

TINGKANG ZHAO

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EDUCATION

Cornell University - Cornell Tech Master of Science in Information Science (Merit-based scholarship)	New York, NY June 2022 - June 2024 (Expected)
Johns Hopkins University - Whiting School of Engineering Master of Science in Computer Science (Part-Time Online)	Online June 2022 - June 2026 (Expected)
University of Rochester (Dean's List) - Simon School of Business Master of Science in Business Analytics (STEM)	Rochester, NY July 2021 - July 2022
Michigan State University (Dean's List) - College of Social Science Bachelor of Arts in Economics (Minor: Quantitative Data Analytics)	East Lansing, MI June 2017 - June 2021

ACADEMIC PROJECTS

- ❖ **Ethereum Smart Contracts and Cryptocurrency Anonymity** (04/2023)
 - Developed and enhanced a basic ERC20 token contract using **Solidity** with personalized token name and pegged value.
 - Explored security vulnerabilities in a simplified **Ethermon** game using **Solidity**, implementing a contract to exploit the game's randomness generation and defeat the in-game Ogre.
 - Analyzed Bitcoin mixers and tumblers, understanding their impact on transaction privacy and deanonymizing a collection of real tumbler operations.
 - Gained hands-on experience in **smart contract testing**, deployment on **Sepolia** testnet, and working with Ethereum test networks using **Metamask** and **Remix**.
- ❖ **Class Discussion and Feedback System**
 - Developed a web app for high school and higher education students to ask questions during class sessions.
 - Built backend API using **NodeJS** and **Express**, implementing data models and endpoints to support frontend functionality; enabled sending status codes from backend to frontend, allowing frontend to handle various response scenarios (e.g., error handling, user authentication)
 - Used **React** for frontend development, connecting it to the backend API and focusing on tasks such as form submissions, displaying user-generated content, and updating UI based on backend responses
 - Deployed web app using **Firebase Hosting** and Cloud Functions, analyzed website traffic and performance and tested the app using **ESLint** and **Jasmine**.
- ❖ **SecureChain: A Blockchain Implementation with Merkle Trees and P2P Networking** (03/2023)
 - Implemented a **Merkle tree** interface with SHA-256 hash function for digital authentication.
 - Developed methods for Merkle tree construction, leaf retrieval, and proof generation with **$O(\log n)$ time complexity**.
 - Implemented **proof of work** and **proof of authority** mining in a blockchain, including the creation of valid blocks, header validation, and the use of seal data to check block validity.
 - Implemented the gossip protocol in a **peer-to-peer** network to facilitate blockchain synchronization between nodes.

PROFESSIONAL EXPERIENCE

University of Rochester Simon School of Business Research Assistant with Professor Yufeng Huang	Rochester, NY October 2021 – July 2022
<ul style="list-style-type: none">Scraped 10000+ merchandise attributes data from Walmart.com using Beautiful Soup and Selenium package in Python.Deploy the source code on AWS Lambda.Recategorized commodities using the GloVe package in Python for NLP.Cleaned and managed the sample scraped from the internet using SQL.	
Astoria AI Software Engineer	New York, NY July 2021 - September 2021
<ul style="list-style-type: none">Designed and built the minimum viable product for job matching and finding to provide a more personalized experience.Created a web crawler that scraped over 100,000 job listings from 5+ platforms, including job boards and company websites.Implemented a job dashboard on the front-end using HTML, CSS, and JavaScript, resulting in an improved user experience and faster load times.Developed an ML System that performed data pre-processing, similarity measurement, matching algorithm, model tuning, and scalability. This allowed for accurate job recommendations to job seekers.	

TECHNICAL SKILLS

- Languages: Java, Python, JavaScript, SQL, HTML, CSS, Solidity, R
- Tools: Remix, AWS, Git, MySQL, Hadoop, Hive, Spark, Figma, Firebase, Tailwind, Bulma, React, Express, Node.js
- Libraries: Scikit-Learn, Pandas, NumPy, SciPy, Matplotlib, Beautiful Soup, Selenium, RShiny, gganimate, etc.