

Rachel (Hao) Tan

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Education

University of Pennsylvania

08/2023 – 05/2025

MSc, Computer and Information Technology - GPA: 3.8/4.0

Philadelphia, PA

- Teaching Assistant: CIT590 Programming Languages and Techniques (Python & Java)
- Awards: Winner @ Penn Hackathon 2024, Best Hack @ FemmeHack 2024

Technical Skills

- **Programming Languages:** Python, Java, C/C++, JavaScript/TypeScript, SQL, Swift (iOS development)
- **Front-End Development:** React.js, Next.js, Vue.js, Bootstrap, Tailwind CSS, Figma, REST APIs, Redux
- **Back-End Development:** Node.js, Express.js, Flask, Django, Spring Boot, Hibernate, OAuth authentication
- **Databases & Data Processing:** MySQL, PostgreSQL, MongoDB, Redis, Celery, Apache Kafka, Tableau
- **Cloud & DevOps:** AWS, Azure, Google Cloud, Docker, Kubernetes, Terraform, Jenkins, GitHub Actions, CI/CD
- **Tools & Platforms:** Git, npm/yarn, Linux, Bash, PowerShell, Jira, Maven, Gradle, Postman, Selenium, Mockito

Work Experience

Deloitte | Deloitte Digital

07/2024 – 09/2024

GenAI Solutions Software Engineer Intern

- Developed an enterprise-scale RAG system with custom knowledge bases, helping 450k colleagues quickly retrieve legal and tax documents through real-time natural language queries, enhancing decision-making and operational efficiency.
- Built customized AI agent platforms for clients like BMW and Marriott, integrating LLMs via OpenAI API to enhance customer service and engagement. Engineered back-end services using Java, Python, MySQL, Elasticsearch, and Milvus for efficient data retrieval, while implementing interactive front-end interfaces with Next.js and TypeScript.
- Implemented real-time monitoring and automated recovery systems on Linux servers using Grafana, Prometheus, Ansible, and Bash scripts, overseeing critical dependencies and reducing system downtime by 25%.
- Optimized AWS-deployed AI models by developing Python scripts to identify performance bottlenecks and implementing multithreading, boosting token generation speed by 30%.

Liberty Mutual | Technology

01/2024 – 06/2024

Full-Stack Software Engineer Intern

- Developed a secure full-stack internal approval system using React.js for the frontend, Spring Boot for the backend, and PostgreSQL for the database, eliminating data leakage risks by replacing the original third-party tool.
- Enhanced the company’s data masking system by implementing and deploying a Named Entity Recognition (NER) model to handle unstructured natural language data, ensuring compliance with legal privacy standards.
- Collaborated with Data Scientists in an Agile environment, building 10+ REST APIs to integrate machine learning models (dog face recognition) for automating fraud detection in pet insurance claims, cutting pet verification labor costs by 63%.

The Wharton School | AI & Analytics Accelerator

08/2023 – 12/2023

Digital Transformation Engineer at Penn Museum

- Built data pipelines using Python and SQL scripts to automate the digitization and archival process of artifacts into the museum database, reducing manual workflows by 50%. Automated data backups to ensure reliable data management.
- Collaborated with cross-functional teams to improve accessibility of digital cultural heritage to researchers and curators. Implemented automated testing suites with Selenium and Mockito, reducing regression testing time by 50%.

Selected Projects

Full-Stack OpenAI Image Generation App - Express.js | React.js | Node.js | Tailwind CSS | DALL-E API [demo online](#)

- Developed a full-stack MERN application that generates images from text inputs using OpenAI’s DALL-E model.
- Built responsive UI with React.js and Tailwind CSS, and implemented image storage with Cloudinary for efficient management, enabling users to create unique visuals quickly

RaccoonTV: Netflix Movie App Clone - React.js | Redux Toolkit | Material-UI | AI Voice Assistant [demo online](#)

- Designed and built a Netflix-inspired React app with real-time data queried from external online database through comprehensive API calls, allowing users to browse movies by genre and category, watch trailers, and view cast details.
- Developed user authentication and profile management for personalized watchlists and favorites, featuring responsive front-end design across all devices, and implemented AI voice-controlled navigation for hands-free interaction.