

# Zixuan Wang

Ph.D. Candidate  
University of California, San Diego

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## EDUCATION

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- **University of California, San Diego** San Diego, CA, US  
*Ph.D. candidate in Computer Science and Engineering; GPA: 3.875* Sep. 2018 – Present
- **Zhejiang University** Hangzhou, China  
*BS in Computer Science; GPA: 3.83; Third year GPA: 3.93* Sep. 2014 – July. 2018

## EXPERIENCE

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- **Graduate Research Assistant, STABLE Lab & NVSL Lab** UC San Diego  
*Computer architecture and system research.* Sep. 2018 – Present
- **Software Engineering Intern** GCP, Google  
*Upcoming internship.* Jun. 2023 – Sep. 2023
- **Part-Time Student Researcher** Network Infra, Meta  
*Deploy the AMD SEV platform.* Sep. 2022 – Jan. 2023
- **Software Engineering Intern** Network Infra, Meta  
*Initiated and developed the AMD SEV platform.* Jun. 2022 – Sep. 2022
- **Software Engineering Intern** GCP, Google  
*Developed KVM testing with AMD SEV VM supports.* Jun. 2021 – Sep. 2021
- **Research Intern** SOLAB, SK Hynix  
*Evaluated GEN-Z and CXL memory prototype, part of our HPCA 2022 paper.* Jun. 2019 – Sep. 2019
- **Undergraduate Research Assistant, Computer Architecture Lab** Zhejiang University  
*Operating system and architecture research.* Sep. 2015 – Jun. 2018

## PUBLICATIONS

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### Conference & Journal

- **NVLeak: Off-Chip Side-Channel Attacks via Non-Volatile Memory Systems**  
*Zixuan Wang, Mohammadkazem Taram, Daniel Moghimi, Steven Swanson, Dean Tullsen, Jishen Zhao* *USENIX Security, 2023*
- **Enabling Efficient Large-Scale Deep Learning Training with Cache Coherent Disaggregated Memory Systems**  
*Zixuan Wang, Joonseop Sim, Euicheol Lim, Jishen Zhao* *HPCA, 2022*
- **Characterizing and Modeling Non-Volatile Memory Systems**  
*Zixuan Wang, Xiao Liu, Jian Yang, Theodore Michailidis, Steven Swanson, Jishen Zhao* *IEEE Micro Top Picks, 2021*
- **Ayudante: A Deep Reinforcement Learning Approach to Assist Persistent Memory Programming**  
*Hanxian Huang, Zixuan Wang, Juno Kim, Steven Swanson, Jishen Zhao* *USENIX ATC, 2021*
- **Characterizing and Modeling Non-Volatile Memory Systems**  
*Zixuan Wang, Xiao Liu, Jian Yang, Theodore Michailidis, Steven Swanson, Jishen Zhao* *MICRO, 2020*

### Preprint & Workshop

- **Characterizing WebAssembly Performance in the Era of Serverless Computing**  
*Jamshed Ashurov, Zixuan Wang, Jishen Zhao* *ISSTA SRC, 2023*
- **COLA: Characterizing and Optimizing the Tail Latency for Safe Level-4 Autonomous Vehicle Systems**  
*Haolan Liu, Zixuan Wang, Jishen Zhao* *ArXiv, 2023*
- **Enabling Fast Recovery for Autonomous Vehicle Systems with Linux Container Checkpointing**  
*Maximilian Apodaca, Shengye Wang, Zixuan Wang, Jishen Zhao* *SOSP SRC, 2021*
- **Basic Performance Measurements of the Intel Optane DC Persistent Memory Module**  
*Joseph Izraelevitz, Jian Yang, Lu Zhang, Juno Kim, Xiao Liu, Amirsaman Memaripour, Yun Joon Soh, Zixuan Wang, Yi Xu, Subramanya R. Dulloor, Jishen Zhao, Steven Swanson* *ArXiv, 2019*
- **Reliable and Flexible Large Scale Memory Network**  
*Zixuan Wang, Xiao Liu, Jongryool Kim, Hokyoon Lee, Jishen Zhao* *NVMW, 2019*

## SERVICES

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- **Organizing Committee** Students@Systems  
*I'm one of the founders and organizers of Students@Systems: students-at-systems.org* Jan. 2022 – Present
- **Submission Chair** MICRO 2021  
*I served as a submission chair, part of the MICRO 2021 organizing committee.* Mar. 2021 – Jun. 2021

## MENTORSHIP

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- **Jamshed Ashurov (Undergrad → Master)** UC San Diego  
*WebAssembly system interface characterization, published on ISSTA'23 SRC.* 2022 – Present
- **Haolan Liu (PhD Student)** UC San Diego  
*Characterizing autonomous vehicle system, under submission.* 2022 – Present
- **Maximilian Apodaca (Undergrad)** UC San Diego  
*Container checkpointing, published on SOSPP'23 SRC.* 2020 – 2021
- **Hanxian Huang (PhD Student)** UC San Diego  
*Generative AI for programming, published on USENIX ATC'21.* 2020 – 2021

## TEACHING

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- **TA of CSE141: Introduction to Computer Architecture** University of California, San Diego  
*Undergrad level computer arch course.* Jan. 2022 – Mar. 2022
- **TA of Hardware-Based Computer System Design** Zhejiang University  
*Guided students to develop their own SoC (on FPGA) to run their OS.* Mar. 2018 – Jun. 2018
- **TA of Operating System Course** Zhejiang University  
*Guided students to develop their own OS.* Sep. 2017 – Feb. 2018

## INVITED TALKS

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- **NVLeak: Off-Chip Side-Channel Attacks via Non-Volatile Memory Systems**  
*USENIX Security'23, NVMW'23*
- **Enabling Efficient Large-Scale Deep Learning Training with Cache Coherent Disaggregated Memory Systems**  
*HPCA'22, SK hynix Inc., Micron Inc., Higgs Co., Alibaba Inc., Intel Co., FoMR, IBM Research*
- **Characterizing and Modeling Non-Volatile Memory Systems**  
*MICRO'20, TECHCON'20, NVMW'21, FoMR*

## HONORS & AWARDS

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- **IEEE Micro TopPicks:** Annually awarded to 12 best papers in computer architecture area, 2021 IEEE
- **Google Peer Bonus:** Awarded two peer bonuses recognizing my solid internship project, 2021 Google
- **Outstanding Undergraduate Dissertation:** Outstanding undergraduate dissertation, 2018 Zhejiang University
- **He-Zhi-Jun Scholarship:** Top 10 outstanding students of computer science department, 2017 Zhejiang University
- **Outstanding Prize:** Challenge Cup, National Undergraduate Curricular Academic Science and Technology Works Competition, 2017 Zhejiang Province China
- **Award for Academic Excellence:** Top 1% of computer science students in academic achievements, 2017 Zhejiang University
- **2nd-Class Scholarship:** Top 10% of students in the computer science department
- **Second Prize:** Diligent Design Contest, 2017 China
- **Third Prize:** Advanced Computer Architecture Undergraduate Innovation Competition, 2016 CCF China

## PROJECTS

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- **AMD SEV-SNP SVSM in Google Cloud** Sept, 2023  
*Initiat the SVSM support to enhance Google Cloud's confidential virtual machines.*
  - I build the initial SVSM support in GCP's Linux kernel, hypervisor, guest firmware, and guest kernel.
- **Confidential Virtual Machine Platform** Sept, 2022  
*Initiat and develop the first confidential VM platform at Meta, highlighted at Meta's Annual Security Summit.*
  - I build the software and operating system support for the first CVM platform at Meta.
- **KVM-Unit-Tests under UEFI and AMD SEV/SEV-ES** Sept, 2021  
*Implement UEFI and AMD SEV/SEV-ES support in KVM-Unit-Tests, patches merged to upstream Linux KVM.*
  - We are the first to implement UEFI and AMD SEV/SEV-ES in the KVM testing framework.
  - It serves as a solid foundation for the future development of trusted execution in KVM.
  - I received two Google peer bonuses recognizing my solid work during this internship.