ALAN WANG

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EXPERIENCE:

CS Intern @ D. E. Shaw Research **May 2023 – August 2023**
- Researching docking and non-equilibrium FE calculation methods
- Writing system software to run thousands of simulations on Anton3 ASICs
- Writing embedded code that achieves 2.5x speedup on docking simulations

Undergraduate Research Assistant @ UIUC's FPSG Lab **September 2022 – Current**
- Creating a new dataflow analysis to determine non-speculative information flow in program code
- Improving Speculative Load Hardening (SLH) performance using new LLVM analysis data
- Developing new code transformations to improve dataflow results

Part-Time Research Aide @ Argonne National Lab **August 2022 – May 2023**
- Working with NVIDIA's Bluefield-3 Data Processing Unit (DPU) for zero trust network architectures
- Penetration testing various applications to help improve cybersecurity at Argonne
- Finding critical errors by instrumenting Portable Batch System (PBS) for Argonne's extreme scale systems

Full-Time Research Aide @ Argonne National Lab **May 2022 – August 2022**
- 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 2022 – 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

Science and Engineering Apprenticeship Program (SEAP) Intern **June – August of 2019, 2020**
- Led the development of autonomous bomb-defusing robots
- Repaired a variety of programming errors related to navigation, object recognition, and arm manipulation

PUBLICATIONS:

- Declassiflow, **ACM CCS '23**
- Mars Ice Thermal Harvesting Rig & ISRU Laboratory (MITHRIL), **ASCEND '22**

ACHIEVEMENTS:

- **Dean's List:** UIUC's Grainger College, 2021 – Current
- **2nd Place Overall:** NASA RASC-AL 2022 (published ASCEND '22)
- **Gold Level**: USA Computing Olympiad (USACO)
- **Round 2 qualifier**: Google Codejam coding competition

SKILLS:

- **Programming:** C/C++, Python, Bash, Java, x86-64, CUDA, LLVM, Verilog, Tensorflow/Pytorch
- **Operating System:** Unix/Linux, ROS 1 & 2, Windows, OS X
- **Software:** Git, Debugging, Software Development, Algorithms, Research

EDUCATION:

BS in Computer Science, University of Illinois at Urbana-Champaign **2021-2025**
- **GPA:** 4.0
- **Activities:** ACM, Intramural Soccer, Swim Coordinator for Triathlon club, and ISS RASC-AL member
- **Coursework:** Security, Advanced Security, Communication Networks, Algorithms & Computation, Parallel Computing, Systems Prog., Operating Systems, System Organization, Architecture, Software Design, Probability & Stats, Numerical Methods, Data Structures, Discrete Structures, Physics, Electronics, Calculus, and Linear Algebra.

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