Tianyun Zhang

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EDUCATION

Carnegie Mellon University **Aug 2023 - Present**
Ph.D. Electrical and Computer Engineering

University of Illinois at Urbana-Champaign **Aug 2020 - May 2023**
B.S. Computer Science + Economics, minors in Applied Statistics, Mathematics GPA: 3.95/4.00

Relevant Coursework: Advanced Topics in Computer Architecture, Computer System Organization, System Programming, Algorithms & Models of Computation, Data Structures, Software Design Studio, Artificial Intelligence, Econometrics of Policy Evaluation

RESEARCH INTERESTS

Investigations into designing programming applications for novel computer architectures and making data-centric hardware architectures more accessible to software engineers.

RESEARCH EXPERIENCE

Carnegie Mellon University **Aug 2023 - Present**
Advisor: Prof. Franz Franchetti
Graduate Research Assistant

- Researching computer architecture and systems

ARCANA Research Group at University of Illinois **Jan 2022 - May 2023**
Advisor: Prof. Saugata Ghose
Undergraduate Researcher

- Researching programming models for applications of processing-in-memory (PIM)
- Exploring applications of the MapReduce algorithm on processing-using-memory architectures—specifically, PageRank, word count, etc. on RACER, a bit-pipelined ReRAM chip

Gies College of Business at University of Illinois **June 2021 - May 2022**
Advisor: Prof. June-Young Kim
Research Assistant

- Automated collection and cleaning of financial transcript data using Python
- Analyzed text to interpret impact of transcript sentiment on company performance

PROFESSIONAL EXPERIENCE

KQ Capital **June 2023 - Aug 2023**
Venture Capital Intern

- Performed market research and analysis to assess potential investments within the computer hardware industry
- Screened and evaluated startup pitches, providing specialized insights into their technical innovations and market potential

Amazon **May 2022 - Aug 2022**
Software Development Engineer Intern

- Processed data and built interface of seller product applications for internal customers
- Accomplished technical stack migration to centralize rendering logic and decrease build time from minutes to seconds

BP **June 2021 - Dec 2021**
Digital Security AI Developer Intern

- Designed and developed remote access virtual assistant to monitor remote access usage to automation systems and identify ways to improve the service
- Worked with Process Control Network (PCN) architecture using Azure DevOps CI/CD pipeline

LEADERSHIP AND TEACHING

Women in CyberSecurity (WiCyS) at Illinois **Sept 2020 - May 2023**
President *Jul 2022 - May 2023*

- Coordinating activities of the leadership team, university faculty and admin, and national WiCyS members to accomplish organization-wide initiatives

Vice President *Aug 2021 - Jul 2022*

- Established communication with 10+ companies and obtained WiCyS's first sponsorship funding from industry
- Organized technical workshop collaborations with corporate sponsors (e.g. reverse engineering and security trends) drawing over 60 members in attendance

Leadership and Teaching Ctd.

Technical Chair *Sept 2020 - Aug 2021*

- Planned and presented bi-monthly technical workshops for members, e.g. workshops introducing command line security challenges, cryptography, steganography
- Managed team creating top-down 2D game with JavaScript to teach K-12 students security

CS 433 Computer System Organization Staff **Jan 2023 - Present**

Course Grader

- Aided development of homework and exam questions testing conceptual understanding of computer architecture
- Designed grading rubrics and prepared personalized feedback on assignments

CS 196 Freshman Honors Staff **Jan 2021 - Dec 2021**

Project Manager

- Led 3 teams of 5 students on stock trend analysis, scheduling, and music preference web apps
- Created coding tutorials and weekly workstreams for team under scrum-based agile framework

CS 125 Introduction to Computer Science Staff **Jan 2021 - May 2021**

Course Assistant

- Mentored students with daily Java coding homework and machine projects during office hours
- Narrated discussion-style lesson content walk-throughs

Illinois Business Consulting **Sept 2020 - May 2021**

Consultant

- Collaborated with team of 9 consultants to advise insurance agency about improving risk aggregation assessment and modeling data representation
- Researched and identified advantageous statistical and machine learning models to provide client with new direction in future risk analysis
- Created innovative Blender animations to symbolically visualize risk
- Developed weekly PowerPoint presentations to communicate cohesive information to client

Projects

Memory Specialization for Extended Reality **May 2023**

- Analyzed memory access patterns of the main computations in extended reality components from the ILLIXR testbench

Aural Trainer **April 2021**

- Interactive ear trainer in C++ with a randomly generated sequence of melodic/harmonic intervals aimed to help students practice for music performance aural exams

Skills

Programming Languages: C++, C, Python, Java, Bash, C#, Kotlin, R, TypeScript
Graphics and Audio: Premiere Pro, After Effects, DaVinci Resolve, Audition, Audacity, Blender
Languages: English (Native), Chinese (Native), French (Intermediate), German (Beginner)

Honors

Carnegie Institute of Technology Dean's Fellow (CMU) (2023)
Procter & Gamble Excellence in Leadership Award (2023)
Women in CyberSecurity Conference Scholarship (2021, 2022)
JP Morgan Chase Women in Computer Science Scholarship (2021)
Gold Medalist, The National French Contest (2020)
Violin Distinction, Associated Board of the Royal Schools of Music (2018)

Affiliated Organizations

Member (Former Student Chapter President), Women in CyberSecurity (WiCyS)
Member, Association for Computing Machinery (ACM) SIGARCH
Member, Society of Women Engineers (SWE)
Member, The Econometric Society
Member, Phi Beta Kappa Society