Qiyu Li

512-314-0604 | liqiyu1206@gmail.com | github.com/liqiyu126

Education

Cornell University, MEng in Computer Science — Aug. 2026 – May. 2027 (expected)

University of Texas at Austin, BS in Computer Science, Minor in Robotics — Aug. 2022 – May. 2026

- GPA: 3.74/4.0
- **Relevant courses:** Machine Learning, Robotics, Big Data Programming, Computer Architecture, Operating System, NLP, Computer Vision

Publications

- Mobina Tavangarifard, Jonathan S. Kacines*, Qiyu Li*, and Farshid Alambeigi, "A Learning-Based Approach for Contact Detection, Localization, and Force Estimation of Continuum Manipulators With Integrated OFDR Optical Fiber," manuscript accepted, IEEE IROS 2026, arXiv:2603.12347, 2026, arxiv.org/abs/2603.12347
- Qiyu Li, "LLM-Generated Proxy Features for Tabular Data: A Framework for Enhancing Conventional ML Models," 2026 Intersection of Computer Vision, Algorithms, Communication, and Quantitative Management
- Wu Zhixuan, Yuwei Mao, Qiyu Li, "Procedural game map generation using multi-leveled cellular automata by machine learning," ISAIMS '21, 10.1145/3500931.3500962

Professional Experience

The Advanced Robotic Technologies for Surgery Laboratory — Jun. 2025 – Now

Undergraduate Research Assistant | University of Texas at Austin, USA

- Developed learning-based sensing methods for continuum manipulators instrumented with distributed OFDR optical fiber in free and constrained environments.
- Built and maintained a ROS and Vicon-based experimental pipeline for real-time fiber shape reconstruction, contact data collection, and system validation.
- Co-developed a cascade learning framework using Gradient Boosting for contact detection and a CNN-FiLM model for contact localization and force estimation, achieving high accuracy in obstructed-environment experiments.

BroadHead Analytics — Jun. 2025 – Aug. 2025

Data Analytics Intern | Atlanta, USA

- Preprocessed a robust dataset of 10,000+ records with data cleaning, recursive feature elimination, and undersampling.
- Developed, deployed, and maintained two XGBoost models for various user activity predictions. Utilized subsample and colsample to mitigate overfitting and achieved up to 8% improvement in overall recall.
- Analyzed model outputs to extract key behavioral insights. Provided a base for strategic customer outreach planning.

Project Experience

LLM-Generated Proxy Features for Tabular Data — Aug. 2025 – Dec. 2025

- Built an LLM-based proxy-feature pipeline for text-heavy tabular datasets to improve downstream classification and regression models.
- Applied the framework to both classification and regression settings on crime and California housing datasets.
- Designed a modular prompting framework with 7 prompting strategies for reusable, scalable feature generation.
- Added batch-processing workflows to support larger-scale prompt execution and evaluation.
- Improved crime classification by up to 0.02 in AUC-ROC and average precision, and improved California housing regression by 10% in R-squared and RMSE.

Learning-Based Fiber Sensing for Continuum Manipulators — Jun. 2025 – Now

- Built an ML workflow on distributed OFDR strain data for continuum manipulators, combining ROS/Vicon data collection with real-time shape-reconstruction pipelines.
- Co-developed a cascade learning system using Gradient Boosting for contact detection and a CNN-FiLM model for contact localization and force estimation in constrained environments.
- Evaluated the sensing pipeline on real robot experiments using ODiSI strain streams and calibration-based curvature reconstruction.

Spotify Songs Classification — Nov. 2024 – Dec. 2024

- Collected and modeled 30,000+ Spotify tracks with Naïve Bayes, KNN, Random Forest, and SVM, evaluating performance with accuracy, F1-score, and confusion matrices and finishing in the top 5% of the class competition.

Other Information

Programming Languages: C++, C, Java, Python, SQL, JavaScript, TypeScript, MATLAB
Certificates: Coursera: Computational Thinking for Problem Solving; Forage: Walmart Global Tech's Advanced Software Engineering Job Simulation