Yuma Takahashi

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GitHub: https://github.com/takahashy

Education

Tufts University — Medford, Massachusetts
Bachelor of Science Degree in Computer Science and Mechanical Engineering — Sep 2019 - Jun 2023

- **Relevant Courses:** Data Structures, Algorithms, Programming Languages, Compilers, Machine Structure and Assembly-Language Programming, Computation Theory, Web Programming, Security, Linear Algebra, Numerical Linear Algebra, Mathematical Modeling, Discrete Mathematics, Differential Equations, Probability and Statistics
- **Extracurriculars:** Japanese Culture Club Eboard, Math Society, Intramural Soccer and Volleyball

The Bronx High School of Science — Bronx, NY
High School Diploma — Sep 2015 - Jun 2019

- **Awards:** National Honors Society, AP Scholars with Distinction

Skills

Programming:	C/C++, Python, Linux, Javascript/Typescript, HTML/CSS, MATLAB, OCaml, React
Software/Libraries:	Github, Makefile, numpy, pandas, matplotlib, scikit-learn, CAD/FEA, Bootstrap, Mongodb
Foreign Language:	Native Japanese Bilingual and Biliterate

Projects

Password Checker — Jun 2020 - Jun 2020

- Created a password checker using a haveibeenpwned API written in Python
- Verifies that a password is secure by checking if it is a reused credential

Arith — Oct 2021 - Nov 2021

- Built a compressor for Pixmap images and a corresponding decompressor by packing and unpacking binary data in C
- Achieved a root mean square difference of 2% between original and decompressed images

Universal Machine — Nov 2021 - Dec 2021

- Built a 32-bit virtual machine emulator consisting of eight general purpose registers and segmented memory written in C
- Used profiling techniques to improve the runtime by over 90%

Mood Tracker — Oct 2021 - Dec 2021

- http://ethahua.epizy.com/moodTracker/
- Created a mood tracker website that provides convenient ways to make a diary entry and analyzes the user's mood based on their trends.
- Uses external APIs, SQL Database, and interacts with the server using NodeJS

Human Gait Cycle — Apr 2021 - May 2021

- Analyzed the forces and moments acting on major leg joints of a walking human using motion capture software and MATLAB

sPool Programming Language — Jan 2023 - Present

- Created a general-purpose, statically-typed programming language using OCaml and llvm
- Incorporates concurrent programming via multithreading, automatic memoization for dynamic programming, and functions as first- class citizens

Work Experience

Tufts Pre-College Coding 101 Program — Tufts University, MA
Instructors Assistant — July 2022 - August 2022

- Explained Python concepts and helped develop modules with the program instructor
- Programmed the space invaders game using pygame in Python

Staar Center, Tufts University — Tufts University, MA
Intro to Computer Science Tutor — Sep 2021 - May 2023

- Worked with students outside of lectures to clarify covered topics
- Provided support for students learning C++, Python, and Javascript by answering questions regarding homework, classwork, exams, and labs

Department of Mechanical Engineering, Tufts University — Tufts University, MA
Learning Assistant — Sep 2021 - May 2023

- Organized and coordinated weekly lab sessions for students
- Held office hours for students to help better cultivate their understanding of CAD/FEA

Department of Physics, Queens College — Queens College, NY
Assistant Researcher — May 2018 - Jun 2019

- Researched on the applications of quantum physics in the mitochondria of a cell, mentored by Professor Lev G. Murokh
- Generated plots and calculated systems of partial differential equations written in MATLAB
- Improved run time efficiency by 40% and mitigated approximation errors