

Yiqun Ma

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EDUCATION

University of Toronto

Class of May. 2024 + PEY

B.A.Sc. in Engineering Science – Robotics specialist

- Relevant Coursework: **Control Systems, Data Structures and Algorithms, Intro to AI, DL and ML**

SKILLS

Programming Languages: Python, C, Verilog, ARM Assembly, Latex, MATLAB, HTML, Javascript, Lua

Tools and Framework: ROS, Pytorch, Arduino, AutoCAD, Tensorflow, ubuntu/linux, Fusion360, Flask, LTSpice

PROFESSIONAL EXPERIENCE

Radical X

Toronto, Canada

AI Engineer Intern (remotely)

May 2024 - now

- Built an interactive quiz generator application built using **Vertex AI, Streamlit and LangChain**. It allows users to upload PDF documents and generate quiz questions based on a specified topic.
- Developed an tool that transforms YouTube video contents into flashcards for optimized learning using Gemini API with a **FastAPI** backend, a **React** frontend and **LangChain, LLM** for understanding scripts.

BMW R&D center

Beijing, China

Software Engineer Intern (SOTIF)

May 2023 - May 2024

- Supported FOT data analysis pipeline setup using **Pyspark and SQL** and developed algorithms to edit, analyze specific ADAS driving behavior data using **Python**.
- **Applied a Patent, “A Customer Corrosion Correlation Model based on Machine Learning” as core developer** which is an **Autoencoder** with **CNN model with transfer learning in PyTorch** to predict material corrosion, aligning with specific experimental settings, and **cGAN model** to perform inverse predictions.
- Wrote code/tool for data desensitization: **passenger faces recognition and blurring** using **Opencv and pre-trained model** on real-time driving videos, achieving 90% accuracy, from company side saves a huge budget.
- Conducted extensive analysis of highway drone datasets using **Matlab**, aligning findings with German counterparts to drive innovation in autonomous driving analytics and **Stochastic Cognitive Model (SCM)** implementations.
- Authored high-efficiency **Python** scripts to capture SSD error data via VIGEM, consolidating vital information for streamlined analysis, subsequently amplifying processing efficacy by an impressive **50%**.

SDCNlab, York University

Toronto, ON

Research Intern (Remotely)

July 2023 - now

- Employed **Python** to cleanse and preprocess datasets derived from **real-world highway traffic** patterns and visualize the trajectories, isolating lane-change scenarios and identifying surrounding vehicle behaviors.
- Utilized **inverse reinforcement learning (IRL)** to derive **reward functions** from human driving data for training the model to parameterize human driving features.
- Helped the development of the **MPC** and researched on **Transformer** implementation combining **game theory** for driving planning and prediction.
- Participated in the **2024 ACC self-driving competition**, focused on developing high-speed lane recognition using **Transformer** and resulting in the **succeed in phase 1**.

SDCNlab, York University

Toronto, ON

Research Intern

May 2022 - Dec 2023

- Helped the construction a self-play training platform utilizing **Quanser** for the simulation and decision-making processes in autonomous vehicles, enhancing predictive accuracy.
- Developed **Python scripts** to analyze naturalistic human driving data and spearheaded the integration of this data into the model for test visualization, was **acknowledged in the official paper for pivotal contributions**.
- Helped the designing of **reinforcement model (LSTM part)** to train the autonomous ego vehicle to make lane-change decisions in extensive real-world scenarios.
- Received the Bronze Award of the **8th China International College Students’ ”Internet+” Innovation Entrepreneurship Competition** with the decision making autonomous vehicles algorithm.

TECHNICAL PROJECTS

Handwritten Converter — Python, Deep Learning

Jan 2023 - Apr 2023

- Prepared the training and testing datasets by combining individual numeric and symbolic elements into balanced equations, enhancing model robustness by **Python**.
- Architected a deep learning model employing a **CRNN with transformers using pytorch**, translating handwritten mathematical formulas into LaTeX code, with an achievement of 80% accuracy.