Zhiling Li

Southern University of Science and Technology, Shenzhen, China
+86-13592034425 | lizl2021@mail.sustech.edu.cn | GitHub | Personal Website

Education

Southern University of Science and Technology (SUSTech) **Sep 2021 - Present**

Bachelor of Engineering in Automation *(Expected Graduation: Jun 2025)*

- **Overall GPA:** *3.86/4.00*; **Average Score:** *92.56/100*; **Ranking:** *3/27*; **Major GPA:** *3.90/4.00*

Publication

- Yixin Li, Abdullah Al Arafat, **Zhiling Li**, Donald Johnson, Ning Sui, Anil Gehi, Zhishan Guo "Adaptive Model Selection for Real-Time Cardiovascular Disease Detection on Embedded Systems" (The paper has been submitted to the 16th International Conference on Cyber-Physical Systems ICCPS25)

Research Experience

Data Analytics and Learning for Cardiovascular Disease Detection via ECG Signals

Jul 2024 - Present

Supervised by Zhishan Guo, Associate Professor, NCSU

- Developed a one-class autoencoder model to detect ECG abnormalities via reconstruction errors; optimized architecture with convolutional layers, LSTM modules, and self-attention mechanisms; tested and benchmarked the performance of various model designs to ensure optimal accuracy
- Designed and implemented the full pipeline for model training, testing, and result visualization, overcoming challenges such as inaccurate data labeling and segmentation errors to improve classification performance

Cross-modal LLM-based Robotic Arm Interaction and Control System **Sep 2023 - Jul 2024**

Supervised by Zhiyun Lin, Professor, SUSTech

- Developed a robotic arm control system integrated with Large Language Models to interpret human natural language; analyzed intentions using an "Agent" framework, and performed complex tasks to meet potential human needs
- Designed the system architecture; finetuned a multi-task understanding model based on the gpt-4 model for robotic arm manipulation; constructed an intermediary layer to connect the control system with the agent; developed the front-end interface to enable interaction and system status monitoring

Graph-SLAM Based Calibration of Asynchronous Microphone Arrays **Jun 2023 - Aug 2023**

Supervised by He Kong, Associate Professor, SUSTech

- Assisted in modifying the implementation code of the Graph-SLAM system and setting up the experimental environment, integrating hybrid TDOA and odometry data to estimate microphone array parameters and sound event locations accurately

Competitions

National Electronic Design Competition for College Students | ***Second Prize*** **Aug 2023**

- As a team of 3, developed a laser motion control and automatic tracking system to finish particular tasks; implemented path interpolation and utilized feedback algorithms to enhance the dynamic response of gimbal control
- Individually employed image processing and recognition techniques, supplemented by Kalman filtering for predictive compensation; finished part of tracking motion control system

National College Students Embedded Chip and System Design Competition | ***Third Prize*** **Jul 2023**

- Designed and implemented a collaborative control system for quadcopters using STM32Fx and NRFxseries microcontroller chips, handling communication protocols and hardware integration
- Achieved synchronized motion control between the host quadcopter and the slave one with wireless communication and control signal relay; conducted kinematics modeling for quadcopter drones

College Student Electronic Design Competition | ***Excellence Award*** **Apr 2023**

- As a team of 3, completed the hardware setup, software programming, image processing and object detection using image processing and neural network to design and build an embedded system for intelligent drug delivery vehicles
- Individually programmed the trajectory control, designed upper-lower machine communication for vision data retrieval, and implemented a state machine to manage task execution, solely responsible for the perception and vision modules

Course Projects

Reinforcement Learning for Inverted Pendulum Control **May 2024**

Instructor: Wei Zhang Course: Optimal Control and Estimation

- Implemented various reinforcement learning algorithms, including Q-Learning, DQN, A2C, DDPG, and PILCO using PyTorch, to control single and double inverted pendulum systems, handling swing-up and stabilization tasks

eMeritBox **Dec 2023**

Instructor: Junmin Jiang Course: Microprocessors and Microsystems

- Implemented a gravity-sensing electronic merit box, a wood-fish hardware system under multithreaded control based on Raspberry Pi, an interactive Flask-based web page on the server

Honors & Awards

- Outstanding Student Award for the academic year *2023 & 2024*
- The Second Merit Scholarship *(2022 & 2024)* and the Third Merit Scholarship *(2023)*
- SUSTech Freshman Comprehensive Scholarship *(2021)*
- Champion *(2022)* and Runner-up *(2023)* in Women's Shot Put, Undergraduate Division, at the University Athletics Meet; 4th Place *(2021)*; Basketball Tournament Champion *(2021)*
- Awarded a 5th Degree Belt in Taekwondo

Leadership & Activities

- Leader of an established project under the “Climbing Program” Special Funds
- Media Manager of the Nonprofit Group “Stand by Her” in the year *2022 - 2023*
- Coordinator of the College “Sapling Volunteer Team,” managing recruitment and activities in *2022 - 2023*
- President of the Oak Tree Bartending Club during the academic year *2022 - 2024*

Technical Skills

- **Languages**: Python, Java, MATLAB/Simulink, C++
- **Software & Tools**: ROS, Gazebo/RViz, Scikit-learn, NumPy, PyTorch, MoveIt!, IDA, LaTeX, Git, Linux, Adobe Photoshop, etc.
- **Hardware & Electronics**: Arduino, Raspberry Pi, STM32Fx, OpenMV, etc.