William Wang

williamywang.com | wyw6@cornell.edu | github.com/willwng | Rochester, NY

Education

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

- Computer Vision
- Machine Learning
- Numerical Analysis
- Compilers
- Computer Architecture
- Functional Programming
- C++ Programming
- Algorithms
- Operating Systems

Skills

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

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
- Implemented and optimized GPU-accelerated sparse linear solvers to efficiently find minimization of energy landscapes of large-scale systems (up to 1,000,00 parameters).

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 - Present
Cornell University CIS Course Staff Ithaca, NY

- CS 4120: Introduction to Compilers
- 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.

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.

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.

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.