Guanyu **Mi**

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Education

University of California, Davis
Davis, CA

M.S. in Electrical and Computer Engineering — *Sep 2024 – Jun 2026*

- **Coursework:** Foundations of Large Language Models, Unsupervised Learning, VLSI Digitial Signal Processing

The Chinese University of Hong Kong, Shenzhen
Shenzhen, China

B.E. in Electronic Information Engineering — *Sep 2020 – May 2024*

- **Coursework:** Image Processing and Computer Vision, Digital Signal Processing, Data Structures, Optimization

Experience

Robotics and Artificial Intelligence Laboratory (RAIL)
Shenzhen, China

Undergraduate Research Assistant — *Nov 2022 – Dec 2023*

- Contributed to the development of an experimental platform to evaluate the control robustness of a Team Deep Q-Network (TDQN) framework for surgical robotics end-effectors.
- Implemented an end-to-end machine learning project using **Python** and **TensorFlow**, designing an Elastic Hysteresis Neural Network (EHNN) model for tendon-driven manipulators that achieved a **1.27mm Root Mean Square Error (RMSE)** in open-loop physical tests.

National Innovation Center for Advanced Medical Devices
Shenzhen, China

Engineer Intern — *Jun 2023 – Aug 2023*

- Developed core firmware in **C++** to process real-time, **100Hz 9-axis time-series data** from an IMU, extracting hand movement features for rehabilitation. Utilized **Git** during cooperation.
- Engineered a low-power Bluetooth (BLE) data protocol with **C++** for a Parkinson's monitoring device, achieving a **30% reduction in power consumption** . Developed a **PyQt** utility for real-time receiving, parsing, and visualization of multi-channel sensor data.
- Applied algorithms such as **transfer entropy** and **spectrogram** in **Python** to **extract and analyze features** from multi-channel EEG data. Validated the corticokinematic coherence, providing theoretical support and quantitative metrics for stroke rehabilitation.

Projects

Efficient Reproduction of Logic-RL with Unsloth
Davis, CA, USA

University of California, Davis — *Jun 2025 - Present*

- Engineered an efficient fine-tuning pipeline (**Unsloth, LoRA, TRL, vLLM**) that enabled **Deepseek-R1-style reasoning training** on a single 16GB V100, achieved by adapting and reproducing the Logic-RL project.
- Conducted systematic hyperparameter tuning by analyzing **TensorBoard** logs, optimizing the KL-divergence penalty and reward function to identify a local optimal configuration under resource constraints.
- Performed attribution analysis on slow convergence, identifying LoRA's initialization as a bottleneck and proposing optimizations for PEFT methods in **production-like environments**.

Stress Detection Using Physiological Signals with Machine Learning
Davis, CA, USA

University of California, Davis — *Oct 2025 - Dec 2024*

- Applied **Principal Component Analysis (PCA)** for feature extraction and dimensionality reduction on the high-dimensional WESAD dataset.
- Developed multiple base classifiers (RF, SVM, DNN and engineered a **Soft-Voting Ensemble Model** to combine their predictive power.
- The proposed Ensemble Model demonstrated superior performance, achieving a peak **F1-score of 0.946** in the classification task.

Skills

Programming Languages	Python, C/C++, MATLAB, JavaScript, Verilog/System Verilog
Frameworks & Libraries	PyTorch, NumPy, Scikit-learn, TensorFlow, Keras, OpenCV, Pandas, SciPy
Platforms & Tools	Git, Github, Hugging Face, Cline, Azure, Docker, Jupyter, Microsoft Office Suite

Publication

- G. Ji, Q. Gao, M. Sun, **G. Mi**, X. Hu and Z. Sun, "Surgical Continuum Manipulator Control Using Multiagent Team Deep Q Learning," *2023 45th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, Sydney, Australia, 2023, pp. 1-5, doi: 10.1109/EMBC40787.2023.10340943.