ALAN WANG

E-mail: wangalan@berkeley.edu Website: https://urd00m.github.io

EXPERIENCE:

Research Assistant @ University of California, Berkeley **August 2025 – Current**
- Researching practical mobile microarchitectural attacks (recent work: https://www.pixnapping.com)
- Analyzing the Linux kernel and exploiting it using microarchitectural side channel attacks

Software Developer Intern @ Jane Street **May – August 2024**
- Worked with billions of trade orders submitted to the SEC
- Improved the efficiency and utilization of server's used by the entire firm

Computer Science Intern @ D. E. Shaw Research **May – August 2023**
- Researched docking and non-equilibrium FE calculation methods
- Wrote system software which ran thousands of simulations on Anton3 ASICs and achieved a 2.5x performance improvement

Research Assistant @ FPSG Lab **September 2021 – May 2025**
- Explored new microarchitectural side channel attacks, resulting in attacks exploiting mobile phones and the Linux kernel
- Reverse engineered microarchitectural structures to determine their semantics
- Modelled non-speculative information flow to decrease mitigation overhead by up to 21%

Research Aide @ Argonne National Lab **May 2022 – May 2023**
- Worked with NVIDIA's Bluefield-3 Data Processing Unit (DPU) for zero trust network architectures
- Found critical errors by instrumenting Portable Batch System (PBS) for Argonne's extreme scale systems
- Developed and programmed a command line interface for Argonne's UserBase3 and used by all Argonne admins
- Designed and collected data for a Python concurrency research project for the Operations division director

Visiting Student @ Argonne National Lab **Feb – May 2022**
- Led the design of a ROS2 interface for Argonne's self-driving lab
- Built key infrastructure for Argonne's self-driving lab

Undergraduate Research Assistant @ Northwestern University **Feb 2021 – June 2022**
- Researched the vulnerability INTEL-SA-00086 to gain access to Intel's most secure piece of hardware (microcode project)
- Worked on the FPVM project led by Professor Peter Dinda

DoE College Bound Research Intern (CBRP) @ Argonne National Lab **June – August 2021**
- Started the design of a ROS2 interface for Argonne's self-driving lab
- Created important building blocks for future work in Argonne's self-driving lab

SEAP Intern @ Office of Naval Research **June – August of 2019 and 2020**
- Led the development of autonomous bomb-defusing robots
- Repaired a variety of programming errors related to navigation, object recognition, and arm manipulation

PUBLICATIONS:

- **[Redacted]**, *planned for submission to computer security conference*
- **Pixnapping: Bringing Pixel Stealing out of the Stone Age**, first author, *ACM CCS '25,* https://www.pixnapping.com
- **EMT: An OS Framework for New Memory Translation Architectures**, *OSDI '25*
- **Peek-a-Walk: Leaking Secrets via Page Walk Side Channels**, first author, *IEEE S&P (Oakland) '25*
- **Declassiflow: A static analysis for modeling non-speculative knowledge to relax speculative execution security measures**, second author, *ACM CCS '23*
- **Mars Ice Thermal Harvesting Rig & ISRU Laboratory (MITHRIL)**, *ASCEND '22*

ACHIEVEMENTS:

- **NSF GRFP Honorable Mention**, NSF, 2025
- **Bronze Tablet Scholar Award**, UIUC, 2025
- **Siebel Scholar Award**, 2025
- **Dean's List**, UIUC's Grainger College, 2021-2023
- **2nd Place Overall**, NASA RASC-AL competition, 2022

EDUCATION:

PhD in Computer Science, University of California, Berkeley **2025-2030**
- **GPA:** N/A **Advisor:** Professor Christopher Fletcher

BSMS in Computer Science, University of Illinois at Urbana-Champaign **2021-2025**
- **GPA:** 4.0 **Advisor:** Professor Christopher Fletcher

COMMUNITY SERVICE:

- Taught a free month-long Java course to over 100 K-12 students in the Chicagoland area, June 2020
- Taught a free month-long competitive programming course to 30 K-12 students in the Chicagoland area, Jan 2021
- ACM Mentor – Helping incoming freshman transition to college life, June 2022 – May 2025