

# 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 or 2025

*B.S.E. in Computer Science*

**GPA** 4.00/4.00

**Awards** Branstrom Freshman Prize, University Honors, Engineering Honors, Dean's List, Angell Scholar

## WORK EXPERIENCE

### Computer Science Instructional Aide

2022 – Present

*Computer Science and Engineering, University of Michigan*

Course website

- Hosting a Lab class and Office Hours for EECS 280 (Programming and Intro Data Structures)
- Answering questions on the class forum to support student success
- Led Lab to achieve the highest median midterm grade out of all 44 Lab classes in Winter 2023

### Residential Community Peer Mentor

2022 – 2023

*Living ArtsEngine, University of Michigan*

Program website

- Hosted gatherings, planned events, and ran a technical workshop for 87 first-year students who lived together
- Led a collaborative chat bot project ("LAE OpenBot") for the community's Discord server
- Supported interdisciplinary students in creative team projects with group dynamics, leadership, organization, communication, and the creative process
- Advised and empowered 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

### Dog Breed Classification Machine Learning Model

2023

- Constructed, evaluated, and refined a Convolutional Neural Network for dog breed classification using NumPy and PyTorch in Python
- Incorporated transfer learning, data augmentation, residual connections, batch normalization, and weight decay to tweak model for optimal validation performance

### 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 collaboratively launched a [schedule optimizer platform](#) using React (Remix), TypeScript, and AWS, delivering optimal schedules to >300 Michigan students in Winter 2023
- Built the backend of the [enrollment trend predictor](#) using Python and MySQL on AWS, with >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
- Leading systematic transition from Jekyll (Ruby) to Astro (TypeScript) for features that improve website performance and codebase maintainability

### Project Leader, Education Committee Member, Project Committee Member

2022 – Present

*Michigan Data Science Team*

Project Report

- Refined introductory Python, Pandas, and Matplotlib 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

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

## LANGUAGES

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