Vivian Ding

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Education

2020 – Present **Cornell University**, *Bachelor of Arts*, Computer Science and Mathematics **Expected 2024**.
GPA 3.846/4.3 – Dean's List.
Relevant coursework: Analysis of Algorithms (Graduate), Compilers, Advanced Programming Languages, Cryptography, Numerical Analysis, Honors Linear Algebra

Projects

2022 **Xi Compiler**.
- Implemented an optimizing compiler targeting x86 for an imperative, procedural language called Xi.
- Won "Best Compiler" award for correctness and performance, with 18.4x speedup of generated code.
- Optimizations include register allocation, copy and constant propagation, dead code elimination, and more. Written in Kotlin alongside three team members.

2021 **Kingdoms & Camls**.
- Designed and implemented a city-building game with text-based UI in OCaml, inspired by the Lion Shield game, "Kingdoms and Castles"; done with two team members.

2020 **CritterWorld**.
- Utilized JavaFX and JUnit testing to build a simulation of critters that traverse a world, reproduce, and evolve, alongside two team members.

Experience

Summer 2023 **Incoming Software Engineering Intern**, *Jane Street*.
Jane Street is a proprietary trading firm.

Jun 2022 – Present **Undergraduate Researcher**, *Cornell University*.
- Working on Viaduct, a compiler that automatically employs cryptography to enforce security specifications for distributed programs, under mentorship of Professor Andrew C. Myers.
- Designing and integrating a new IR to support vector operations and homomorphic encryption.

Jun – Aug 2022 **Accelerate Program Participant**, *IBM*.
- Trained in client engineering and technical sales. Delivered a sales pitch and technical demonstration of a chat bot to a mock client.

Teaching Experience

Aug 2021 –
Present
Teaching Assistant, *Cornell University*.
Leading lab and discussion sections of up to 50 students, supporting students in weekly office hours, grading over 300 projects and exams.
- CS 4120: Introduction to Compilers (Spring 2023)
- CS 2112: Honors Object-Oriented Design & Data Structures (Fall 2021, 2022)
- CS 3110: Functional Programming (Spring 2022)

Sep 2017 –
Present
Math and Computer Science Tutor.
- Independently educating over 25 students grades 3-12 in math, science, and computer programming.
- Guiding students in building problem solving strategies; inspiring further pursuit of CS and mathematics.

June – Aug
2021
Instructor, *codeConnects*.
- Taught introductory programming concepts and algorithmic thinking to individual students.

Aug 2019 –
Jun 2020
Teaching Assistant, *New Canaan High School*.
- Delivered instruction for the AP Computer Science A course.

Technical Skills

Proficient   Java, Kotlin, Python (NumPy, pandas), Julia, OCaml, Linux, Bash, Git, LaTeX

Basic   C, C++, HTML/CSS