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WORK

Oklahoma State University <i>Assistant Professor in Electrical and Computer Engineering</i>	August 1st, 2020 - Now
University of Minnesota, Twin Cities <i>Postdoctoral Associate in Computer Science and Engineering</i> <i>Supervisor: David H.C. Du</i>	Aug. 2018 – Jul. 2020
University of Minnesota, Twin Cities <i>Research Assistant in Electrical and Computer Engineering</i>	Jul. 2013 – Aug. 2018
Seagate Technology <i>Research Intern: Solid-State Drive Modeling and Algorithm Design</i>	May 2016 – Aug. 2016

EDUCATION

University of Minnesota, Twin Cities <i>Ph.D. in Electrical Engineering</i> <i>Advisor: Prof. David J. Lilja</i> <i>Dissertation: "Distributed Edge Computing Infrastructure with Low Hardware Cost, Performance Evaluation, and Reliability"</i>	Jul. 2011 – Aug. 2018
East China Jiaotong University <i>B.S. in Electrical Engineering</i>	Sep. 2006 – Jul. 2010

TEACHING

ECEN 4232: Computer Architecture Instructor	Oklahoma State University, Spring 2021
ECEN 5362: VLSI Digital System Design Instructor	Oklahoma State University, Fall 2020
CS8211: Advanced Computer Networks and Their Applications <i>Teaching Assistant</i>	University of Minnesota, Fall 2018
EE5371: Computer Systems Performance Measurement and Evaluation <i>Teaching Assistant</i>	University of Minnesota, Fall 2016

PUBLICATIONS

Patents

1. M. Hassan Najafi, S. Rasoul Faraji, **Bingzhe Li**, David J. Lilja, and Kia Bazargan, "Resolution Splitting for Bit-Stream Processing", U.S. Patent Application Number: 62/864,798, Type: Provisional, Filing Date: June 2019.
2. **Bingzhe Li**, M. Hassan Najafi, and David J. Lilja, "Low-Cost Stochastic Hybrid Multiplier for Quantized Neural Networks", U.S. Patent Application Number: 62/817,343, Type: Provisional, Filing Date: March 2019.
3. Han Shi, **Bingzhe Li**, and Fangcheng Gan, "Intelligent asphalt spreading amount control apparatus", Publication number: CN201413459 Y, Publication type: Grant, Publication date: Feb 24, 2010

Journals

4. **[IEEE ACCESS'21]** Lintao Xian, **Bingzhe Li**, Jing Liu, Zhongwen Guo, and David Du, "H-PS: A Heterogeneous-aware Parameter Server with Distributed Neural Network Training", IEEE Access (2021)

5. **[IEEE TC'20]** Fenggang Wu, **Bingzhe Li**, Baoquan Zhang, Zhichao Cao, Jim Diehl, Hao Wen, and David HC Du. "TrackLace: Data Management for Interlaced Magnetic Recording." IEEE Transactions on Computers (2020).
6. **[ACM TOMPECS'20]** Jinfeng Yang, **Bingzhe Li**, and David J. Lilja. "Exploring Performance Characteristics of the Optane 3D Xpoint Storage Technology." ACM Transactions on Modeling and Performance Evaluation of Computing Systems (TOMPECS) 5, no. 1 (2020): 1-28.
7. **[IEEE T-ED'19]** Jiayi Hu*, **Bingzhe Li***, etc., "Scalable Stochastic Architecture with Spin-based Number Generator" IEEE Transactions on Electron Devices (*equally contribute).
8. **[ACM JETC'19]** **Bingzhe Li**, M. Hassan Najafi, and David Lilja, "Low-Cost Stochastic Hybrid Multiplier for Quantized Neural Networks", ACM Journal on Emerging Technologies in Computing Systems (JETC) 2019
9. **[ACM JETC'19]** **Bingzhe Li**, Yaobin Qin, Bo Yuan, and David Lilja, "Neural Network Classifiers using a Hardware-based Approximate Activation Function with a Hybrid Stochastic Multiplier" ACM Journal on Emerging Technologies in Computing Systems (JETC) 2019
10. **[Elsevier Performance Evaluation'19]** **Bingzhe Li**, Hao Wen, Farnaz Toussi, Clark Anderson, Bernard A. Ling-Smith, David Lilja and David H.C. Du, "NetStorage: A Synchronized Trace-Driven Replayer for Network-Storage System Evaluation", Performance Evaluation. 2019

Conferences

11. **[DAC'21]** Yungang Pan, Zhiping Jia, Zhaoyan Shen, **Bingzhe Li**, Wanli Chang, and Zili Shao, "Reinforcement Learning-Assisted Cache Cleaning to Mitigate Long-Tail Latency in DM-SMR", 2021 58th ACM/IEEE Design Automation Conference (DAC)
12. **[HotStorage'20]** **Bingzhe Li**, Nae Young Song, Li Ou, and David Du, "Can We Store the Whole World's Data in DNA Storage?", 12th USENIX Workshop on Hot Topics in Storage and File Systems.
13. **[ICCAD'19]** **Bingzhe Li**, Chunhua Deng, Jinfeng Yang, David Lilja, Bo Yuan, and David Du, "HAML-SSD: A Hardware Accelerated Hotness Aware Machine Learning based SSD Management", The 2019 IEEE/ACM International Conference on Computer-Aided Design.
14. **[HotStorage'19]** Fenggang Wu, **Bingzhe Li**, etc., "ZoneAlloy: Elastic Data and Space Management for Hybrid SMR Drives", The 11th USENIX Workshop on Hot Topics in Storage and File Systems.
15. **[GLSVLSI'19]** **Bingzhe Li***, Jiayi Hu*, etc., "Low Cost Hybrid Spin-CMOS based Neural Network Design Using Stochastic Approximate Adder". The 29th edition of the ACM Great Lakes Symposium on VLSI. (*equally contribute)
16. **[GLSVLSI'19]** **Bingzhe Li**, David Du, "TASecure: Temperature-Aware Secure Deletion Scheme for Solid State Drives", The 29th edition of the ACM Great Lakes Symposium on VLSI.
17. **[FAST'19]** Zhichao Cao, Shiyong Liu, Fenggang Wu, Guohua Wang, **Bingzhe Li**, and David Du, "Sliding Look-back Window Assisted Data Chunk Rewriting for Improving Deduplication Restore Performance" 17th USENIX Conference on File and Storage Technologies (FAST'19). 2019.
18. **[ISQED'19]** M. Hassan Najafi, Sayed Abdolrasoul Faraji, **Bingzhe Li**, David Lilja, and Kia Bazargan, "Using Resolution Splitting to Enhance Performance of Deterministic Bit-Stream Computing" 20th International Symposium on Quality Electronic Design.
19. **[DATE'19]** M. Hassan Najafi, Sayed Abdolrasoul Faraji, **Bingzhe Li**, David Lilja, and Kia Bazargan, "Energy-Efficient Convolutional Neural Networks with Deterministic Bit-Stream Processing" 2019 Design, Automation & Test in Europe Conference & Exhibition (DATE). IEEE, 2019.
20. **[ISQED'18]** **Bingzhe Li**, M. Hassan Najafi, Bo Yuan, and David J. Lilja. "Quantized Neural Networks with New Stochastic Multipliers", 19th International Symposium on Quality Electronic Design (ISQED'18).
21. **[UEMCON'18]** Yaobin Qin, **Bingzhe Li**, and David J. Lilja, "Enhancing the Ensemble of Exemplar-SVMs for Binary Classification Using Concurrent Selection and Ensemble Learning", The 9th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference.
22. **[IWLS'18]** M. Hassan Najafi, Sayed Abdolrasoul Faraji, **Bingzhe Li**, David Lilja and Kia Bazargan, "Using Resolution Splitting to Enhance Performance of Deterministic Bit-Stream Computing", 27th International Workshop on Logic & Synthesis.
23. **[NAS'18]** **Bingzhe Li**, et al., "Tier-code: An XOR-based RAID-6 Code with Improved Write and Degraded-mode Read Performance" Networking, Architecture and Storage (NAS), 2018 IEEE International Conference on. IEEE, 2018.
24. **[HotStorage'18]** Fenggang Wu, Baoquan Zhang, Zhichao Cao, Hao Wen, **Bingzhe Li**, Jim Diehl, Guohua Wang, and David H.C. Du, "Data Management Design for Interlaced Magnetic Recording", The 10th USENIX Workshop on Hot Topics in Storage and File Systems.
25. **[ISVLSI'18]** Meng Yang, **Bingzhe Li**, David Lilja, and Weikang Qian, "Towards Theoretical Cost Limit of Stochastic Number Generators for Stochastic Computing", VLSI (ISVLSI), 2018 IEEE Computer Society Annual Symposium on. IEEE, 2018

26. [ICCD'17] **Bingzhe Li**, Yaobin Qin, Bo Yuan, and David Lilja, "Neural Network Classifiers using Stochastic Computing with a Hardware-Oriented Approximate Activation Function", ICCD 2017, The 35th IEEE International Conference on Computer Design.
27. [NAS'17] **Bingzhe Li**, et al. "TraceRAR: An I/O Performance Evaluation Tool for Replaying, Analyzing, and Regenerating Traces." Networking, Architecture, and Storage (NAS), 2017 International Conference on. IEEE, 2017.
28. [ICPADS'17] Manas Minglani, Jim Diehl, Xiang Cao, **Bingzhe Li**, Dongchul Park, David J. Lilja and David H.C. Du, "Kinetic Action: Performance Analysis of Integrated Key-Value Storage Devices vs. LevelDB Servers", IEEE ICPADS 2017: International Conference on Parallel and Distributed Systems.
29. [FPGA'16] **Bingzhe Li**, M. Hassan Najafi, and David J. Lilja. "Using Stochastic Computing to Reduce the Hardware Requirements for a Restricted Boltzmann Machine Classifier." Proceedings of the 2016 ACM/SIGDA International Symposium on Field-Programmable Gate Arrays. ACM, 2016.
30. [NAS'16] **Bingzhe Li**, Manas Minglani, and David Lilja. "Ps-Code: A New Code for Improved Degraded Mode Read and Write Performance of RAID Systems." Networking, Architecture and Storage (NAS), 2016 IEEE International Conference on. IEEE, 2016.
31. [ASAP'15] **Bingzhe Li**, M. Hassan Najafi, and David J. Lilja. "An FPGA implementation of a Restricted Boltzmann Machine classifier using stochastic bit streams.", Application specific Systems, Architectures and Processors (ASAP), 2015 IEEE 26th International Conference on. IEEE, 2015.

ACADMEIC & UNIVERSITY SERVICES

University and Department Services:

- ◆ OSSEF Special Awards Judge Spring 2021, Oklahoma State University
- ◆ ECE Graduate Program Committee Member Spring 2021, Oklahoma State University
- ◆ ECE Graduate Program Committee Member Fall 2020, Oklahoma State University

Journal Editor:

- ◆ Associate editor of Neural processing letter

Conference Organization Committee:

- ◆ Registration chair: IEEE International Conference on Computer Design (ICCD) 2021

Program Committee:

- ◆ IEEE International Conference on Computer Design (ICCD) 2020
- ◆ IEEE Computer Society Annual Symposium on VLSI (ISVLSI 2019)
- ◆ IEEE International Workshop on Signal Processing Systems (SiPS 2019)

Reviewer:

- ◆ Nature Communication
- ◆ IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- ◆ IEEE Transactions on Very Large-Scale Integration Systems (TVLSI)
- ◆ IEEE Transactions on Electron Devices (T-ED)
- ◆ Journal of Systems Architecture
- ◆ IEEE Internet of Things Journal
- ◆ IET Circuits, Devices & Systems
- ◆ ACM Transactions on Design Automation of Electronic Systems (TODAES)
- ◆ Frontiers of Information Technology & Electronic Engineering
- ◆ International Symposium on Circuits and Systems (ISCAS 2018 2019)
- ◆ IEEE International Conference on Communications (ICC 2019)
- ◆ International Conference on Supercomputing (ICS 2017)
- ◆ International Conference on Parallel Architectures and Compilation Techniques (PACT 2017)
- ◆ IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS 2016)

Session Chair:

- ◆ IEEE International Conference on Computer Design (ICCD) 2020