Michael Zhan

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Education

Harvard University **Dec 2024, Expected**
M.S. Computational Science and Engineering

The University of Texas at Austin **May 2023**
B.S. Chemical Engineering, Certificate in Elements of Computing (GPA: 3.99, High Honors)
Engineering Honors Program

Technical Skills

- **Languages:** Python, C++, SQL, TypeScript/JavaScript, HTML/CSS, Tailwind CSS, R, MATLAB
- **Frameworks:** Next.js, React, Flask, Express.js, Node.js, RESTful APIs, Agile Development
- **Developer Tools:** Git, CI/CD, Docker, Linux, Jira, Trello, Visual Studio Code

Relevant Professional Experience

Georgiou Research Group, UT Austin | Austin, TX **Jan 2020 – May 2023**
Undergraduate Research Assistant, Biotechnology Research

- Implemented single-linkage clustering algorithms for antibody sequence strings for >100,000 inputs in Python and C++. Runs 50% faster than the previous internal tool, with identical results.
- Built k-means clustering workflow with Python sci-kit learn and R to discover new gene segments in ferrets, similar to outlier detection. Discovered 2 new genes with this method.

Genentech, Inc. | San Francisco, CA **Jan 2022 – Dec 2022**
Software Engineer Intern – Process Technical Development

- Developed internal automation tool for dataset generation and visualization with Python using pandas and seaborn/Matplotlib, removing need for manual labor and reducing processing time by over 80%. Tool is currently in use across multiple Genentech sites.
- Streamlined data collection using Python in South San Francisco site, reducing manual workload by over 75%.
- Engineered soft sensor machine learning models for cell culture parameter prediction using sci-kit learn and AutoML libraries with an emphasis on feature optimization. Attained R^2 values of over 0.95.

Relevant Academic Projects

Conway's Game of Life **Jan 2024**

- Implemented Conway's Game of Life with configurable options such as grid size and animation speed
- Developed in C++ on Linux as standalone executable
- Created graphical interface using gtkmm-3.0 library

bioRxiv Biology Preprint Newsletter App **Sept 2023**

- Automated weekly newsletter retrieves and sends users recent biology preprint papers from bioRxiv server
- Scrapes articles with bioRxiv API and custom search function, interfacing with PostgreSQL database
- Created with Next.js using React, Typescript, and Tailwind CSS

Book Recommendation App **Aug 2023**

- Developed web app to shelve and recommend books for users
- Implemented Google OAuth 2.0 and custom credential log-in flows with NextAuth.js
- Retrieves book information with Google Books API, with PostgreSQL database storage
- Created with Next.js using React and Tailwind CSS

Leadership

Independent Tutor | Austin, TX **May 2020 – Dec 2021**

- Tutored 500 hours and over 40 students remotely in high school math and chemistry
- Managed communication and scheduling directly with students and parents