Yicheng Xia

⌂ 3333 Walnut St, Philadelphia, PA 19104 | ☎ (215) 520-7712 | ✉ xyicheng@seas.upenn.edu | in [yichengxia](#) | ⊘ [yichengxia](#)

EDUCATION

University of Pennsylvania — Philadelphia, PA
M.S. in Computer and Information Science, M.S. in Scientific Computing (GPA: 3.82/4.00) — *Aug 2021 – Present*

Suzhou University of Science and Technology — Suzhou, China
B.E. in Built Environment and Energy Utilization Engineering, B.A. in English (GPA: 3.7/4.0, ranked 1/68) — *Sep 2017 – Jun 2021*
*Outstanding Graduate, Merit Student, China National Scholarship (*Top 0.2%, highest scholarship given by government of China*)

SKILLS

Languages: Java, Python, C/C++, MATLAB, SQL, HTML, JavaScript, CSS, LaTeX, Assembly, Verilog
Tools: Linux, Shell, AWS, Docker, Apache Maven/Hadoop/Spark, Django, MySQL, React, Node.js, PostgreSQL, MongoDB, OpenGL

EXPERIENCE

Teaching Assistant — Philadelphia, PA
University of Pennsylvania, Department of Computer and Information Science — *May 2022 – Present*
- Hosted weekly office hours, debugged scripts in C, Shell, Python, SQL, and JavaScript, and graded homework and exams for 100+ students in CIS 551: Computer and Network Security, CIT 582: Blockchains and Cryptography

Software Engineer Intern — New York, NY
Witness to Mass Incarceration Inc., E-Commerce Team — *May 2022 – Aug 2022*
- Designed and built an e-commerce cloud system with interactive APIs and frontend interfaces on Figma
- Used Django for backend and PostgreSQL for database, then imported and processed 1K+ sellers' information to be searchable
- Deployed it on Heroku and supported admins, sellers, and customers with separated functions and responsive mobile views
- Maintained persistency and saved backend API calling by storing users from login to logout and using cookies for authentication

Research Assistant — Suzhou, China
Suzhou University of Science and Technology, Prof. Junqi Wang's Team — *May 2020 – May 2021*
- Built a raspberry Pi human detection system and saved 49.15% full speed fan energy with designed image processing algorithms
- Patent: *An Intelligent Demand-Oriented Ventilation Control System Based on Occupant Detection.* CN213365297U

PROJECTS

PennOS *C, Shell, Unix/Linux, Docker* — *Mar 2023 – Apr 2023*
- Implemented a user-level Unix-like operating system with a kernel (scheduler), a file system, and a shell running on host OS
- Supported the priority scheduler with 20+ built-in functions and optimized CPU usage to 0% in ideal cases
- Allowed users to create, modify, and remove files under the FAT-based file system with no memory leak

Forx News ⊘ ⊙ ▶ *MySQL, AWS RDS, React, Node.js, Express.js, Heroku* — *Oct 2022 – Dec 2022*
- Built a restaurant review website with Yelp datasets of 20K+ entries that allow users to search, filter, visualize, and compare
- Designed REST APIs to securely handle authentication, user, restaurant, review, reviewer, and analytics routes
- Improved complex queries to be up to 106.57% faster than original by multiple optimizations like creating optimal indices
- Added basic and 3rd-party (Google and Twitter) login methods and introduced Google Maps API for the navigation feature

Mini Minecraft ⊘ ▶ *C++, OpenGL (GLSL), Qt Creator* — *Oct 2022 – Dec 2022*
- Created an interactive 3D world exploration and alteration program like Minecraft with Qt Creator
- Allowed players to fly, walk, and swim, place or break blocks, and generate user defined scenes by loading outside images
- Designed shading animation algorithms for game scenes including day and night cycles, distance fog, water, and lava
- Improved the terrain rendering efficiency to be 99% faster than original by rendering block chunks into multithreaded VBOs

Search Engine ⊘ *Java, AWS EC2/S3/RDS, Berkeley DB, HikariCP, Apache Hadoop, Docker* — *Apr 2022 – May 2022*
- Implemented and deployed a search engine with distributed web crawlers, a TF-IDF indexer, PageRank, and web UI on EC2
- Developed a multithreaded crawler following the robots exclusion standard and allowed 30 workers to fetch documents parallelly
- Set up Berkeley DB, S3, and RDS to transfer and validate 1M+ crawled documents and computed indices locally and on cloud
- Cached PageRank and index, improving the inquiry performance to be 70% faster than original and the search time <1 second

Multidimensional Analysis of the Effects of Climate Change ⊘ *Python, pandas, machine learning* — *Nov 2021 – Dec 2021*
- Analyzed relations between the global temperature and other data (accuracy >90% by random forest) with Scikit-Learn and used ARIMA model to predict and visualize global temperature changes in the next 20 years
- Used AFINN and NLTK to do sentiment analysis with labeled Twitter posts and visualize the word frequency

HONORS & AWARDS (SELECTED)

Meritorious Winner of 2020 Mathematical Contest in Modeling — *Top 8% all over the globe*
Mao Yisheng Science and Technology Award (Railway Education Star of Outlook Award) *Top 0.05%, only 2 winners from 3 colleges*