduate students

ECE350/450: Computer-Aided Design of Digital Systems[N2]   Spring2020*
      3 undergraduate and 2 graduate students   *(No score due to COVID-19)

ECE450: Software-Hardware Co-design of Deep Learning Systems[N1]   Fall2020   (4.90 out of 5.0)
      6 graduate students

ECE350/450: Computer-Aided Design of Digital Systems[N2]   Spring2021*
      1 undergraduate and 3 graduate students   *(No score)

ECE319: Digital System Design[C1]   Fall2021   (4.92 out of 5.0)
      3 undergraduate and 4 graduate students

ECE450: Software-Hardware Co-design of Deep Learning Systems[N1]   Spring2022   (4.43 out of 5.0)
      1 undergraduate and 14 graduate students (*Enrollment-Full Capacity*)

ECE201: Computer Architecture ^{C2}   Spring2022   (3.8 out of 5.0)
        33 undergraduate students

* Teaching load at Lehigh is 1+1 from Fall2019 to Spring2020, then 1+2 (1 in Fall2021 and 2 in Spring2022.)

N1/N2-2 newly created courses by me, N2 (now listed ECE363)-CompE graduate core course.

C1/C2-CompE core courses:

C1-first time teaching, CompE undergraduate core before Fall2021, now undergraduate elective/graduate core.

C2-CompE undergraduate core (primary instructor, first time teaching, co-teach with Prof. Xiaochen Guo).

G.1.2 <u>At Florida International University</u> *(3 different courses, 09/2015-08/2019)*

EEL3712: Logic Design I	Spring2019	(4.2 out of 5.0)
55 undergraduate students, *undergraduate core course*		
EEL6726: Advanced VLSI Design	Spring2019	(4.5 out of 5.0)
8 graduate students		
EEL6167: VLSI Design	Fall2018	(4.84 out of 5.0)
7 graduate students		
EEL3712: Logic Design I	Fall2018	(3.94 out of 5.0)
49 undergraduate students, *undergraduate core course*		
EEL3712: Logic Design I	Spring2018	(4.05 out of 5.0)
49 undergraduate students, *undergraduate core course*		
EEL6726: Advanced VLSI Design	Spring2018	(3.6 out of 5.0)
6 graduate students		
EEL6167: VLSI Design	Fall2017	(4.0 out of 5.0)
5 graduate students		
EEL3712: Logic Design I	Fall2017	(3.8 out of 5.0)
65 (15 online + 50 in person) undergraduate students, *undergraduate core course*		
EEL6726: Advanced VLSI Design	Spring2017	(4.3 out of 5.0)
13 graduate students		
EEL6167: VLSI Design	Fall2016	(Excellent/Excellent) *
11 graduate students		
EEL6726: Advanced VLSI Design	Spring2016	(Excellent/Excellent) *
11 graduate students		
EEL6167: VLSI Design	Fall2015	(Excellent/Excellent) *
14 graduate students		

*Paper-based teaching evaluation by the department, scale: excellent/very good/good/fair/poor, excellent is 5.0

Teaching load at FIU is 1+1 from Fall2015 to Spring2017, then 2+2 from Fall2017 to Spring2019.

G.2 <u>Research Advising</u>

G.2.1 Advisor of PhD Students (Advising format: Meet one-to-one at least twice a week)

Graduated PhDs (Total 3): Lehigh (1), FIU (2)

1) Qi Liu

- Status: **PhD awarded** in Summer 2022 from ECE, **Lehigh University** (09/2019-06/2022). Before joining Lehigh, PhD student at Florida International University (09/2017-08/2019).
- *PhD thesis title:* Enhancing the Security and Reliability of Deep Learning Systems under Attacks and Hardware Faults
- **First employment:** Amazon Applied Research Scientist, Palo Alto, CA, from 06/2022
- **Co-authored 15** (6 first author) international journals/conference research publications with me, top-tier publications (all first author): *1 DAC, 1 ICCAD, 1 ASPDAC, 1 TNNLS, 1 MICCAI,* and **2** under review: *1 NIPS, 1 USENIX Security*
- **Research Conference Talks** (based on below publication list)**:** ICCAD, DAC, MICCAI

2) Tao Liu

- Status: **PhD awarded** in Summer 2020 from ECE, Florida International University (09/2016-06/2020), *Visiting PhD/Research Associate at Lehigh University (08/2019-06/2020).*
- *PhD thesis title:* A System-level Perspective Towards Efficient, Reliable and Secured Neural Network Computing
- **First employment:** Tenure-track Assistant Professor in the Department of Mathematics and Computer Science, Lawrence Technological University, Southfield, MI, starting from 08/2020 (*in COVID-19*).
- **Co-authored 20** (11 first author) international journals/conference research publications with me, including first-authored top-tier publications-*1 DAC, 2 ICCAD, 2 ASP-DAC, 1 HOST, 1 ACSAC*
- **Research Conference Talks** (based on below publication list)**:** DAC , ICCAD, HOST, ACSAC, WiSec, ACM Student Research Competition (SRC) at ICCAD 2017.

3) Zihao Liu

- Status: **PhD awarded** in Summer 2020 from ECE, Florida International University (01/2016-06/2020), *Visiting PhD/Research Associate at Lehigh University (08/2019-06/2020).*
- *PhD thesis title:* Machine vision, NOT Human Vision, Guided Compression towards Low-Latency and Robust Deep Learning Systems
- **First employment:** Research Scientist at Alibaba DAMO Academy Computing Lab, Sunnyvale, CA
- **Co-authored 15** (7 first author) international journals/conference research publications with me, including first-author top-tier publications-*1 DAC, 2 CVPR, 1 ASP-DAC, 1 TCAD, 1 MICCAI.*
- **Research Conference Talks** (based on below publication list)**:** DAC, 2 CVPR, MICCAI, Non-volatile Memories Workshop 2016 at UCSD.

Current PhD students at Lehigh (Total 6, 4 + 2 co-advising):

1) Nuo Xu (09/2019-now)

   - Status: current PhD student enrolled in ECE department of Lehigh University, Passed Qualifier Exam; Planned General Exam: Fall 2022; Expected Graduate Date: **05/2023.**

   - **PhD research topic***:* Tackling Emerging Data Privacy Risks in Machine Learning.

   - **Published** 1 **DAC,** submitted **2** papers (all as the first author) and **2** co-authored papers.

   - Research Conference Talks (based on below publication list)**:** DAC.

2) Ran Ran (06/2021-now)

   - Status: current the first year PhD student enrolled in ECE department of Lehigh University, Master from Lehigh ISE, Expected Graduate Date: **06/2025.**

   - **PhD research topic***:* Algorithm-Hardware Co-Design for Accelerating Homomorphically Encrypted Machine Learning.

   - **Submitted** 1 **NIPS** (as the first author), and **3** co-authored papers.

3) Xinwei Luo (06/2022-now)

   - Status: current the first year PhD student enrolled in ECE department of Lehigh University, Master from Lehigh ECE, Passed Qualifier Exam, Expected Graduate Date: **06/2026.**

   - **PhD research topic***:* Hardware Accelerated Graph Neural Networks.

4) Pruthvi Mistry (Female, 09/2021-now)

   - Status: PhD student enrolled in ECE department of Lehigh University, Expected Graduate Date: **06/2025.** Now Summer Intern at Intel Allentown PA.

   - **PhD research topic***:* Reliable NVM-based Emerging Processing-in-Memory Hardware Accelerator Design.

5) Anlan Yu (Female, 09/2018-now, co-advise with Prof. Zhiyuan Yan since Spring 2022)

   - Status: current PhD student enrolled in ECE department of Lehigh University, Passed Qualifier Exam, Expected Graduate Date: **12/2023.**

   - **PhD research topic***:* Orchestrating Coding and Learning for Reliable and Secure Neural Network Processing

   - **Published** 1 conference paper with me.

6) Ruoyu Wang (09/2020- now, co-advise with Prof. Jieming Yin)
   - Status: current PhD student enrolled in ECE department of Lehigh University, served as PhD adviser at 09/2020-08/2021, then co-advise with Prof. Jieming Yin at 09/2021-12/2021, now is advised by Prof. Jieming Yin. *Support:* Lehigh Presidential Fellowship.
   - **PhD research topic***:* Hardware Architecture Design for Privacy-Preserving Deep Learning

G.2.2 Advisor of Master Students with Thesis/Research Projects at Lehigh (2)

Advising format: meet one-to-one once a week

1) Alex Schiffman, 05/2021-12/2021, Graduated at 12/2021.
   Master thesis: Practical 6D Object Pose Estimation with Deep Learning
   First Employment: Software R&D Engineering at Medtronic, North Haven, Connecticut

2) Hai Jiang, 12/2019-05/2020, Graduated at 05/2021.
   Research project: AI-Assisted Medical Imaging
   Co-authored one MICCAI paper (as the second author) with me.
   First Employment: Software Engineer at U.S. Bancorp, Concord CA

G.2.3 Mentored Students' Awards

- Tao Liu (**my 1st graduated PhD student**)
1) Best Paper Nomination at ASP-DAC 2018
2) A. Richard Newton Young Student Fellow Award at DAC 2017
3) ACM Student Research Competition (SRC) Travel Award at ICCAD 2017
4) Graduate Travel Award for HOST 2017
5) Graduate Travel Award for HOST 2018

- Zihao Liu (**my 2nd graduated PhD student**)
1) 2020 MICAAI Society Young Scientist Award Nomination and Shortlist
2) Best Paper Nomination at ASP-DAC 2018
3) Travel Grant for Non-volatile Memories Workshop 2016, UCSD

- Qi Liu (**my 3rd graduated PhD student**)
1) Best Paper Nomination at ASP-DAC 2018
2) Young Student Fellow Award at DAC 2020

- Nuo Xu (**my current PhD student**)
1) Young Student Fellow Award at DAC 2020

G.2.4 PhD Thesis Committee (11)

Advising format: Meet before exams if necessary

At Lehigh University:

1) Chao Zhang, ECE Department, Lehigh University, advisor chair: Prof. Xiaochen Guo (PhD awarded in Spring 2021).

2) Yicheng Chen, ECE Department, Lehigh University, advisor chair: Prof. Rick Blum (PhD awarded in Spring 2021).

3) Hesam Shabani, ECE Department, Lehigh University, advisor chair: Prof. Xiaochen Guo

4) Yonghong Bai, ECE Department, Lehigh University, advisor chair: Prof. Zhiyuan Yan

5) Ning Lyn, ECE Department, Lehigh University, advisor chair: Prof. Zhiyuan Yan

6) Jinfeng Li, ECE Department, Lehigh University, advisor chair, Prof. Rosa Zheng

7) Ce Feng, ECE Department, Lehigh University, advisor chair: Prof. Parv Venkitasubramaniam

At Florida International University:

1) Kishwar Ahmed, CIS Department, FIU, advisor chair: Prof. Jason Liu (PhD awarded in Spring 2018).

2) Gustavo A. Chaparro-Baquero, ECE department, FIU, advisor chair: Prof. Gang Quan (PhD awarded in Spring 2018)

3) Shi Sha, ECE department, FIU, advisor chair: Prof. Gang Quan (PhD awarded in Spring 2018)

4) Lamar Burton, ECE department, FIU, advisor chair: Prof. Shekhar Bhansali (PhD awarded in Summer 2020)

G.2.5 Mentor of Undergraduate Senior Design Projects at Lehigh (2)

Advising format: Meet one-to-one once a week for two semesters

1) Fall2020-Spring2021, Lehigh ECE-George Huang, Xinchen Ma and Colin Li
   Senior Design project title: Body Controlled UAV

2) Fall2019-Spring2020, Lehigh ECE-Casper Coleman (Female), Daniel Onyemelukwe
   Senior Design project title: What's My Food? The Fridge Food Tracker

H. SERVICE
H.1   University Service

At Lehigh University

- *College*-Library Technology Services (LTS) Faculty Committee on behalf of P.C. Rossin College of Engineering and Applied Sciences, Lehigh University, 09/2020-Current

- *Department*

    - Colloquium Chair, Department of ECE, Lehigh University, 09/2021-Current

    - Faculty Search Committee, Department of ECE, Lehigh University, 09/2019-03/2020

    - Computer Engineering Curriculum Committee, Department of ECE, Lehigh University, 09/2019-Current

At Florida International University

- *Department*

    - Computer Engineering Curriculum Planning Committee, Department of ECE, Florida International University, 2017-2019

    - Track Chair of VLSI Design, Computer Engineering Program, Department of ECE, Florida International University, 2015-2018

    - Organizing Committee of 1st Annual Trends in Cybersecurity Conference-"Security of Smart Things: From Cards to Wearables", Department of ECE, Florida International University, Fall 2015

H.2   Professional Service

Conference Service (Leadership)

- **General Chair,** 18th IEEE Computer Society Annual Symposium on VLSI (ISVLSI), Miami FL 2019.

- **General Co-Chair/Organizer,** 1st **T**rustworthy and **R**eliable **AI** Accelerator desig**N (TRAIN)** Workshop (Virtual), associated with Embedded Systems Week (ESWEEK), 2021.

- **Lead Organizing Committee Member,** ACM/IEEE Design Automation Conference (DAC) Early Career Workshop (Virtual), 2020

- **Technical Program Committee (TPC) Co-Chair,** 17th IEEE Computer Society Annual Symposium on VLSI (ISVLSI), Hong Kong SAR, China, 2018

- **Technical Area Co-Chair** of "AI/ML Security/Privacy" Research Track, ACM/IEEE Design Automation Conference (DAC), 2022

- **Technical Area Co-Chair** of "VLSI for Machine Learning and Artificial Intelligence", ACM Great Lakes Symposium on VLSI (GLSVLSI), 2020, 2021

- **Technical Area Chair** of "Embedded System Architecture and Design", ACM/IEEE Asia and South Pacific Design Automation Conference (ASPDAC), Tokyo, Japan, 2019

- **Technical Area Chair** of "Emerging and Evolutionary Design", 30th IEEE International System-

on-Chip Conference (SOCC), Munich Germany, 2017

- **Financial Chair,** 15th IEEE Computer Society Annual Symposium on VLSI (ISVLSI), Pittsburgh PA, 2016

- **Publication Chair,** IEEE 3rd International Conference on Artificial Intelligence Circuits and Systems (AICAS), 2021

- **Poster Session Chair/Organizing Committee**, IEEE International Symposium on Hardware Oriented Security and Trust (HOST), Washington DC, 2017

- Special Session Organizer and Contributor of "Emerging Trends in Energy Efficient and Secure Neural Network Acceleration", 17th IEEE Computer Society Annual Symposium on VLSI (ISVLSI), Hong Kong SAR, China, 2018
- Special Session Organizer and Contributor of "Emerging Devices for Hardware Security: Fiction or Future", 15th IEEE Computer Society Annual Symposium on VLSI (ISVLSI), Pittsburgh PA, 2016
- Embedded Tutorial Contributor of "When Neural Networks Meet Hardware: The Princess, The Knight, and the Very Bad Dragon", 38th ACM/IEEE International Conference on Computer-Aided Design (ICCAD), Westminster CO, 2019
- Session Chair, ACM/IEEE International Conference on Computer-Aided Design (ICCAD), Nov. 2020
- Session Chair, ACM/IEEE Design Automation Conference (DAC) 2018
- Session Chair, ACM/IEEE International Conference on Computer-Aided Design (ICCAD) 2015, 2017, 2018
- Session Chair, ACM/IEEE Asia and South Pacific Design Automation Conference (ASP-DAC), 2017, 2018

Technical Program Committee (TPC) of International Conference

- ACM/IEEE Design Automation Conference (DAC), 2019, 2020, 2021, 2022
- IEEE International Symposium on High-Performance Computer Architecture (HPCA)-External Review Committee, 2023
- ACM/IEEE Design, Automation and Test in Europe (DATE), 2020
- ACM/IEEE International Conference on Computer Aided Design (ICCAD), 2017, 2018, 2019
- ACM/IEEE Asia and South Pacific Design Automation Conference (ASP-DAC), 2017, 2018, 2019, 2022, 2023
- IEEE International Conference on Computer Design (ICCD), 2017
- IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP), 2019, 2020, 2021
- IEEE International Conference on Network, Storage and Architecture (NAS), 2016, 2022
- IEEE International Conference on VLSI Design and 15th International Conference on Embedded Systems Design (VLSID), 2015, 2016, 2017
- IEEE Computer Society Annual Symposium on VLSI (ISVLSI), 2016, 2017, 2018
- IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC), 2016, 2017
- IEEE International Conference on Consumer Electronics (ICCE), 2017

Funding Agencies Review/Panel

- *National Science Foundation (NSF)* Review Panel (Medium Proposal), 2021
- *Department of Energy (DOE), Office of Advanced Scientific Computing Research* Review Panel, 2016, 2018, 2019
- *Army Research Office (ARO)* Research Fund/Award Review, 2017
- *Hong Kong Research Grant Council (RCG),* 2020, 2021

Journal/Conference Technical Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Computers (TC)
- IEEE Transactions on Very Large Scale Integration Systems (TVLSI)
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Multi-Scale Computing Systems (TMSCS)
- IEEE Transactions on Electron Devices (TED)
- IEEE Transactions on Circuit and Systems II (TCAS-II)
- IEEE Transactions on Nanotechnology (TNANO)
- IEEE Design & Test of Computers (D&T)
- IEEE Transactions on Cyber-Physical Systems (TCPS)
- IEEE Embedded Systems Letters (ESL)
- IEEE Transactions on Sustainable Computing (TSUSC)
- IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS)
- IEEE Transactions on Communications (TCOM)
- IEEE Transactions on Wireless Communication (TWC)
- ACM Transactions on Privacy and Security (TOPS)
- ACM Journal on Emerging and Selected Topics in Circuits and Systems (JETC)
- ACM Transactions on Design Automation of Electronic Systems (TODES)
- ACM Transactions on Embedded Computing Systems (TECS)
- ACM Transactions on Architecture and Code Optimization (TACO)
- ACM/IEEE DAC PhD Forum Competition
- ACM/IEEE ASP-DAC PhD Forum Competition
- Integration, the VLSI Journal
- IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTSCA)
- IEEE International Test Conference (ITC)
- IEEE International Symposium on Circuits and Systems (ISCAS)

Professional Community Membership

- Member of *Institute of Electrical and Electronics Engineers (IEEE)*
- Member of *Association of Computing Machinery (ACM)*
- Member of *ACM Special Interest Group in Design Automation (SIGDA)*