Vo Hong Quan

About Me:

A motivated and technically skilled third-year Robotics and Artificial Intelligence student with a strong foundation in machine learning, deep learning, and robotics. Seeking an AI Engineering Internship to apply knowledge in real-world applications. Passionate about embedded AI, real-time inference, feature engineering and computer vision.

Contact

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Links

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GitHub: https://github.com/honggquan24

Technical Skills

Programming Languages: Python, C/C++, MATLAB

Education

Ho Chi Minh City University of Technology and Education (HCMUTE) *8/ 2022 – Expected 8/2026*

Bachelor of Engineering – Robotics and Artificial Intelligence

GPA: 3.11 / 4.0

Relevant Coursework: Machine Vision, Artificial Intelligence, Artificial Neural Network, Practice of Artificial Intelligence

Work Experience

Research Assistant – Robotics Lab, HCMUTE *2/2025 – Present*

- Supported reinforcement learning model training and real-time testing for control systems.
- Assisted in designing reward functions and tuning hyperparameters for reinforcement learning agents

Project

RL-Based Rotary Inverted Pendulum Controller *2/2025 – 6/2025*

https://github.com/honggquan24/rotary-pendulum-sac-simscape

- Built a reinforcement learning environment based on the Simscape model of the rotary inverted pendulum.
- Implemented the Soft Actor-Critic (SAC) algorithm using the MATLAB RL Toolbox for continuous control.
- Designed and optimized the reward function and hyperparameters to encourage faster stabilization of the pendulum during training for each phase:
- Swing-up Agent: learned to bring the pendulum from rest to upright in approximately 2 seconds on average.

ML/DL Knowledge: Supervised & Unsupervised Learning, Deep Learning, Reinforcement Learning, Data Structures & Algorithms

Data & Vision Libraries: NumPy, Pandas, OpenCV

Frameworks: TensorFlow, PyTorch, Keras, scikit-learn, YOLO, MATLAB RL Toolbox

Tools & Platforms: Git, GitHub, Jupyter, Google Colab, Linux, Anaconda

Soft Skills: Problem Solving, Analytical Thinking, Teamwork, Communication

- Balance Agent: achieved stable upright control with minimal oscillation despite white noise.
- Deployed the trained policy onto the ESP32 microcontroller for real-time control.

Technologies: *Python, MATLAB, Simulink, Simscape, RL Toolbox, SAC, Embedded Coder, ESP32*

Real-time Hand Gesture Control for Mouse Interaction *1/2025 - 4/2025*

https://github.com/honggquan24/hand-gesture-mouse-control

Developed a Python-based system to control mouse cursor using real-time hand gestures from a webcam.

- Utilized **MediaPipe Hand Landmarker** and **Gesture Recognizer** models to detect finger landmarks and classify gestures.
- Mapped specific gestures to mouse actions such as move, click, and drag.
- Achieved real-time performance with minimal latency (50ms) using optimized inference pipelines.

Technologies: *Python, OpenCV, MediaPipe*

Objective

Short-term Objective

- Gain hands-on experience in deploying machine learning and deep learning models in real-world applications.
- Strengthen problem-solving and analytical thinking skills in the context of AI engineering.

Long-term Objective

- Pursue advanced certifications and continuous learning in AI system development.
- Become a leading AI researcher contributing to cutting-edge advancements in artificial intelligence and its applications.