

# Yuanlai (Miles) He

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## WORK EXPERIENCE

### Changan Automobile

Aug. 2021 - Jul. 2023

*Software Development Engineer | Permanent | Python & Pytorch & iOS & Swift & UIKit & Linux & MQTT & CI/CD*

- Enhanced customer support by seamlessly transitioning to a robust Python / Flask-based FAQ service for the mobile app, deployed via Docker, which bolstered service continuity during a critical corporate reorganization.
- Boosted response accuracy by 3% by implementing TextCNN for **user query parsing** against a comprehensive Q&A library, complemented by meticulous management of Python dependencies and debugging efforts.
- Revolutionized self-parking user experience and reliability by creating an intuitive **iOS interface** with live video and a 3D car model for **instant updates**, integrating MQTT for seamless command transmission.
- Collaborated on a team that refined a major iOS app, leading to a 10% reduction in the codebase, 20% quicker integration of third-party libraries, and substantial improvements in code **reusability** and **maintainability**.
- Streamlined iOS app workflow with TestFlight for beta testing and **crash analysis**, cutting bug resolution time from 2 days to 1 hour, shortening the release cycle and boosting team collaboration.

## PROJECTS

### Dynamic Graph Convolutional Networks (GCN) for Sleep Stage Classification

Sep. 2019 - Sep. 2020

*Python & Pytorch & GCN & CNN & Attention Mechanism & Domain generalization*

- Collaborated with a research team to develop a state-of-the-art sleep stage classification model🔗 creatively using GCN, CNN, Attention Mechanism, and Domain generalization for EEG data to extract dynamic graph features.
- Achieved a nearly 90% accuracy rate, outperforming traditional methods by 3%, and published two papers on the IJCAI, 2020, and IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2021, respectively.

### English-Speaking Practice iOS APP

Sep. 2023 - Dec. 2023

*Python & Pytorch & Swift & SwiftUI & Linux & AWS & Google Firebase*

- Developed an creative English-speaking practice app using Swift and SwiftUI, integrating interactive text displays and AI-generated native speaker audio via API for improving users' pronunciation and fluency.
- Implemented a Siamese BiLSTM model🔗 capable of **calculating the similarity** between two English sentences with an accuracy of 72%, integrated this model with a Flask API, and deployed it on AWS EC2 for this APP.
- Utilized Firebase for secure authentication and data storage, boosting app functionality and user experience.

### Multi-Vehicle Trajectory Prediction at Intersection using CNN AE and LSTM

Nov. 2023 - Dec. 2023

*Python & Pytorch & CNN & LSTM*

- Collaborated on a deep learning project, implementing CNN Autoencoders and LSTM networks for predicting multi-vehicle trajectories at intersections, utilizing complex spatial and temporal data analysis.

### Moments-Sharing Web Application

Oct. 2019 - Dec. 2019

*Java Server Pages | MySQL | HTML/CSS*

- Crafted optimized **MySQL schema** with improved structures, indexes, and procedures to enhance performance.
- Developed a user-friendly and responsive web interface using Java Server Pages (JSP), HTML/CSS, and Bootstrap, significantly improving user experience.

## EDUCATION

### McMaster University

Sep. 2023 - Dec. 2024 (Expected)

*M.Eng. in Systems and Technology, GPA 4.0/4.0, Co-op*

*Hamilton, ON, Canada*

### Beijing Jiaotong University

Sep. 2017 - Jun. 2021

*B.Eng. in Computer Science and Technology*

*Beijing, China*