Zhenman Fang

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CV Contents

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Work Experience

4/2019 – present **Simon Fraser University**, *Burnaby, BC, Canada*, **Tenure-Track Assistant Professor**.
School of Engineering Science, Computer Engineering Option

8/2019 – present **Simon Fraser University**, *Burnaby, BC, Canada*, **Associate Faculty Member**.
School of Computing Science

7/2018 – 3/2019 **Simon Fraser University**, *Burnaby, BC, Canada*, **Adjunct Professor**.
School of Engineering Science, Computer Engineering Option

9/2017 – 3/2019 **Xilinx**, *San Jose, CA, USA*, **Staff Software Engineer**.
SDx (now re-branded as Vitis) System Compiler Team

7/2014 – 9/2017 **University of California, Los Angeles**, *USA*, **Postdoctoral Scholar**.
Worked in two multi-university centers: Center for Domain-Specific Computing (CDSC) and Center for Future Architectures Research (C-FAR)

4/2013 – 7/2014 **University of Minnesota, Twin Cities**, *USA*, **Research Scholar**.
Department of Computer Science and Engineering

Education and Training

7/2014 – 9/2017 **University of California, Los Angeles**, *USA*, **Postdoctoral Scholar**, *Computer Science*.
Research: Accelerator-Rich Architectures and Systems
Supervisor: Prof. Jason Cong and Prof. Glenn Reinman

4/2013 – 7/2014 **University of Minnesota, Twin Cities**, *USA*, **Visiting PhD**, *Computer Science and Engineering*.
Thesis: On Performance Optimization and Evaluation for Multicore Memory Systems
Supervisor: Prof. Pen-Chung Yew

9/2009 – 6/2014 **Fudan University, China**, **PhD**, *Computer Science*.
Thesis: On Performance Optimization and Evaluation for Multicore Memory Systems
Supervisor: Prof. Binyu Zang

9/2005 – 7/2009 **Fudan University, China and University College Dublin, Ireland**, **Joint Bachelor's Degree**.
Bachelor of Engineering, Software Engineering, Fudan University (**Outstanding Graduate**)
Bachelor of Science Honors, Computer Science, University College Dublin

Research Interests

Major theme: Customizable computing with software-defined hardware acceleration

- **Emerging workload characterization and acceleration:** especially for machine learning [J16, J12, J10, J8, J5, C30, C29, C28, C25, C23, C21, C9], computational genomics [J2, C16, C12, C11, C7], big data analytics [J15, J11, C31, C19, C13, C12, SC3], image and video processing [C1, P1], and high-performance computing [J13, SC2, TR2]
- **Computer architecture:** especially for heterogeneous and energy-efficient accelerator-rich architectures (ARAs) [J7, J3, C18, C15, C14, C11, C10, C5, SC4, SC2, SC1, TR1], multicore and many-core architectures [J1, C4, BC1], memory systems and near data acceleration [J13, J11, J9, J1, C20, C18, C11, C4, SC4]

- **Programming and compiler optimization:** especially for improving memory system performance [C4], programming and compiler support for the above architectures [J14, J13, J6, C32, C31, P3, P2, TR3]
- **Big data computing system:** especially for enabling FPGA accelerators in datacenters [J15, J11, J9, J4, J3, J2, C31, C20, C19, C13, C12, C8, C7, C6, SC4, SC3, TR3]
- **Performance evaluation and design automation:** especially for architectural simulation [C5, C3, C2], benchmarking [J9, J4, J1, C20, C15, C6, SC2], prototyping [TR1], and GPU-FPGA comparison [SC2]
- **Reliability for hardware accelerators:** especially for machine learning based reliability modeling for accelerators [C17, SC5], and robustness for machine learning accelerators [C27, C26, C24, C22]

Selected Awards

2023 **Institute of Electrical and Electronics Engineers (IEEE) Senior Member**.

2020 **Natural Sciences and Engineering Research Council of Canada (NSERC) Alliance Award**.

2019 **Xilinx University Program Award**.

2019 **Canada Foundation for Innovation John R. Evans Leaders Fund (CFI JELF) Award**.

2019 **TCAD 2019 Donald O. Pederson Best Paper Award**, *IEEE Council on Electronic Design Automation, the best paper published/accepted in the IEEE Transactions on CAD in 2017/2018*.

2018 **ISPASS 2018 Best Paper Nominee**, *2018 IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS 2018), 4 papers out of 67 submissions*.

2017 **MEMSYS 2017 Best Paper Award**, *The International Symposium on Memory Systems (MEMSYS 2017), 1 paper out of 42 accepted papers*.

2017 **HPCA 2017 Best Paper Nominee**, *2017 IEEE Symposium on High Performance Computer Architecture (HPCA 2017), 4 papers out of 224 submissions*.

2018 **Team Award in Xilinx Software and IP Group (1000+ people group)**.

2018 **Outstanding Reviewer**, *Elsevier Journal of Parallel and Distributed Computing (JPDC)*.

2017 **Outstanding Reviewer**, *Integration, the Elsevier VLSI Journal*.

2017 **Outstanding Reviewer**, *Elsevier Microprocessors and Microsystems (MICPRO)*.

2016 **Outstanding Reviewer**, *Elsevier Journal of Parallel and Distributed Computing (JPDC)*.

2016 **Best Demo Award**, *SRC/DARPA Center for Future Architectures Research (C-FAR) 2016 Annual Review, 3rd place out of 49 demos*.

2016 **Postdoc Fellowship, UCLA Institute for Digital Research and Education (IDRE)**.

2012 **China National Scholarship for PhD Students, Ministry of Education of China**.

Publications

Quick Summary

61 publications: 16 journal papers, 37 conference papers (32 full papers and 5 short papers), 1 Chinese book chapter, 2 US patents and 1 China patent, 4 technique reports.

Total citations: 2000+, h-index: 21. 1 paper with 600+ citations: [J5, TCAD 2019 Donald O. Pederson Best Paper]. **Another 4 papers with 100+ citations:** [SC2, FCCM 2018 Short Paper], [C10, HPCA 2017 Best Paper Nominee], [C8, ACM SOCC 2016], [C6, DAC 2016]. Based on Google Scholar [Dec 1, 2023].

Conference field, name, tier, and number of papers that I published there:

Field	Name	Full Conference Name	Tier	Number of papers that I published
FPGA and reconfigurable computing	FCCM	IEEE International Symposium On Field-Programmable Custom Computing Machines	1	full x5, short x3
	FPGA	ACM International Symposium on Field-Programmable Gate Arrays	1	full x2
	FPL	The International Conference Field-Programmable Logic and Applications	1	full x2, short x1
	FPT	International Conference on Field-Programmable Technology	2	full x1
Design automation	DAC	Design Automation Conference	1	full x2
	ICCAD	IEEE/ACM International Conference on Computer-Aided Design	1	full x3
	DATE	Design, Automation and Test in Europe Conference	1	full x2
Computer architecture	HPCA	IEEE Symposium on High Performance Computer Architecture	1	full x2, best paper nominee x1
	ISPASS	IEEE International Symposium on Performance Analysis of Systems and Software	2	full x2, best paper nominee x1
	IISWC	IEEE International Symposium on Workload Characterization	2	full x1
	LCTES	ACM SIGPLAN/SIGBED Conference on Languages, Compilers, and Tools for Embedded Systems	2	full x1, short x1
	ASAP	IEEE International Conference on Application-specific Systems, Architectures and Processors	2	full x1
	MEMSYS	International Symposium on Memory Systems	2	full x1, best paper x1
High performance computing and cloud computing	ICS	International Conference on Supercomputing	1	full x1
	SOCC	ACM Symposium on Cloud Computing	1	full x1
	HotCloud	USENIX Workshop on Hot Topics in Cloud Computing	2	full x1
Circuit and system design	ISQED	International Symposium on Quality Electronic Design	2	full x1
	DSD	Euromicro Symposium on Digital Systems Design	2	full x2
Machine learning	ECCV	European Conference on Computer Vision	1	full x1
Total conference publications				full x32, short x5

Journal field, name, tier, and number of papers that I published there:

Field	Name	Full Journal Name	Tier	Number of papers that I published
FPGA and reconfigurable computing	TRETS	ACM Transactions on Reconfigurable Technology and Systems	1	full x9
Design automation	TCAD	IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems	1	full x1, best paper x1
	D&T	IEEE Design & Test	1	full x1
Computer architecture	TACO	ACM Transactions on Architecture and Code Optimization	1	full x1
Remote sensing	TGRS	IEEE Transactions on Geoscience and Remote Sensing	1	full x2
Broad ECE and CS	PIEEE	Proceedings of the IEEE	1	full x1
	TETC	IEEE Transactions on Emerging Topics in Computing	1	full x1
Total journal publications				full x16

Note: Tier 1 conferences and journals are the top tier ones in the field, and tier 2 means very good (but not the top tier) conferences and journals.

Honoring conference publications in Dr. Fang's field: As highlighted by the Computing Research Association (CRA) in "Evaluating Computer Scientists and Engineers for Promotion and Tenure" (http://www.cra.org/uploads/documents/resources/bpmemos/tenure_review.pdf), conference articles are the most respected and well-cited publications, while journal articles typically summarize or extend a previous conference publication. Conference papers are complete submissions falling into two categories: full papers (typically 6 or more pages) and short papers (typically 4 to 6 pages); conference abstracts are not included in this CV. Where known, the acceptance rate for each published conference paper has been included as part of the reference.

Legend and author list convention: **Names that are in bold** in the publication list are those **students and/or research associate** whom I have supervised or co-supervised since I joined SFU. ***My name*** is highlighted in ***bold and italic***. The author list is typically in the descending order of contribution and students are generally listed first. An exception of this convention is for some of my work done at UCLA (before joining SFU) with my postdoc supervisor Dr. Jason Cong, where the author list is sometimes in the alphabetical order of author names; in this case, names with a following "*" denote the leading authors.

Journal Articles (Accepted: 3)

[J16] Geng Yang, Jie Lei, ***Zhenman Fang***, Yunsong Li, Jiaqing Zhang, Weiying Xie. *HyBNN: Quantifying and Optimizing Hardware Efficiency of Binary Neural Networks*. Accepted by ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2023, Tier 1**), FPT 2023 Journal Track.

[J15] **Kenny Liu***, **Alec Lu***, **Kartik Samtani**, ***Zhenman Fang***, and Licheng Guo. *CHIP-KNNv2: A Configurable and High-Performance K-Nearest Neighbors Accelerator on HBM-based FPGAs*. Accepted by ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2023, Tier 1**). Journal extension of [C19].
Note: Kenny and Alec co-lead this paper.

[J14] Licheng Guo, Yuze Chi, Jason Lau, Linghao Song, **Xingyu Tian**, **Moazin Khatti**, Weikang Qiao, Jie Wang, Ecenur Ustun, ***Zhenman Fang***, Zhiru Zhang, and Jason Cong. *TAPA: A Scalable Task-Parallel Dataflow Programming Framework for Modern FPGAs with Co-Optimization of HLS and Physical Design*. Accepted by ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2023, Tier 1**).

Journal Articles (Published: 13)

[J13] **Xingyu Tian**, **Zhifan Ye**, **Alec Lu**, Licheng Guo, Yuze Chi, and ***Zhenman Fang***. *SASA: A Scalable and Automatic Stencil Acceleration Framework for Optimized Hybrid Spatial and Temporal Parallelism on HBM-based FPGAs*. ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2023, Tier 1**), Volume 16, Issue 2, Apr 2023, Article No.: 28, pp 1–33.

[J12] Jiaqing Zhang, Jie Lei, Weiying Xie, ***Zhenman Fang***, Yunsong Li, Qian Du. *SuperYOLO: Super Resolution Assisted Object Detection in Multimodal Remote Sensing Imagery*. IEEE Transactions on Geoscience and Remote Sensing (**TGRS 2023, Tier 1**), vol. 61, pp. 1-15, Mar 2023, Art no. 5605415.

[J11] Weikang Qiao, Licheng Guo, ***Zhenman Fang***, Mau-Chung Frank Chang, and Jason Cong. *TopSort: A High-Performance Two-Phase Sorting Accelerator Optimized on HBM-based FPGAs*. IEEE Transactions on Emerging Topics in Computing (**TETC 2023 Invited Paper, Tier 1**), vol. 11, no. 2, pp. 404-419, 1 April-June 2023.

[J10] Geng Yang, Jie Lei, Weiying Xie, ***Zhenman Fang***, Yunsong Li, Jiaxuan Wang, Xin Zhang. *Algorithm/Hardware Co-Design for Real-Time On-Satellite CNN based Ship Detection in SAR Imagery*. The IEEE Transactions on Geoscience and Remote Sensing (**TGRS 2022, Tier 1**), Volume: 60, pp. 1-18, Mar 2022.

[J9] **Alec Lu**, ***Zhenman Fang***, and Lesley Shannon. *Demystifying the Soft and Hardened Memory Systems of Modern FPGAs for Software Programmers through Microbenchmarking*. ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2022 Invited Paper, Tier 1**), Volume 15, Issue 4, December 2022, Article No.: 43, pp 1–33. Journal extension of [C20].

[J8] **Sathish Panchapakesan**, ***Zhenman Fang***, and Jian Li. *SyncNN: Evaluating and Accelerating Spiking Neural Networks on FPGAs*. Published in ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2022, Tier 1**), Volume 15, Issue 4, Article No.: 48, pp 1–27, December 2022. Journal extension of [C21].

[J7] **Eric Matthews**, **Alec Lu**, ***Zhenman Fang***, and Lesley Shannon. *Quick-Div: Rethinking Integer Divider Design for FPGA-based Soft-Processors*. ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2022, Tier 1**), Volume 15, Issue 3, Article No.: 32, pp 1–27, September 2022. Journal extension of [C14].

[J6] Yi-Hsiang Lai, Ecenur Ustun, Shaojie Xiang, ***Zhenman Fang***, Hongbo Rong, Zhiru Zhang. *Programming and Synthesis for Software-Defined FPGA Acceleration: Status and Future Prospects*. ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2021 Invited Paper, Tier 1**), Volume 14, Issue 4, Article No.: 17, pp 1–39, December 2021.

———Before Joining SFU (5)———

[J5] Chen Zhang, Guangyu Sun, ***Zhenman Fang***, Peipei Zhou, Peichen Pan, Jason Cong. *Caffeine: Towards Uniformed Representation and Acceleration for Deep Convolutional Neural Networks*. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD 2019 Best Paper, Tier 1**), Volume 38, Issue 11, Pages 2072-2085, Nov. 2019. Journal extension of [C9].

[J4] Young-kyu Choi, Jason Cong, ***Zhenman Fang***, Yuchen Hao, Glenn Reinman, Peng Wei*. *In-depth Analysis on Microarchitectures of Modern Heterogeneous CPU-FPGA Platforms*. ACM Transactions on Reconfigurable Technology and Systems (**TRETS 2019, Tier 1**), Volume 12, Issue 1, February 2019, Article No.: 4, pp 1–20. Journal extension of [C6].

[J3] Jason Cong*, ***Zhenman Fang***, Muhuan Huang, Peng Wei, Di Wu, and Cody Hao Yu. *Customizable Computing — From Single-Chip to Datacenters*. Proceedings of the IEEE (**PIEEE 2019 Invited Paper, Tier 1**), Volume 107, Issue 1, Pages 185 - 203, Jan. 2019.

[J2] Jason Cong, ***Zhenman Fang***, Muhuang Huang*, Libo Wang, Di Wu. *CPU-FPGA Co-Optimization for Big Data Applications*. IEEE Design & Test (**D&T 2018 Invited Paper, Tier 1**), vol. 35, no. 1, pp. 16-22.

[J1] ***Zhenman Fang***, Sanyam Mehta, Pen-Chung Yew, Antonia Zhai, James Greensky, Gautham Beeraka, and Binyu Zang. *Measuring Microarchitectural Details of Multi- and Many-core Memory Systems Through Microbenchmarking*. ACM Transactions on Architecture and Code Optimization (**TACO 2015, Tier 1**), 11, 4, Article 55 (January 2015), 26 pages.

Refereed Full Conference Papers (Published: 32)

[C32] **Moazin Khatti**, **Xingyu Tian**, Yuze Chi, Licheng Guo, Jason Cong, ***Zhenman Fang***. *PASTA: Programming and Automation Support for Scalable Task-Parallel HLS Programs on Modern Multi-Die FPGAs*. The 31st IEEE International Symposium On Field-Programmable Custom Computing Machines (**FCCM 2023, Tier 1**), Marina Del Rey, CA, May 2023, pp. 12-22.
Acceptance Rate: 21.4%, 15 out of 70.

[C31] **Alec Lu**, ***Zhenman Fang***. *SQL2FPGA: Automatic Acceleration of SQL Query Processing on Modern CPU-FPGA Platforms*. The 31st IEEE International Symposium On Field-Programmable Custom Computing Machines (**FCCM 2023, Tier 1**), Marina Del Rey, CA, May 2023, 184-194.
Acceptance Rate: 21.4%, 15 out of 70.

[C30] Sung-En Chang*, Geng Yuan*, **Alec Lu***, Mengshu Sun, Yanyu Li, Xiaolong Ma, Zhengang Li, YanyueXie, Minghai Qin, Xue Lin, ***Zhenman Fang*** and Yanzhi Wang. *ESRU: Extremely Low-Bit and Hardware-Efficient Stochastic Rounding Unit Design for Low-Bit DNN Training*. Design, Automation and Test in Europe Conference (**DATE 2023, Tier 1**), 2023, pp. 1-6.
Acceptance Rate: 25%.
Note: Sung-En, Geng, and Alec co-lead this paper.

[C29] Peiyan Dong, Mengshu Sun, **Alec Lu**, Yanyue Xie, **Kenneth Liu**, Zhenglun Kong, Xin Meng, Zhengang Li, Xue Lin, ***Zhenman Fang***, and Yanzhi Wang. *HeatViT: Hardware-Efficient Adaptive Token Pruning for Vision Transformers*. The 29th IEEE International Symposium on High-Performance Computer Architecture **(HPCA 2023, Tier 1**), Montreal, QC, Canada, Feb-Mar 2023, pp. 442-455.
Acceptance Rate: 25%, 91 out of 360.

[C28] Geng Yuan, Sung-En Chang, Qing Jin, **Alec Lu**, Yanyu Li, Yushu Wu, Zhenglun Kong, Yanyue Xie, Peiyan Dong, Minghai Qin, Xiaolong Ma, Xulong Tang, ***Zhenman Fang***, and Yanzhi Wang. *You Already Have It: A Generator-Free Low-Precision DNN Training Framework using Stochastic Rounding*. The European Conference on Computer Vision (**ECCV 2022, Tier 1**), Tel Aviv, Israel, Oct 2022. Lecture Notes in Computer Science, vol 13672, pp. 34–51.
Acceptance Rate: 28%, 1,645 out of 5,804.

[C27] **Behnam Ghavami**, Mani Sadati, Mohammad Shahidzadeh, ***Zhenman Fang***, Lesley Shannon. *Blind Data Adversarial Bit-flip Attack against Deep Neural Networks*. The Euromicro Conference on Digital Systems Design (**DSD 2022, Tier 2**), Gran Canaria, Spain, Aug-Sept 2022.

[C26] **Behnam Ghavami**, Mahdi Sajedi, Mohsen Raji, ***Zhenman Fang***, Lesley Shannon. *A Majority-based Approximate Adder for FPGAs*. The Euromicro Conference on Digital Systems Design (**DSD 2022, Tier 2**), Gran Canaria, Spain, Aug-Sept 2022.

[C25] Zhengang Li, Mengshu Sun, **Alec Lu**, Haoyu Ma, Geng Yuan, Yanyue Xie, Hao Tang, Yanyu Li, Miriam Leeser, Zhangyang Wang, Xue Lin, ***Zhenman Fang***. *Auto-ViT-Acc: FPGA-Aware Automatic Acceleration Framework for Vision Transformer with Mixed-Scheme Quantization*. The 32nd International Conference on Field-Programmable Logic and Applications (**FPL 2022, Tier 1**), Belfast, UK, Aug-Sept 2022, pp. 109-116.
Acceptance Rate: 25.6%, 33 out of 129.

[C24] **Behnam Ghavami**, Sayed Hamid Reza Mousavi, ***Zhenman Fang***, Lesley Shannon. *Stealthy Attack on Algorithmic-Protected DNNs via Smart Bit Flipping*. The 23nd International Symposium on Quality Electronic Design (**ISQED 2022, Tier 2**), Virtual Conference, Apr 2022, pp. 358-364.

[C23] Mengshu Sun*, Zhengang Li*, **Alec Lu***, Yanyu Li, Sung-En Chang, Xiaolong Ma, Xue Lin, ***Zhenman Fang***. *FILM-QNN: Efficient FPGA Acceleration of Deep Neural Networks with Intra-Layer, Mixed-Precision Quantization*. The 30th ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (**FPGA 2022, Tier 1**), Virtual Conference, Feb/Mar 2022, pp. 134–145.
Acceptance Rate: 20.8%, 15 out of 72.
Note: Mengshu, Zhengang, and Alec co-lead this paper.

[C22] **Behnam Ghavami**, Mani SadaX, ***Zhenman Fang***, Lesley Shannon. *FitAct: Error Resilient Deep Neural Networks via Fine-Grained Post-Trainable Activation Functions*. Design, Automation and Test in Europe Conference (**DATE 2022, Tier 1**), Virtual Conference, Mar 2022, pp. 1239-1244.
Acceptance Rate: 25%

[C21] **Sathish Panchapakesan**, ***Zhenman Fang***, and Jian Li. *SyncNN: Evaluating and Accelerating Spiking Neural Networks on FPGAs*. The 31st International Conference on Field-Programmable Logic and Applications (**FPL 2021, Tier 1**), Virtual Conference, Sept 2021, pp. 286-293.
Acceptance Rate: 22.2%, 32 out of 144.

[C20] **Alec Lu**, ***Zhenman Fang***, **Weihua Liu**, and Lesley Shannon. *Demystifying the Memory System of Modern Datacenter FPGAs for Software Programmers through Microbenchmarking*. The 29th ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (**FPGA 2021, Tier 1, one of the top papers at FPGA 2021, invited to submit to FPGA 2021 Special Issue in ACM TRETS.**), Virtual Conference, Mar 2021, pp. 105–115.
Acceptance Rate: 19.8%, 22 out of 111.

[C19] **Alec Lu**, ***Zhenman Fang***, **Nazanin Farahpour**, and Lesley Shannon. *CHIP-KNN: A Configurable and High-Performance K-Nearest Neighbors Accelerator on Cloud FPGAs*. The 2020 International Conference on Field-Programmable Technology (**FPT 2020, Tier 2**), Virtual Conference, Dec 2020, pp. 139-147.
Acceptance Rate: 24.7%, 21 out of 85.

[C18] **Nazanin Farahpour**, Yuchen Hao, ***Zhenman Fang***, and Glenn Reinman. *Reconfigurable Accelerator Compute Hierarchy: A Case Study Using Content-Based Image Retrieval*. The 2020 IEEE International Symposium on Workload Characterization (**IISWC 2020, Tier 2**), Virtual Conference, Oct 2020, pp. 276-287.
Acceptance Rate: 37.1%, 26 out of 70.

[C17] Seyed Milad Ebrahimipour, **Behnam Ghavami**, Hamdi Mousavi, Mohsen Raji, ***Zhenman Fang*** and Lesley Shannon. *Aadam: A Fast, Accurate, and Versatile Aging-Aware Cell Library Delay Model using Feed-Forward Neural Network*. The 2020 International Conference On Computer Aided Design (**ICCAD 2020, Tier 1**), Virtual Conference, Nov 2020, pp. 1-9.
Acceptance Rate: 27.0%, 127 out of 470.

[C16] **Michael Lo**, ***Zhenman Fang***, Jie Wang, Peipei Zhou, Mau-Chung Frank Chang and Jason Cong. *Algorithm-Hardware Co-design for BQSR Acceleration in Genome Analysis ToolKit*. The 28th IEEE International Symposium On Field-Programmable Custom Computing Machines (**FCCM 2020, Tier 1**), Fayetteville, AR, USA, May 2020, pp. 157-166.
Acceptance Rate: 20.7%, 19 out of 92.

[C15] ***Zhenman Fang***, Farnoosh Javadi, Jason Cong, Glenn Reinman. *Understanding Performance Gains of Accelerator-Rich Architectures*. The 30th IEEE International Conference on Application-specific Systems, Architectures and Processors (**ASAP 2019 invited paper, Tier 2**), New York NY, Jul 2019, pp. 239-246.

[C14] **Eric Matthews**, **Alec Lu**, ***Zhenman Fang***, and Lesley Shannon. *Rethinking Integer Divider Design for FPGA-based Soft-Processors*. The 27th IEEE International Symposium on Field-Programmable Custom Computing Machines (**FCCM 2019, Tier 1**), San Diego CA, Apr 2019, pp. 289-291.
Acceptance Rate: 25.8%, 31 out of 120.

———Before Joining SFU (13)———

[C13] Weikang Qiao, Jieqiong Du, ***Zhenman Fang***, Jason Cong, and Mau-Chung Frank Chang. *High-Throughput Lossless Compression on Tightly-Coupled CPU-FPGA Platforms*. The 26th IEEE International Symposium on Field-Programmable Custom Computing Machines (**FCCM 2018, Tier 1**), Boulder CO, May 2018, pp. 37-44.
Acceptance Rate: 20.8%, 22 out of 106.

[C12] Peipei Zhou, Zhenyuan Ruan, ***Zhenman Fang***, Jason Cong, Megan Shand, and David Roazen. *Doppio: I/O-Aware Performance Analysis, Modeling and Optimization for In-Memory Computing Framework*. The 2018 IEEE International Symposium on Performance Analysis of Systems and Software (**ISPASS 2018 Best Paper Nominee, Tier 2**), Belfast, Northern Ireland, UK, Apr 2018, pp. 22-32.
Acceptance Rate: 31.3%, 21 out of 67. Best paper nominee rate: 6.0%, 4 out of 67.

[C11] Jason Cong, ***Zhenman Fang****, Michael Gill, Farnoosh Javadi*, Glenn Reinman. *AIM: Accelerating Computational Genomics through Scalable and Noninvasive Accelerator-Interposed Memory*. The International Symposium on Memory Systems (**MEMSYS 2017 Best Paper Award, Tier 2**), Alexandria, VA, Oct 2017, pp. 3-14.
Acceptance Rate: N/A. Best paper award rate: $< 2.4\%$, 1 out of 42 accepted papers.
Note: Dr. Fang and Farnoosh Javadi (whom Dr. Fang mentored back when he was a postdoc at UCLA) made equal contribution to co-lead this paper.

[C10] Jason Cong, ***Zhenman Fang****, Yuchen Hao*, Glenn Reinman. *Supporting Address Translation for Accelerator-Centric Architectures*. The 23rd IEEE Symposium on High Performance Computer Architecture (**HPCA 2017 Best Paper Nominee, Tier 1**), Austin TX, Feb 2017, pp. 37-48.
Acceptance Rate: 22.3%, 50 out of 224. Best paper nominee rate: 1.8%, 4 out of 224.
Note: Dr. Fang and Yuchen Hao (whom Dr. Fang mentored back when he was a postdoc at UCLA) made equal contribution to co-lead this paper.

[C9] Chen Zhang, ***Zhenman Fang***, Peipei Zhou, Peichen Pan, Jason Cong. *Caffeine: Towards Uniformed Representation and Acceleration for Deep Convolutional Neural Networks*. The 2016 IEEE/ACM International Conference on Computer-Aided Design (**ICCAD 2016, Tier 1**), Austin TX, Nov 2016, pp. 1-8.
Acceptance Rate: 23.7%, 97 out of 409.

[C8] Muhuan Huang, Di Wu, Cody Hao Yu, ***Zhenman Fang***, Matteo Interlandi, Tyson Condie, Jason Cong. *Programming and Runtime Support to Blaze FPGA Accelerator Deployment at Datacenter Scale*. The ACM Symposium on Cloud Computing (**ACM SOCC 2016, Tier 1**), Santa Clara, CA, Oct 2016, pp. 456-469.
Acceptance Rate: 25.2%, 38 out of 151.

[C7] Yu-Ting Chen, Jason Cong, ***Zhenman Fang***, Jie Lei, Peng Wei*. *When Apache Spark Meets FPGAs: A Case Study for Next-Generation DNA Sequencing Acceleration*. The 8th USENIX Workshop on Hot Topics in Cloud Computing (**HotCloud 2016, Tier 2**), Denver CO, Jun 2016, pp. 64-70.
Acceptance Rate: 30.9%, 21 out of 68.

[C6] Young-kyu Choi, Jason Cong, ***Zhenman Fang***, Yuchen Hao, Glenn Reinman, Peng Wei*. *A Quantitative Analysis on Microarchitectures of Modern CPU-FPGA Platforms*. The 53rd Design Automation Conference (**DAC 2016, Tier 1**), Austin TX, Jun 2016, pp. 1-6.
Acceptance Rate: 22.6%, 152 out of 674.

[C5] Jason Cong, ***Zhenman Fang****, Michael Gill, Glenn Reinman. *PARADE: A Cycle-Accurate Full-System Simulation Platform for Accelerator-Rich Architectural Design and Exploration*. 2015 IEEE/ACM International Conference on Computer-Aided Design (**ICCAD 2015, Tier 1**), Austin TX, Nov 2015, pp. 380-387.
Acceptance Rate: 24.6%, 94 out of 382.

[C4] Sanyam Mehta, ***Zhenman Fang***, Antonia Zhai, Pen-Chung Yew. *Multi-Stage Coordinated Prefetching for Present-day Processors*. Proceedings of the 28th International Conference on Supercomputing (**ICS 2014, Tier 1**), Munich, Germany, Jun 2014, pp. 73-82.
Acceptance Rate: 21.3%, 34 out of 160.

[C3] ***Zhenman Fang***, Qinghao Min, Keyong Zhou, Yi Lu, Yibin Hu, Weihua Zhang, Haibo Chen, Jian Li, Binyu Zang. *Transformer: A Functional-Driven Cycle-Accurate Multicore Simulator*. The 49th Design Automation Conference (**DAC 2012, Tier 1**), San Francisco CA, Jun 2012, pp. 106-114.
Acceptance Rate: 22.7%, 168 out of 741.

[C2] ***Zhenman Fang***, Jiaxin Li, Weihua Zhang, Yi Li, Haibo Chen, Binyu Zang. *Improving Dynamic Prediction Accuracy Through Multi-Level Phase Analysis*. Proceedings of the 2012 ACM SIGPLAN/SIGBED Conference on Languages, Compilers, and Tools for Embedded Systems (**LCTES 2012, Tier 2**), Beijing, China, Jun 2012, pp. 89-98.
Acceptance Rate: 22.7%, 15 out of 66.

[C1] ***Zhenman Fang***, Donglei Yang, Weihua Zhang, Haibo Chen, Binyu Zang. *A Comprehensive Analysis and Parallelization of an Image Retrieval Algorithm*. The 2011 IEEE International Symposium on Performance Analysis of Systems and Software (**ISPASS 2011, Tier 2**), Austin TX, Apr 2011, pp. 154-164.
Acceptance Rate: 37.5%, 24 out of 64.

Refereed Short Conference Papers (Published: 5)

[SC5] **Behnam Ghavami**, Milad Ebrahimi, ***Zhenman Fang***, Lesley Shannon. *MAPLE: A Machine Learning based Aging-Aware FPGA Architecture Exploration Framework*. The 31st International Conference on Field-Programmable Logic and Applications (**FPL 2021 short paper, Tier 1**), Virtual Conference, Sept 2021, pp. 369-373.
Acceptance Rate: 37.5%, 54 out of 144.

[SC4] **Nazanin Farahpour**, ***Zhenman Fang***, and Glenn Reinman. *FPGA-based Near Data Processing Platform Selection Using Fast Performance Modeling*. The 21st ACM SIGPLAN/SIGBED International Conference on Languages, Compilers, and Tools for Embedded Systems (**LCTES 2020 short WiP paper, Tier 2**), Virtual Conference, June 2020, pp. 151-155.

[SC3] Mau-Chung Frank Chang, Jason Cong, ***Zhenman Fang***, and Weikang Qiao*. *An FPGA-based BWT Accelerator for Bzip2 Data Compression*. The 27th IEEE International Symposium on Field-Programmable Custom Computing Machines (**FCCM 2019 short paper, Tier 1**), San Diego CA, Apr 2019, pp. 96-99.
Acceptance Rate: 17.9%, 7 out of 39.

———Before Joining SFU (2)———

[SC2] Jason Cong, ***Zhenman Fang****, Michael Lo, Hanrui Wang, Jingxian Xu and Shaochong Zhang. *Understanding Performance Differences of FPGAs and GPUs*. The 26th IEEE International Symposium on Field-Programmable Custom Computing Machines (**FCCM 2018 short paper, Tier 1**), Boulder CO, May 2018, pp. 172-175.
Acceptance Rate: 14.6%, 7 out of 48.

[SC1] Peipei Zhou, HyunSeok Park, ***Zhenman Fang***, Jason Cong, Andre DeHon. *Energy Efficiency of Fully Pipelining: A Case Study for Matrix Multiplication*. The 24th IEEE International Symposium on Field-Programmable Custom Computing Machines (**FCCM 2016 short paper, Tier 1**), Washington DC, May 2016, pp. 172-175.
Acceptance Rate: 24.1%, 32 out of 133.

Book Chapters (Published: 1)

———Before Joining SFU (1)———

[BC1] ***Zhenman Fang***, Weihua Zhang, Binyu Zang. *Development Report of China's General-Purpose Processors*. Chapter 1 in the book "2010 China Computer Science and Technology Development Report". ISBN: 9787111364450. (In Chinese)

Patents (Granted: 3)

——Filed Before Joining SFU (3)——

[P3] ***Zhenman Fang***, James L Hwang, Alfred Huang, Michael Gill, Tom Shui. *Heterogeneous instantiation of high-level language callable library for hardware core*. **US patent**: 10762265 B1. Filed date: Nov 13, 2018. Publication date: Sept 1, 2020.

[P2] ***Zhenman Fang***, James L Hwang, Samuel A Skalicky, Tom Shui, Michael Gill, Welson Sun, Alfred Huang, Jorge E Carrillo, Chen Pan. *Automatic creation of high-level language callable library for a hardware core*. **US patent**: 10755013 B1. Filed date: Nov 13, 2018. Publication date: Aug 25, 2020.

[P1] Weihua Zhang, ***Zhenman Fang***, Donglei Yang, Binyu Zang. *Image/video feature extraction parallel algorithm based on multi-core system structure*. **China patent**: CN102495725 A. Filed date: Nov 15, 2011. Publication date: Jun 13, 2012.

Technical Reports (Published: 4)

[TR4] Kiarash Saremi, Hossein Pedram, **Behnam Ghavami**, Mohsen Raji, ***Zhenman Fang***, and Lesley Shannon. *SeaPlace: Process Variation Aware Placement for Reliable Combinational Circuits against SETs and METs*. arXiv:2112.04136 [cs.AR], 2021. 14 pages

———Before Joining SFU (3)———

[TR3] Jason Cong, ***Zhenman Fang***, Yuchen Hao, Peng Wei*, Cody Hao Yu, Chen Zhang, Peipei Zhou. *Best-Effort FPGA Programming: A Few Steps Can Go a Long Way*. arXiv:1807.01340 [cs.AR] 2018. 13 pages.

[TR2] Jason Cong, ***Zhenman Fang***, Hassan Kianinejad*, Peng Wei. *Revisiting FPGA Acceleration of Molecular Dynamics Simulation with Dynamic Data Flow Behavior in High-Level Synthesis*. arXiv:1611.04474 [physics.comp-ph] 2016. 8 pages.

[TR1] Yu-Ting Chen*, Jason Cong, ***Zhenman Fang***, Bingjun Xiao, Peipei Zhou. *ARAPrototyper: Enabling Rapid Prototyping and Evaluation for the Accelerator-Rich Architecture*. arXiv:1610.09761 [cs.AR] 2016. 14 pages.

Open Source Software

Summary: Led and contributed to the release of 11 open source software projects. Detailed project description and link can be found here: http://www.sfu.ca/~zhenman/software.html

[SW11] [@SFU] SQL2FPGA: Spark SQL to FPGA Compiler

[SW10] [@SFU] SASA: Scalable and Automatic Stencil Acceleration on FPGA

[SW9] [@SFU] SyncNN: Novel Synchronous Spiking Neural Network Acceleration on FPGA

[SW8] [@SFU] Rodinia-HLS: FPGA Version of Rodinia Benchmarks in HLS C/C++

[SW7] [@SFU] Microbenchmarks to Characterize Modern FPGA Memory Systems

[SW6] [@SFU] CHIP-KNN: A Configurable and High-Performance KNN Accelerator on FPGA

[SW5] [@UCLA] PARADE: Full-System Accelerator-Rich Architecture Simulator

[SW4] [@UCLA] Blaze: Deploying Accelerators at Datacenter Scale

[SW3] [@UCLA] Microbenchmarks to Characterize Modern CPU-FPGA Platforms

[SW2] [@UCLA] High-Throughput Deflate Compression Accelerator on FPGA

[SW1] [@UMN] Microbenchmarks to Characterize Multi-/Many-core Memory Systems

Invited Talks

Summary: More than 30 invited talks by universities and companies in USA, Canada, Switzerland, Italy, China mainland, Hong Kong and Taiwan.

[TK12] *Software-Programmable Accelerator-Centric Systems (3)*

- City University of Hong Kong, Virtual (Nov 2023)
- AMD/Xilinx, San Jose, CA, USA (Jul 2023)
- Futurewei, Santa Clara, CA, USA (Jul 2023)

[TK11] *Hardware/Software Codesign for Big Data Acceleration on FPGAs (1)*

- Huawei Big Data Meetup II Workshop 2023, Virtual (Nov 2023)

[TK10] *PASTA: Programming and Automation Support for Scalable Task-Parallel HLS Programs on Modern Multi-Die FPGAs (1)*

- SFU-Huawei Joint Lab Workshop 2023, Virtual (Oct 2023)

[TK9] *Hardware/Software Codesign to Accelerate Vision Transformers on FPGAs (1)*
- Invited talk at the 8th Energy Efficient Training and Inference of Transformer Based Models (EMC2) Workshop, Co-located with the 37th AAAI Conference on Artificial Intelligence (AAAI 2023), Virtual (Feb 2023)

[TK8] *Intelligent Computing Memory Systems for Data-Intensive Applications (1)*
- SFU-Huawei Joint Lab Workshop 2022, Virtual (Nov 2022)

[TK7] *Accelerating Big Data Analytics with Hardware/Software Co-design (2)*
- Huawei 13th Strategy & Technology Workshop (STW 2022), Virtual (Sept 2022)
- Huawei 2012 Labs Global Software Technology Summit - Canadian Research Institute, Virtual (Mar 2022)

[TK6] *Accelerating Next-Generation Sequencing on FPGA-Enabled Cluster (1)*
- British Columbia Genome Sciences Center, Vancouver, BC, Canada (Apr 2020)

[TK5] *Customizable Computing with Specialized Hardware Acceleration (1)*
- Huawei Big Data Workshop, Toronto, ON, Canada (Oct 2019)

[TK4] *Understanding Performance Gains of Accelerator-Rich Architectures (1)*
- Invited talk at the 30th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2019), New York, NY, USA (Jul 2019)

[TK3] *Towards Accelerator-Rich Architectures and Systems (13)*
- Politecnico di Milano, Milan, Italy (Oct 2019)
- Huawei Research, Burnaby, BC, Canada (Apr 2019)
- Alibaba Group Holding, Sunnyvale, CA, USA (Dec 2018)
- University of California, Merced, CA, USA (Nov 2017)
- Simon Fraser University, Burnaby, BC, Canada (Oct 2017)
- University of Southern California, Los Angeles, CA, USA (Sept 2017)
- Xilinx, San Jose, CA, USA (May 2017)
- Peking University, Beijing, China (May 2017)
- EPFL, Lausanne, Switzerland (Mar 2017)
- University of California, Santa Cruz, CA, USA (Feb 2017)
- University of Pittsburgh, Pittsburgh, PA, USA (Feb 2017)
- Drexel University, Philadelphia, PA, USA (Feb 2017)
- University of California, Los Angeles, CA, USA (Feb 2017)

[TK2] *Accelerating Next-Generation DNA Sequencing (1)*
- UCLA Institute for Digital Research and Education (IDRE), CA, USA (Apr 2017)

[TK1] *Initial Experiences with Deploying FPGA Accelerators in Datacenters (5)*
- National Chiao Tung University, Taiwan (Oct 2016)
- Peking University, Beijing, China (Oct 2016)
- Tsinghua University, Beijing, China (Oct 2016)
- Huawei Technologies Co., Ltd., Beijing, China (Oct 2016)
- Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China (Oct 2016)

Teaching Experience

Summary: Created one new course on ENSC 453/894, completely redesigned ENSC 254, and kept enhancing ENSC 251. Organized a couple of full-day conference tutorials.

ENSC 453/894: Programming for Heterogeneous Computing Systems (4 credits)

- New course I created, undergraduate/graduate cross-listed, open to CS as well
- Focus on multicore CPU programming with OpenMP, FPGA programming with high-level synthesis C/C++, and GPU programming with CUDA, which is first-of-its-kind
- ENSC 453 was named ENSC 462 before it was converted to a regular course
- Fall 2023 (37 students: 33 undergraduates + 4 graduates)
- Fall 2022 (32 students: 16 undergraduates + 16 graduates)
- Summer 2021 (13 students: 9 undergraduates + 4 graduates)
- Summer 2020 (24 students: 15 undergraduates + 9 graduates)

ENSC 254: Introduction to Computer Organization (4 credits)

- 2nd year undergraduate core course, focus on fundamentals of computer organization
- Completely redesigned the course (was ARM based, over-focused on assembly programming) to focus on the latest RISC-V based processor design and cache memory hierarchy design
- Summer 2023 (144 students)

ENSC 251: Software Design and Analysis for Engineers (4 credits)

- 2nd year undergraduate core course, focus on object-oriented programming with C++
- Fall 2022 (98 students)
- Summer 2022 (59 students)
- Fall 2021 (84 students)
- Summer 2021 (51 students)
- Fall 2020 (88 students)
- Fall 2019 (111 students)
- Summer 2019 (44 students)

Full-Day Conference Tutorial: Rapid Exploration of Accelerator-rich Architectures: Automation from Concept to Prototyping

- In the 49th Annual IEEE/ACM International Symposium on Microarchitecture (**MICRO 2016**), Taipei, Taiwan, Oct 2016. Organized with David Brooks, Jason Cong, Yakun Sophia Shao, and Sam Xi.
- In the 42nd International Symposium on Computer Architecture (**ISCA 2015**), Portland OR, Jun 2015. Organized with David Brooks, Yu-Ting Chen, Jason Cong, Brandon Reagen, Glenn Reinman, Yakun Sophia Shao, Gu-Yeon Wei and Sam Xi.

Student Supervision

Summary: Currently supervise 15 lab members at SFU, including 1 postdoc, 4 PhD, 8 (thesis-based) MASc, and 2 (course-based) MEng students. **16 lab alumni** include 2 MASc, and 12 undergraduate research interns at SFU, as well as 2 UCLA graduate students (co-supervised). **All of these students (except one student) are visible minorities and 5 of them are female.** Also served in the supervisory/exam committee of 23 graduate students, 8 of whom are in SFU CS, and 2 of whom are outside SFU.

Current Students and Postdoc (15)

Postdoc at SFU (1)

- Haisheng Fu, 11/2023 – present
  Co-supervised with Prof. Jie Liang, Prof. Liang is the primary supervisor

PhD students at SFU (4)

- Alec Lu, 9/2018 – present, transferred from MASc to PhD since 1/2020
  Co-supervised with Prof. Lesley Shannon, I am the primary supervisor
  Thesis topic: Software-defined hardware acceleration for big data analytics
  Publication: [J15, J13, J9, J7, C31, C30, C29, C28, C25, C23, C20, C19, C14]
  Award: SFU Graduate Travel and Research Award, Summer 2023
  Intern: Meta, Redmond, WA, USA, 6/2022 - 10/2022
  Intern: Huawei Big Data Team, Canada, 12/2022 - 4/2023
- Xingyu Tian, 9/2019 – present, transferred from MASc to PhD since 5/2021
  Thesis topic: Software-defined hardware acceleration for high-performance computing
  Publication: [J14, J13, C32]
- Ahmad Sedigh Baroughi, 9/2023 – present
- Qilin Hu (female), Visiting PhD from Hunan University, China, 11/2023 – present

MASc students (thesis-based) at SFU (8)

- Kenny Liu, 5/2021 - present, **publication:** [J15, C29]
  BASc/MASc combined program, officially started MASc portion from 5/2022
  Award: NSERC USRA (Undergraduate Student Research Awards), Summer 2021
- Junzhe Liang (female), 9/2021 - present
- Abdul Wadood, 9/2022 - present
  Intern: Huawei Big Data Team, Canada, 12/2022 - present
- Manoj BR, 9/2022 - present
  Award: Mitacs Globalink Graduate Fellowship, 2022
- Dilshan Sampath, 9/2022 - present
- William Xue, 9/2022 - present
  BASc/MASc combined program, officially starting MASc portion from 1/2023
  Award: British Columbia Graduate Scholarship, 2023
  Award: NSERC USRA (Undergraduate Student Research Awards), Fall 2022
- Philip Stachura, 9/2023 - present
  BASc/MASc combined program, officially starting MASc portion from 9/2023
- Akhil Raj Barnawal, 9/2023 - present

MEng students (course-based) at SFU (2)

- Weihua Liu, 9/2019 – present, **publication:** [C20]
- Kartik Samtani, 1/2021 – present, **publication:** [J15]
  Award: SFU Graduate Dean's Entrance Scholarship (GDES), 2021-2022
  Intern: Huawei Big Data Team, Canada, 12/2022 - 4/2023

Alumni (16)

MASc students (thesis-based) at SFU (2)

- Moazin Khatti, 9/2021 - 11/2023, **publication:** [J14, C32]
  Thesis: Programming and Automation Support for Scalable Task-Parallel HLS Programs on Modern Multi-Die FPGAs
  Thesis defended with distinction (passed as is)
  Intern: d-Matrix, Canada, 5/2023 - 11/2023
  First position: Backend Compiler Engineer, d-Matrix, Canada

- Sathish Panchapakesan, 9/2019 – 12/2021, **publication:** [J8, C21]
  Thesis: Evaluation and Acceleration of Spiking Neural Networks using FPGAs
  Thesis defended with distinction (passed as is)
  Intern: Research Engineer Intern, Huawei Canada, 7/2021 - 1/2022
  First position: Machine Learning System Software Engineer, Qualcomm, Toronto, ON, Canada

PhD student at UCLA (1)

- Nazanin Farahpour (female), 10/2018 – 3/2020, **publication:** [C19, C18, SC4]
  Co-supervised with Prof. Glenn Reinman at UCLA, Prof. Reinman is the primary supervisor
  Thesis: Modeling and Optimization of Accelerator-Rich Architectures for Near Data Processing
  First position: Senior Software Engineer, Pinterest, Bay Area, CA, USA

MASc student (thesis-based) at UCLA (1)

- Michael Lo, 10/2019 – 3/2020, **publication:** [C16]
  Co-supervised with Prof. Jason Cong and Prof. Mau-Chung Frank Chang at UCLA, Prof. Chang is the primary supervisor
  Project: Algorithm-Hardware Co-design for BQSR Acceleration in Genome Analysis ToolKit
  First position: PhD student at UCLA

Undergraduate Research Interns (Coop) at SFU (12)

- Jahanvi Narendra Agrawal (female), 7/2023 - 10/2023
  Mitacs Globalink Research Internship, International Institute of Information Technology, Bangalore, India
- Xinyu Luo, 7/2023 - 10/2023
  Mitacs Globalink Research Internship, Southeast University, China
- Guanyu Li, 5/2023 - 8/2023
  SFU VPR (Vice President of Research) USRA (Undergraduate Student Research Awards)
- William Xue, 9/2022 - 12/2022
  NSERC USRA (Undergraduate Student Research Awards), SFU
  First position: Continue accelerated MASc in my group
- Yibin Wang, 6/2022 - 9/2022
  Mitacs Globalink Research Internship, Xidian University, China
  First position: MASc student at UCLA, USA
- Chin ho Wan, SFU ENSC Honorarium Coop, 9/2021 - 12/2021
  First position: Firmware Verification Specialist, Fortinet, Burnaby, BC, Canada
- Zhifan Ye, 7/2021 - 12/2021, **publication:** [J13]
  Mitacs Globalink Research Internship, University of Science and Technology of China
  First position: PhD student at Georgia Institute of Technology, USA
- Yuxing Zhao (female), 7/2021 - 10/2021
  Mitacs Globalink Research Internship, Southwest Jiaotong University, China
  First position: MASc student at Tongji University, China
- Kenny Liu, 5/2021 - 8/2021
  NSERC USRA (Undergraduate Student Research Awards), SFU
  First position: Continue accelerated MASc in my group
- Richard Song, SFU ENSC Honorarium Coop, 5/2021 – 8/2021
  First position: MEng student at University of Toronto, Canada
- Francis Chui, SFU ENSC Honorarium Coop, 9/2020 – 12/2020

- Ziniu Chen, SFU ENSC Honorarium Coop, 5/2020 – 7/2020
  First position: MASc student at Hong Kong University of Science and Technology

Graduate Supervisory/Exam Committee Member (23)

PhD student committee member at SFU (9)

- Supervisor, Binglin Li, Prof. Jie Liang's student, 8/2019 - 12/2022, defended 12/2022
- Supervisor, Eric Matthews, Prof. Lesley Shannon's student, 11/2018 - 8/2021, defended 8/2021, **publication:** [J7, C14]
- Supervisor, Naveen Vedula (CS), Prof. Arrvindh Shriraman's student, 1/2020 - 8/2021, defended 8/2021
- Internal Examiner, Maryamsadat Rasoulidanesh, Prof. Shahram Payandeh's student, defended 8/2021
- Internal Examiner, Amirali Sharifian (CS), Prof. Arrvindh Shriraman's student, defended 7/2020
- Chair, Nastaran Hajinazar (CS), Prof. Arrvindh Shriraman's student, defended 6/2021
- Chair, Mohammad Akbari, Prof. Jie Liang's student, defended 7/2020
- Chair, Saad Mahboob, Prof. Rodney Vaughan's student, defended 12/2019
- Chair, Careesa Liu, Prof. Ryan D'Arcy's student, defended 11/2019

MASc student (thesis-based) committee member at SFU (12)

- Committee Member, Cyrus Chan, Prof. Jie Liang's student, 8/2020 - present
- Committee Member, Soroush Oraki, Prof. Jie Liang's student, 8/2022 - present
- Committee Member, Ehsan Mahoor, Prof. Jie Liang's student, 9/2019 - 4/2023, defended 4/2023
- Supervisor, Yuhui Gao, Prof. Lesley Shannon's student, 9/2019 - 12/2022, defended 12/2022
- Supervisor, Graham Holland, Prof. Lesley Shannon's student, 4/2019 - 12/2019, defended 12/2019
- Examiner, Yonas Kelemework (CS), Prof. Alaa Alameldeen's student, defended 8/2023
- Examiner, Parker Tian (CS), Prof. Alaa Alameldeen's student, defended 8/2023
- Examiner, Milad Hakimi (CS), Prof. Arrvindh Shriraman's student, defended 6/2022
- Examiner, Parmida Vahdatniya (CS), Prof. Arrvindh Shriraman's student, defended 4/2022
- Examiner, Ali Sedaghati (CS), Prof. Arrvindh Shriraman's student, defended 3/2022
- Internal Examiner, Srishti Yadav, Prof. Shahram Payandeh's student, defended 2/2021
- Chair, Ana Gonzalez Rios, Prof. Ljiljana Trajkovic's student, defended 8/2022

PhD student committee member outside SFU (2)

- Committee Member, Sung-En Chang, Prof. Yanzhi Wang's student, Northeastern University, US, 1/2021 - present, **publication:** [C30, C28, C23]
- Committee Member, Zhengang Li, Prof. Yanzhi Wang's student, Northeastern University, US, 1/2021 - present, **publication:** [C30, C29, C25, C23]

Professional Services

Summary: Very active services at SFU, conference organizing and program committee (two program chairs), journal editing and review, and grant review.

University Services at SFU

- Open Science Principles Drafting Committee Member, SFU, 2023-2024

- **Computer Option Head**, School of Engineering Science, SFU, 2021-present
- Research Space Committee Member, School of Engineering Science, SFU, 2022-present
- Tenure and Promotion Committee Member, School of Engineering Science, SFU, 2023-2024
- Undergraduate Curriculum Committee Member, School of Engineering Science, SFU, 2023-2024
- Electronics & Computer Engineering Faculty Search Committee Member, School of Engineering Science, SFU, 2023-2024
- Tenure and Promotion Committee (External) Member, School of Computing Science, SFU, 2022-2023
- School Director Search Committee Member, School of Engineering Science, SFU, 2021-2022
- Graduate Program Committee Member, School of Engineering Science, SFU, 2020-2021
- Tenure and Promotion Committee Member, School of Engineering Science, SFU, 2020-2021
- School Strategic Vision Committee Member, School of Engineering Science, SFU, 2020-2021
- Computer Engineering Faculty Search Committee Member, School of Engineering Science, SFU, 2020
- Invited Faculty Member, SFU Burnaby FAS Conversion Event for Grade 12 Students, Faculty of Applied Science (FAS), SFU, 2020
- White Paper Reviewer, Westcoast Women in Engineering, Science and Technology (WWEST), SFU, 2020

Conference and Workshop Organizing Committee Member

- **Program Chair**, 31st Reconfigurable Architectures Workshop (RAW 2024)
- **Program Co-Chair**, Computers Track, 18th IEEE Biennial Pacific Rim Conference on Communications, Computers and Signal Processings (PacRim 2024)
- Publicity Chair, 20th Applied Reconfigurable Computing (ARC 2024)
- **Organizing Chair**, Workshop on Research Open Automatic Design for Neural Networks (ROAD4NN 2020-2023), co-located with Design Automation Conference (DAC 2020-2023)
- Demo Night Co-Chair, The 31th IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM 2023)
- Organizing Committee Member, 1st Languages, Architectures, and Tools for Heterogeneous Computing Workshop (LATHC 2023), co-located with IEEE/ACM International Symposium on Code Generation and Optimization 2023 (CGO 2023)
- Publicity Chair, The 32nd International Conference on Field-Programmable Logic and Applications (FPL 2022)
- Workshop Chair and Travel Awards Chair, The 30th IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM 2022)
- Special Session Chair, The 32th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2021)
- Finance and Publicity Co-Chair, 2020 IEEE International Symposium on Workload Characterization (IISWC 2020)
- Travel Grant Committee Member, The 28th ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (FPGA 2020)
- Publicity Chair (and Publication Chair), The 30th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2019)
- Organizing Chair, International Workshop on Reconfigurable Acceleration in Datacenters (ReconfigAccel 2018), In conjunction with the 32nd ACM International Conference on Supercomputing (ICS 2018)

- Sponsor Co-Chair, The 32nd ACM International Conference on Supercomputing (ICS 2018)
- Registration & Travel Awards Chair, The 23rd IEEE Symposium on High Performance Computer Architecture (HPCA 2017)
- Poster Session Chair, Center for Domain-Specific Computing 2014 Annual Review, 2015 Semi-Annual Review, 2015 Annual Review, and 2017 Semi-Annual Review

Conference Technical Program Committee Member

- ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (FPGA), 2020-2024
- IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM), 2022-2023
- International Conference on Field-Programmable Logic and Applications (FPL), 2022-2023
- International Conference on Field Programmable Technology (FPT), 2021-2023
- Design Automation Conference (DAC), 2021-2024
- Design Automation and Test in Europe (DATE), 2018-2022, 2024
- IEEE International Conference on Computer Design (ICCD), 2017, 2021
- IEEE International Symposium on High Performance Computer Architecture (HPCA), 2023
- IEEE/ACM International Symposium on Microarchitecture (MICRO), 2022
- International Parallel and Distributed Processing Symposium (IPDPS), 2021
- IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP), 2019-2021
- ACM SIGPLAN/SIGBED International Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES), 2020
- Annual Conference of Advanced Computer Architecture (ACA), 2020
- International Symposium on Advanced Parallel Processing Technologies (APPT), 2019
- IEEE International Symposium on Workload Characterization (IISWC), 2017

Conference External Review Committee Member

- International Symposium on Computer Architecture (ISCA), 2021-2023
- IEEE/ACM International Symposium on Microarchitecture (MICRO), 2021, 2023

Journal Editing

- TODAES Co-Guest Editor, ACM Transactions on Design Automation of Electronic Systems (TODAES) Special Issue on High-Level Synthesis for FPGA: Next-Generation Technologies and Applications, 2021.
- JSPS Co-Guest Editor, Springer Journal of Signal Processing Systems (JSPS) Special Issue on ASAP 2019 (Application-specific Systems, Architectures and Processors), 2019.

Journal Reviewer

- Program Committee Member, IEEE Transactions on Parallel and Distributed System (TPDS)'s Special Section on "Parallel and Distributed Computing Techniques for AI, ML and DL", 2020
- IEEE Transactions on Artificial Intelligence (TAI), 2023
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2017
- IEEE Access, 2016, 2018-2021
- IEEE Transactions on Biomedical Circuits and Systems (TBioCAS), 2016-2019
- IEEE Transactions on Circuits and Systems II (TCAS-II), 2018, 2022
- IEEE Transactions on Computers (TC), 2016-2017, 2019-2021

- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2018-2023
- IEEE Micro, 2018, 2020-2021
- IEEE Transactions on Very Large Scale Integration Systems (VLSI), 2017
- IEEE Computer Architecture letters (CAL), 2016-2017
- IEEE Transactions on Multi-Scale Computing Systems (TMSCS), 2018
- ACM Computing Surveys (CUSR), 2020
- ACM Transactions on Programming Languages and Systems (TOPLAS), 2016-2017
- ACM Transactions on Embedded Computing Systems (TECS), 2019
- ACM Transactions on Reconfigurable Technology and Systems (TRETS), 2019, 2022-2023
- ACM Transactions on Architecture and Code Optimization (TACO), 2016-2017, 2020
- ACM Journal on Emerging Technologies in Computing Systems (JETC), 2016-2017
- ACM Transactions on Cyber-Physical Systems (TCPS), 2020
- Elsevier Journal of Simulation Modelling Practice and Theory (SIMPAT), 2019
- Elsevier Journal of Parallel and Distributed Computing (JPDC), 2016-2018
- Elsevier Journal of Parallel Computing (ParCo), 2015
- Elsevier Microprocessors and Microsystems (MICPRO), 2017-2019
- Integration, the Elsevier VLSI Journal (INTEGRATION), 2016-2019
- Concurrency and Computation: Practice and Experience (CPE), 2019
- Journal of Universal Computer Science (J.UCS), 2017

Grant Reviewer

- NSERC (Natural Sciences and Engineering Research Council of Canada) Discovery Grant Review, 2018, 2020-2023
- NSERC (Natural Sciences and Engineering Research Council of Canada) Idea to Innovation Grant Review, 2023
- US Department of Energy Office of Science Microelectronics Research Proposal Review, 2021
- Swiss National Science Foundation Grant Review, 2023
- Israel Science Foundation Personal Research Grants Review, 2022, 2023
- Mitacs (Mathematics of Information Technology and Complex Systems, Canada) Accelerate Grant Review, 2022