

# ALAN WANG

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## EXPERIENCE:

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| <b>CS Intern @ D. E. Shaw Research</b>   | <b>May 2023 – August 2023</b>      |
| <ul style="list-style-type: none"><li>• Researching docking and non-equilibrium FE calculation methods</li><li>• Writing system software to run thousands of simulations on Anton3 ASICs</li><li>• Writing embedded code that achieves 2.5x speedup on docking simulations</li></ul>   |                                    |
| <b>Undergraduate Research Assistant @ UIUC's FPSG Lab</b>  | <b>September 2022 – Current</b>    |
| <ul style="list-style-type: none"><li>• Creating a new dataflow analysis to determine non-speculative information flow in program code</li><li>• Improving Speculative Load Hardening (SLH) performance using new LLVM analysis data</li><li>• Developing new code transformations to improve dataflow results</li></ul>   |                                    |
| <b>Part-Time Research Aide @ Argonne National Lab</b>  | <b>August 2022 – May 2023</b>      |
| <ul style="list-style-type: none"><li>• Working with NVIDIA's Bluefield-3 Data Processing Unit (DPU) for zero trust network architectures</li><li>• Penetration testing various applications to help improve cybersecurity at Argonne</li><li>• Finding critical errors by instrumenting Portable Batch System (PBS) for Argonne's extreme scale systems</li></ul> |                                    |
| <b>Full-Time Research Aide @ Argonne National Lab</b>  | <b>May 2022 – August 2022</b>      |
| <ul style="list-style-type: none"><li>• Developed and programmed a command line interface for Argonne's UserBase3 and used by all Argonne admins</li><li>• Designed and collected data for a Python concurrency research project for the Operations division director</li></ul>  |                                    |
| <b>Visiting Student @ Argonne National Lab</b>   | <b>Feb 2022 – May 2022</b>         |
| <ul style="list-style-type: none"><li>• Led the design of a ROS2 interface for Argonne's self-driving lab</li><li>• Built key infrastructure for Argonne's self-driving lab</li></ul>  |                                    |
| <b>Undergraduate Research Assistant @ Northwestern University</b>  | <b>Feb 2021 – June 2022</b>        |
| <ul style="list-style-type: none"><li>• Researched the vulnerability INTEL-SA-00086 to gain access to Intel's most secure piece of hardware (microcode project)</li><li>• Worked on the FPVM project led by Professor Peter Dinda</li></ul>  |                                    |
| <b>DoE College Bound Research Intern (CBRP) @ Argonne National Lab</b>   | <b>June – August 2021</b>          |
| <ul style="list-style-type: none"><li>• Started the design of a ROS2 interface for Argonne's self-driving lab</li><li>• Created important building blocks for future work in Argonne's self-driving lab</li></ul>  |                                    |
| <b>Science and Engineering Apprenticeship Program (SEAP) Intern</b>  | <b>June – August of 2019, 2020</b> |
| <ul style="list-style-type: none"><li>• Led the development of autonomous bomb-defusing robots</li><li>• Repaired a variety of programming errors related to navigation, object recognition, and arm manipulation</li></ul>  |                                    |

## PUBLICATIONS:

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

## ACHIEVEMENTS:

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

## SKILLS:

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- **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:

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| <b>BS in Computer Science, University of Illinois at Urbana-Champaign</b>  | <b>2021-2025</b> |
| <ul style="list-style-type: none"><li>• <b>GPA:</b> 4.0</li><li>• <b>Activities:</b> ACM, Intramural Soccer, Swim Coordinator for Triathlon club, and ISS RASC-AL member</li><li>• <b>Coursework:</b> Security, Advanced Security, Communication Networks, Algorithms &amp; Computation, Parallel Computing, Systems Prog., Operating Systems, System Organization, Architecture, Software Design, Probability &amp; Stats, Numerical Methods, Data Structures, Discrete Structures, Physics, Electronics, Calculus, and Linear Algebra.</li></ul> |                  |

## COMMUNITY SERVICE:

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- 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