

Princeton University
Department of Electrical and Computer Engineering

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41 Olden St
Princeton, NJ 08544

Education

Princeton University

Aug. 2020 - Present

Ph.D., Electrical and Computer Engineering

M.A., Electrical and Computer Engineering

May 2022

Advisor: Prof. David Wentzlaff

Duke University

May 2020

B.S.E., Electrical and Computer Engineering

B.S., Computer Science

Magna Cum Laude, Graduated with ECE Distinction

Advisor: Prof. Krishnendu Chakrabarty

Research

Research Interests: Computer Architecture, Chip Architecture Future Trends, Semiconductor Supply Chains, Semiconductor Design and Tapeout

AMD Research

May 2023 - Aug. 2023

Research Intern - Bellevue, WA

CPU/GPU profiling and optimization for large language model workloads

Princeton Parallel Group

Jan. 2021 - Present

Chakrabarty Lab

Aug. 2018 - May 2020

VLSI testing for deep learning hardware and Carbon Nanotube FETs

Undergrad Thesis: Automating Path Generation for Variation-Aware Delay Fault Testing

TU Dortmund Department of High Voltage Technology

May 2018 - Aug. 2018

Advisor: Prof. Frank Jenau

High voltage cable technologies and measurement systems

Supported by DAAD RISE Germany Scholarship

Publications

6. A. Li, T.-J. Chang, F. Gao, T. Ta, G. Tziantzioulis, Y. Ou, M. Wang, J. Tu, K. Xu, P. Jackson, **A. Ning**, G. Chirkov, M. Orenes-Vera, S. Agwa, X. Yan, E. Tang, J. Balkind, C. Batten, and D. Wentzlaff. Cifer: A cache-coherent 12nm 16mm² SoC with four 64-bit RISC-V application cores, 18 32-bit RISC-V compute cores, and a 1541 LUT6/mm² synthesizable eFPGA. *IEEE Solid-State Circuits Letters*, 2023
5. **A. Ning**, G. Tziantzioulis, and D. Wentzlaff. Supply chain aware computer architecture. In *Proceedings of the 50th Annual International Symposium on Computer Architecture (ISCA)*, 2023
4. T.-J. Chang*, A. Li*, F. Gao, T. Ta, G. Tziantzioulis, Y. Ou, M. Wang, J. Tu, K. Xu, P. J. Jackson, **A. Ning**, G. Chirkov, M. Orenes-Vera, S. Agwa, X. Yan, E. Tang, J. Balkind, C. Batten, and D. Wentzlaff. CIFER: A 12nm, 16mm², 22-core SoC with a 1541 LUT6/mm², 1.92 MOPS/LUT, fully synthesizable, cache-coherent, embedded FPGA. In *2023 IEEE Custom Integrated Circuits Conference (CICC)*, 2023

3. F. Gao, T.-J. Chang, A. Li, M. Orenes-Vera, D. Giri, P. Jackson, **A. Ning**, G. Tziantzioulis, J. Zuckerman, J. Tu, K. Xu, G. Chirkov, G. Tombesi, J. Balkind, M. Martonosi, L. Carloni, and D. Wentzlaff. DECADES: A 67mm², 1.46TOPS, 55 giga cache-coherent 64-bit RISC-V instructions per second, heterogeneous manycore SoC with 109 tiles including accelerators, intelligent storage, and eFPGA in 12nm FinFET. In *2023 IEEE Custom Integrated Circuits Conference (CICC)*, 2023
2. A. Li, **A. Ning**, and D. Wentzlaff. Duet: Creating harmony between processors and embedded FPGAs. In *2023 IEEE International Symposium on High-Performance Computer Architecture (HPCA)*, 2023
1. S. Banerjee, A. Chaudhuri, **A. Ning**, and K. Chakrabarty. Variation-aware delay fault testing for carbon-nanotube FET circuits. *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, 29(2):409–422, 2021

Workshop Presentations

2. **A. Ning** and D. Wentzlaff. Computer architectures for chip surplus. *ACM Student Research Competition at MICRO 2022*, 2022
1. **A. Ning**, G. Tziantzioulis, and D. Wentzlaff. Supply chain aware chip architecture. *The Fourth Young Architect Workshop at ASPLOS 2022*, 2022

Talks

AMD Research - "Supply Chain Aware Computer Architecture"	2023
Princeton Graduate Fellowship Panel, Panelist	2022
Princeton EGR 152 - "Spotlight on Engineering"	2022

Teaching

Princeton

Graduate Teaching Assistant - grading, office hours, recitations	
ECE/COS 475/575: Computer Architecture	Spring 2022
Prof. David Wentzlaff	

Duke

Undergraduate Teaching Assistant - grading, office hours, lab instruction	
ECE 110: Fundamentals of ECE	Fall 2018, Spring 2018, 2019, 2020
Prof. Stacy Tantum	
ECE 230: Microelectronic Devices and Circuits	Fall 2018
Prof. Aaron Franklin	
ECE 350: Digital Systems	Fall 2019, Spring 2019, 2020
Prof. Rabih Younes, Prof. John Board	

Non Research Experience

Microsoft

May 2020 - Aug. 2020

Software Engineering Intern – Redmond, WA (Remote)
 Azure hardware acceleration. Project implemented in C/C++

Burns & McDonnell

May 2019 - Aug. 2019

Electrical Engineering Summer Analyst – Chicago, IL
 Substation design (physical and wiring diagrams) contracts for ComEd and LGE-KU

Professional and Academic Service

ISCA 2023 - Undergrad Architecture Mentoring (uArch) Workshop Mentor	Jun. 2023
ASPLOS 2023 Social Co-Chair	Apr. 2023

Computer Architecture Student Association (CASA) Steering Committee	Aug. 2022 - Present
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Princeton

Whitman College - Resident Graduate Student	Aug. 2023 - Present
Princeton ACM - Graduate Student Liaison	Jan. 2023 - Present
ECE Department Graduate Committee	Aug. 2022 - Present
Princeton-Intel REU Program - Graduate Research Mentor	Jun. 2022 - Jul. 2022
Princeton Graduate Student Government	Jan. 2021 - Present
GSG Social Committee Member	
Electrical and Computer Engineering Assembly Representative	

Duke

Duke IEEE – Student Branch	Aug. 2016 - May 2020
Vice President (2017) and President (2018-2020)	
Tau Beta Pi (NC Gamma) - Treasurer	May 2019 - May 2020
Engineering World Health Tanzania - Volunteer BMET	May 2017 - Aug. 2017

Honors

Princeton - ECE Graduate Student Award for Excellence in Service	2023
Princeton - Gordon Y. S. Wu Fellowship	2020
National Science Foundation – Graduate Research Fellowship	2020
Otto Meier Jr. Tau Beta Pi Award	2020
Chief Student Marshal	2019
IEEE Eta Kappa Nu	2019
Tau Beta Pi	2019
DAAD RISE Germany Scholarship	2018
Bingle Family Scholarship	2017
Travel Grants: ASPLOS 2022 (YArch), MICRO 2022 (SRC), HPCA 2023, ASPLOS 2023, ISCA 2023	

Miscellaneous

Languages: Fluent in English, Mandarin Chinese, proficient in German, Spanish, Swahili
Hobbies: House Plants, Gardening, Day Hiking, Cooking
Nationality: USA

Last updated: 02 October 2023