Ariel Uy

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EDUCATION

Carnegie Mellon University   **Pittsburgh, PA**
B.S. Mathematical Sciences and Computer Science   *May 2021*
Concentration in Discrete Math and Logic
University Honors and College Honors (GPA: 3.5/4.0)

Selected Coursework: Parallel Computer Architecture, Computer Systems, Algorithm Design & Analysis, Robot Kinematics & Dynamics, Programming Language Theory, Constructive Logic, Combinatorics

EXPERIENCE

Pure Storage   **Mountain View, CA**
Software Engineer (MTS III)   *Dec 2022 - present*
Software Engineer (MTS II)   *Sept 2021 - Nov 2022*
- Implemented C++ backend of ransomware protection feature to support storage volumes which use data replication
- Designed unit and functional test suites for auto-deployment of ransomware protection on customer installations
- Extended SSO feature to support generic identity providers, allowing customers to enable multi-factor authentication
- Mentored summer interns and new hires through onboarding process

IBM   **Austin, TX (Remote)**
Back End Software Developer Intern   *June - July 2020*
- Designed an error logging system in C for AIX operating system live update
- Created a log parsing tool in Python to determine the source of errors

Big Huge Games   **Timonium, MD**
Software Engineering Intern   *May - Aug 2019, May - June 2020*
- Wrote client and server-side code in C# for a mobile real-time strategy game using the Unity game engine
- Designed and implemented boundary line detection system, optimized it to redraw boundary lines in under 3 ms
- Reduced size of transmission to client by 1.4 kB per frame

Carnegie Mellon University   **Pittsburgh, PA**
Teaching Assistant for various Math and CS courses   *Aug 2019 - May 2021*
- Taught weekly recitation sessions of 30 students, and held office hours to assist students with homework
- Helped students to develop problem solving skills and write mathematically valid proofs

PROJECTS & PUBLICATIONS

Rust Compiler Lints   *May - July 2022*
- Contributed new lints and bug fixes to the Rust linter, `mismatching_type_param_order` and `obfuscated_if_else`

Parallel Tetrahedral Mesh Generation   *Dec 2020*
- Added parallelism to the triangle insertion section of the fast Tetrahedral Meshing Algorithm, using shared-memory parallelism on high-core CPU machines
- Tested various partitioning schemes experimentally and wrote a research paper analyzing the results

Galactic Gloves   *Jan 2019*
- Created a game with Arduino and Raspberry Pi, using motion and force sensors on the fingertips of a glove
- Wrote C++ code to take input from hardware, manage game states, and output to an LED display

The first digit of the discriminant of Eisenstein polynomials as an invariant of totally ramified extensions of p-adic fields   *June - July 2018*
- Contributed the main results and proofs, co-authored with Chad Awtrey et al.
- Published in *Involve, a Journal of Mathematics* 13-5 (2020), 747–758. DOI 10.2140/involve.2020.13.747.

SKILLS

- **Languages:** C++, C, Python, Rust, SML/Functional Programming, C#, x86 Assembly, Prolog
- **Tools & Technologies:** Git, Linux, Unity, MPI, CUDA
- **Interests:** Algorithms, Parallel Computing, Mathematics, Robotics, Type Theory, Game Development