Michael Peng

Master Copy

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Enthusiastic software engineering generalist, reflective instructional aide, and conscientious servant leader.

Education

University of Michigan, College of Engineering Graduating April 2024
B.S.E. in Computer Science

GPA 4.00/4.00
Awards William J. Branstrom Freshman Prize, University Honors, Engineering Honors, Dean's List

Work Experience

Computer Science Instructional Aide 2022 – Present
Computer Science and Engineering, University of Michigan Course website

- Hosting a Laboratory class and Office Hours for EECS 280 (Programming and Intro Data Structures)
- Answering questions on the class forum to support student success
- Brainstorming original improvements to setup tutorials and curriculum by analyzing student performance

Residential Community Peer Mentor 2022 – Present
Living ArtsEngine, University of Michigan Program website

- Hosting gatherings, planning events, and running a technical workshop for 87 first-year students living together
- Leading a collaborative chat bot project ("LAE OpenBot") for the community's Discord server
- Supporting interdisciplinary students in collaborative, creative team projects with team dynamics, leadership, organization, and the creative process
- Advising and empowering first-year students in academics and college life

Software Development Intern Summer 2022
State Street

- Migrated 3 legacy desktop critical tools for securities trading & post-trade reporting from SQL Server to Oracle Database
- Inspected SQL Server database for migration and advised database administrators on schema changes

COVID-19 Research Intern 2020 – 2021
Brandeis University Publication

- Prepared datasets for a team that predicted COVID-19 case trends for each state in the United States
- Implemented algorithm to estimate mobility between U.S. states using Geopandas and Python
- Crafted the team's website to visualize predictions stored in Airtable

Product Development Intern Summer 2019
Codio, Inc. Examples

- Collaborated with a 5-person team using Scrum to author programming assessments for the initial release of Codio's Global Assessments Library
- Invented automated tool to fix assessments for compliance with conventions, boosting product quality

Projects

Class Discovery and Enrollment Toolkit ("CourseKit") Link 2021 – Present

- Constructed 3 iterations of a backtracking algorithm in F# and C++ that finds all feasible schedules given courses to take at the University of Michigan and ranks them according to each user's preferences
- Wrote and launched a schedule optimizer platform that delivered optimal schedules to >300 Michigan students in Winter 2023
- Built the backend of the enrollment trend predictor, which had >300 users in Fall 2022

Professional Relations Management Browser Extension ("Plinq") 2022

- Collaborated with a 5-person team from V1 Product Studio to design, build, and market a web browser extension in React (Next.js) that helps people chronicle and maintain their professional relationships
- Reverse-engineered internal LinkedIn APIs and developed an embedded user interface to help users import connections from LinkedIn

Relational Database Manager ("SillyQL") 2022

- Planned and developed a relational database manager with syntax resembling SQL using modern C++ and Test-Driven Development
- Profiled, analyzed, and tuned program for optimal performance

COVID-19 Machine Learning Model Website 2020 – 2021

- Independently created and tuned a Recurrent Neural Network for COVID-19 transmission prediction in R, combining state-of-the-art mechanistic and statistical techniques from academia
- Developed a web-based visualization of COVID-19 transmission per variant in the United States
- Drafted a 29-page research article describing the model

PreMatch.org Link 2018 – 2021

- Founded and co-developed a website, Discord chat-bot, and iOS app to help Andover High School students understand and apply their complex schedules on a daily basis
- Website (backend in Python) showed >1,100 students their classmates before each school year started
- iOS app in Swift showed >500 students their classes on any given day, facilitating academic planning

Microprocessor Emulator ("csim6502") GitHub 2018 – 2018

- Designed and implemented a complete emulator of the MOS 6502 microprocessor in maintainable, expressive C++ using strict Test-Driven Development within 2 weeks

Activities

Student Organization Webmaster 2022 – Present

FIRST Alumni and Mentors Network at Michigan Website

- Leading website committee to manage famnm.club for students, robotics teams, and corporate sponsors
- Emphasizing formal UX (user experience) research, inclusive design thinking, and performance optimization

Project Leader & Education Committee Member 2022 – Present

Michigan Data Science Team Project Report

- Refined introductory tutorials and checkpoints for new members
- Planned advanced tutorials and talks to educate members on data science
- Led a project that used BigQuery to investigate the reliability of Blue Buses at the University of Michigan
- Contributed to projects on COVID-19 trends, Reddit r/place activity, and Euchre reinforcement learning

Chief Software Officer & Team Leader 2019 – 2021

Andover Robotics Club GitHub

- Oversaw software engineering in Java & Kotlin for three *FIRST* Tech Challenge (FTC) robotics teams
- Built common codebase and documentation site to help club posterity with programming
- Developed clubwide, web-based Attendance Management System (AMS) using Svelte and Firebase to facilitate attendance planning and contact tracing in response to COVID-19
- Created and marketed web browser extension that helped top FTC teams in Massachusetts record, share, and analyze other teams' performance for alliance selection during competitions in 2020

Technologies

Languages	Python, C++, HTML/CSS, Rust, Java, JavaScript, TypeScript, Swift, R, Kotlin, LaTeX
Libraries	React (Next.js, Remix), Svelte, Flask, Tailwind, Pandas, Doctest, Google Test, Tidyverse
Platforms	Windows, Linux, iOS, Google Cloud, Firebase, GitHub, GitLab

Languages

Chinese Mandarin (native), English (fluent), Spanish (conversational)