Yuma Takahashi

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GitHub: https://github.com/takahashy
https://takahashy.github.io/personal-website

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, AIME

Skills

Programming Languages: Python, C/C++, Javascript/Typescript, HTML, Assembly, MATLAB, OCaml
Software/Libraries/OS: Linux, Git, numpy, pandas, matplotlib, scikit-learn, CAD/FEA, Makefile
Bootstrap, NodeJS, Express, EJS, RESTful API, Axios, MySQL, MongoDB
Foreign Language: Native Japanese Bilingual and Biliterate

Projects

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

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

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

Mood Tracker
- 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 PHP

sPool Programming Language
- 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

Progress Manager
- Developed a website that logs daily activities generating a breakdown of user's day
- Uses EJS to load the page, stores daily logs in MongoDB and interacts with the server using Express

Work Experience

Tufts Pre-College Coding 101 Program   Tufts University, MA
Instructors Assistant   July 2022 - August 2022
- Facilitated comprehensive instruction in Python, encompassing foundational and advanced principles
- Designed and implemented learning modules with instructor

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 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