William Wang

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Education

Cornell University June 2020 - May 2024
Bachelor's in Computer Science and Physics GPA: 4.12/4.3

- Computer Vision (Graduate)
- Machine Learning
- Compilers
- Data Structures and OOP
- Computer Architecture
- Functional Programming
- C++ Programming
- Real Analysis
- Quantum Mechanics

Skills

Languages: Kotlin, Python, Java, Swift, C, C++, OCaml, Fortran, Protobuf, Assembly, Javascript, HTML, CSS
Tools: NumPy, OpenCV, SciPy, PyTorch, MATLAB, Linux/Unix, Git, Firebase, LaTeX, CAD, Microsoft Office, Inkscape

Experience

Software Engineer Intern May 2022 - Aug 2022
Square/Block San Francisco, CA

- Developed production server-driven UI code (written in Kotlin) for Square Card management and onboarding applets.
- Created a new flow, on both backend and Android client, which added validations for sellers updating their addresses.
- Winner of the intern hackweek by designing and developing a solution to collaborative playlists on the TIDAL streaming app. Presented and pitched the proposal to core leads.
- Helped aggregate card spend data for visualizable graphs, which project was awarded "Most Innovative"

Undergraduate Researcher Feb 2021 - present
Cornell University - Cohen Laboratory Ithaca, NY

- Developed a modular protocol and computational models for simulating shear mechanics of biological tissues in Python
- Researched and implemented fast optimization algorithms to efficiently solve energy minimization landscapes (optimizing up to 10,000 parameters)
- Presented research to cross-disciplinary audiences at Cornell University and Rochester Institute of Technology

Research Assistant Jun 2019 - present
Laboratory for Laser Energetics Rochester, NY

- Developed Fortran simulations to simulate and optimize new case geometries (hohlraums) for laser-driven nuclear fusion.
- Designed a novel hohlraum geometry that achieves higher levels of uniformity than current designs, achieving simulated results of less than 1% nonuniformity.
- Presenter at the 62nd Annual Meetings of the APS Division of Plasma Physics (Session GO09).
- Published Wang et Craxton, 2020, *The Physics of Plasmas*

Teaching Assistant Aug 2021 - Dec 2021
Cornell University CIS Course Staff Ithaca, NY

- CS 2112: Honors Object Oriented Programming and Data Structures
- CS 3410: Computer System Organization and Programming
- Lead and facilitate lab and discussion sessions, hold weekly office hours, design and grade homework assignments.

Projects

Javalin Compiler (xic) | Kotlin
Worked in a team of four to create an optimizing compiler (from the ground up) that targets x86-64 assembly code for Xi, a procedural programming language. Awarded "Best Compiler" for fastest optimization and correctness of generated code.

Snake Gamebot | Python, Tensorflow
Wrote and trained (supervised learning) neural networks to play "Snake" using data collected and analyzed from previous player attempts, achieving performance similar to or better than.

Chess/Ultimate Tic-Tac-Toe | Kotlin
Over the period of two days, created both a custom chess engine and ultimate tic-tac-toe engine featuring an AI that performs alpha-beta pruning algorithms and a Monte-Carlo Search Tree that evaluates 30,000 entire games per second.

Simulating Evolving Artificial Life | Java, JavaFX
Created a system to simulate multiple critters, each defined by a unique program written in a custom context-free grammar, "critter-lang." Developed a recursive-descent parser, abstract syntax tree interpreter, and a concurrent GUI.