# Tianxiu Zhou

(313)752-4309 choutianxius@gmail.com tianxiu-zhou choutianxius

## Education

- **Texas A&M University**, Master of Computer Science *Aug 2023 – Expected May 2025*
- **Tsinghua University**, Bachelor of Biological Science *Aug 2019 – Jun 2023*

## Skills

- **Frontend Development**: React.js, React Native, Next.js, TailwindCSS, TypeScript, JavaScript, CSS, HTML, Redux
- **Backend Development**: .NET, FastAPI, Django, Flask, Spring Boot, Node.js, Express.js, MySQL, Redis, AWS
- **Professional Development Tools**: Git, Docker, CI/CD, Postman, Swagger, Apache, Nginx, Apache Kafka
- **Programming Languages**: TypeScript, JavaScript, C#, Python, Java, SQL, HTML, CSS
- **Data Science and Machine Learning**: PyTorch, Pandas, Numpy, Reinforcement Learning, D3.js, Matplotlib

## Experience

- **Software Development Intern** | Advanced Mobile Automated Regression Testing Paycom LLC.
  *.NET, Docker, GitLab, MySQL, TypeScript, React.js* *May 2024 – Aug 2024*
  - Collaboratively designed a system for executing UI regression tests on remote mobile devices, providing a uniform solution to automating quality assurance tests with comprehensive control and logging for both iOS and Android.
  - Developed a .NET Core backend application with the MySQL database to provide a RESTful API for managing test scripts, scheduling and dispatching testing jobs to mobile devices, and persisting test execution results.
  - Implemented dependency injection and the repository pattern in the .NET Core backend project. Implemented unit tests with xUnit and Moq to achieve a full test coverage.
  - Set up GitLab CI pipelines to automatically perform unit testing and linting upon merge requests.
  - Built an SPA frontend for visualizing test scripts, testing jobs and results with React.js and an internal UI library.
  - Containerized the .NET Core backend using Docker and integrated the frontend SPA with Docker multi-stage building.
  - Awarded as one of the MVPs of the Software Development Internship program.
- **Research Assistant** | Digital Twin-Based Smart City & Smart Construction Platform Texas A&M Univ.
  *TypeScript, Next.js, React Native, TailwindCSS, FastAPI, Apache Kafka, Redis, AWS* *Nov 2023 – May 2024*
  - Built a FastAPI based Python backend to perform domain specific data analysis and provide a RESTful API.
  - Developed a queuing system with Apache Kafka and Redis to asynchronously process data from different sources and persist results in AWS DynamoDB.
  - Built both a data visualizing website and an admin's dashboard with TypeScript, Next.js and TailwindCSS.
  - Developed a cross-platform mobile app for data visualization with TypeScript and React Native. Created a performant plotting library with React Native Skia and D3.js for making highly customized charts.
  - Deployed the backend and frontend apps with AWS services including ECS, S3, CloudFront, Route53 and Amplify.
  - Set up CI/CD pipelines with AWS CodeCommit, CodeBuild and CodeDeploy for automatic testing and deployment.
- **Research Assistant** | cfOmics: Multi-Omics Liquid Biopsy Database and Website Tsinghua Univ.
  *React.js, Django, MySQL, Docker, Apache* *Mar 2022 – Jul 2023*
  - Developed a full stack website providing visualization and analytical tools for bioinformatics researchers.
  - Built a multi-page frontend with React.js and Bootstrap 5. Implemented client-side routing with React Router Dom.
  - Built a Django backend with the MySQL database to perform analysis and provide a RESTful API.
  - Containerized the frontend and backend services using Docker Compose and deployed on a CentOS server.
- **B.S. Thesis Researcher** | Network Dissection of a DQN Agent Playing Super Mario Bros Tsinghua Univ.
  *PyTorch, Deep Reinforcement Learning, OpenAI Gym, Numpy* *Feb 2023 – Jun 2023*
  - Implemented the double DQN algorithm with PyTorch to train a reinforcement learning agent to beat Super Mario Bros.
  - Fine-tuned a semantic segmentation model for segmenting in-game scenes to generate training dataset for the DQN agent, based on DeepLab V3 ResNet-50.
  - Examined the correlation between activation of neurons in the DQN network and objects in the input scenes, in an effort to investigate the mechanism of neuron function generation.