

# Yicheng Xia

🏠 3333 Walnut St, Philadelphia, PA 19104 | 📞 (215) 520-7712 | ✉ [xyicheng@seas.upenn.edu](mailto:xyicheng@seas.upenn.edu) | [in yichengxia](#) | [🐙 yichengxia](#)

## EDUCATION

<b>University of Pennsylvania</b> <i>M.S. in Computer and Information Science, M.S. in Scientific Computing</i> (GPA: 3.73/4.00)	Philadelphia, PA Aug 2021 – May 2024
<b>Suzhou University of Science and Technology</b> <i>B.E. in Built Environment and Energy Utilization Engineering, B.A. in English</i> (GPA: 3.7/4.0, ranked 1/68) Sep 2017 – Jun 2021	Suzhou, China
*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/CSS/JavaScript, L<sup>A</sup>T<sub>E</sub>X, Assembly, Verilog  
**Tools:** Linux, Shell, AWS, Docker, Apache Maven/Hadoop/Spark, Django, MySQL, React, Node.js, PostgreSQL, MongoDB, OpenGL

## EXPERIENCE

<b>Teaching Assistant</b> <i>University of Pennsylvania, Department of Computer and Information Science</i>	Philadelphia, PA May 2022 – Present
<ul style="list-style-type: none"><li>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</li></ul>	
<b>Software Engineer Intern</b> <i>Witness to Mass Incarceration Inc., E-Commerce Team</i>	New York, NY May 2022 – Aug 2022
<ul style="list-style-type: none"><li>Designed and built an e-commerce cloud system with interactive APIs and frontend interfaces on Figma</li><li>Used Django for backend and PostgreSQL for database, then imported and processed 1K+ sellers' information to be searchable</li><li>Deployed it on Heroku and supported admins, sellers, and customers with separated functions and responsive mobile views</li><li>Maintained persistency and saved backend API calling by storing users from login to logout and using cookies for authentication</li></ul>	
<b>Research Assistant</b> <i>Suzhou University of Science and Technology, Prof. Junqi Wang's Team</i>	Suzhou, China May 2020 – May 2021
<ul style="list-style-type: none"><li>Built a raspberry Pi human detection system and saved 49.15% full speed fan energy with designed image processing algorithms</li><li>Patent: <i>An Intelligent Demand-Oriented Ventilation Control System Based on Occupant Detection</i>. CN213365297U</li></ul>	

## PROJECTS

<b>PennOS</b> C, Shell, Unix/Linux, Docker	Mar 2023 – Apr 2023
<ul style="list-style-type: none"><li>Implemented a user-level Unix-like operating system with a kernel (scheduler), a file system, and a shell running on host OS</li><li>Supported the priority scheduler with 20+ built-in commands and optimized CPU usage to 0% in ideal cases</li><li>Allowed users to create, modify, and remove files under the FAT-based file system with no memory leak</li></ul>	
<b>Forx News</b> 📺 MySQL, AWS RDS, React, Node.js, Express.js, Heroku	Oct 2022 – Dec 2022
<ul style="list-style-type: none"><li>Built a restaurant review website with Yelp datasets of 20K+ entries that allow users to search, filter, visualize, and compare</li><li>Designed REST APIs to securely handle authentication, user, restaurant, review, reviewer, and analytics routes</li><li>Improved complex queries to be up to 106.57% faster than original by multiple optimizations like creating optimal indices</li><li>Added basic and 3rd-party (Google and Twitter) login methods and introduced Google Maps API for the navigation feature</li></ul>	
<b>Mini Minecraft</b> 📺 C++, OpenGL (GLSL), Qt Creator	Oct 2022 – Dec 2022
<ul style="list-style-type: none"><li>Created an interactive 3D world exploration and alteration program like Minecraft with Qt Creator</li><li>Allowed players to fly, walk, and swim, place or break blocks, and generate user defined scenes by loading outside images</li><li>Designed shading animation algorithms for game scenes including day and night cycles, distance fog, water, and lava</li><li>Improved the terrain rendering efficiency to be 99% faster than original by rendering block chunks into multithreaded VBOs</li></ul>	
<b>Search Engine</b> 📺 Java, AWS EC2/S3/RDS, Berkeley DB, HikariCP, Apache Hadoop, Docker	Apr 2022 – May 2022
<ul style="list-style-type: none"><li>Implemented and deployed a search engine with distributed web crawlers, a TF-IDF indexer, PageRank, and web UI on EC2</li><li>Developed a multithreaded crawler following the robots exclusion standard and allowed 30 workers to fetch documents parallelly</li><li>Set up Berkeley DB, S3, and RDS to transfer and validate 1M+ crawled documents and computed indices locally and on cloud</li><li>Cached PageRank and index, improving the inquiry performance to be 70% faster than original and the search time &lt;1 second</li></ul>	
<b>Multidimensional Analysis of the Effects of Climate Change</b> 📺 Python, pandas, machine learning	Nov 2021 – Dec 2021
<ul style="list-style-type: none"><li>Analyzed relations between the global temperature and other data (accuracy &gt;90% by random forest) with Scikit-Learn and used ARIMA model to predict and visualize global temperature changes in the next 20 years</li><li>Used AFINN and NLTK to do sentiment analysis with labeled Twitter posts and visualize the word frequency</li></ul>	

## 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