CHEN ZILANG

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EDUCATION

South China University of Technology (SCUT)   Guangzhou, China

ShienMing Wu School of Intelligent Engineering   September 2022 – July 2026 (expected)

Bachelor of Engineering, **GPA: 3.8/4.0 (Top 10%)**

Mathematics and Statistics: Calculus (A), Probability and Statistics (B+), Linear Algebra (B-)

Computer Science: Data Structure and Algorithms (A), Machine Learning (A), Analysis and Applications of Big Data in Manufacturing (B+), Artificial Intelligence Technology and Applications (B+)

Engineering: Engineering Mechanics (B+), Thermodynamics and Fluids Mechanics (A), Introduction to Circuits (Practice) (A),   Introduction to Engineering (A), Practice of Introduction to Engineering (A), Practice of Design and Manufacturing (A), Product development (A),

RESEARCH EXPERIENCE

Summer Session Final Project of Math156, University of California Los Angeles   Los Angeles, CA

Advisor: Prof. Chunyang Liao   (UCLA)   June 2024 – August 2024

Independent Project: *Analysis of Wine Quality Based on Multiple Machine Learning Methods*

- Investigated the relationship between wine components and quality to address challenges in predicting complex, non-linear relationships in high-dimensional datasets, balancing model accuracy and interpretability for practical purchasing recommendations.
- Trained and evaluated various machine learning models, including Bagging, Boosting, SVM, Neural Network, and KNN, to analyze wine quality; conducted comparative analysis to determine the most effective method for predicting quality based on wine components.
- Identified key correlations between wine quality and price, providing actionable purchasing insights; authored a paper comparing the effectiveness of different machine learning methods for wine quality analysis.

South China University of Technology, ShienMing Wu School of Intelligent Engineering   Guangzhou

Advisor: Prof. Gang Chen (SCUT)   February 2024 – Present

Collaborative Project: *Real-Time Robotic Arm Motion Control Algorithm Based on Temporal Logic*

- Studied the LCRL (Linear Temporal Logic with Conditional Reasoning) algorithm and robotic arm control principles; utilized ROS for motion analysis and simulation to model and test real-time control strategies.
- Focused on developing real-time motion control algorithms and optimized path planner for robotic arms, addressing challenges in integrating temporal logic for precise motion control and improving real-time responsiveness in dynamic environments.
- Currently writing a paper on real-time robotic arm control algorithms based on temporal logic, aiming to enhance robotic motion accuracy and decision-making in real-time scenarios.

Advisor: Prof. Zhicong Huang (SCUT)   September 2024 – January 2025

Embedded Smart Home Terminal Based on Lightweight Machine Learning

- Developed an embedded smart home terminal to enable voice-controlled interactions, addressing challenges in deploying lightweight machine learning models on constrained devices with limited processing power and memory.
- Collected voice data independently and performed MFCC feature extraction. Trained a lightweight neural network using the extracted data and deployed the network on an embedded chip to achieve low-power offline speech

recognition. Integrated it with the OneNet platform for smart home control and connected to the Xinghuo large language model to enable intelligent continuous conversations.

- Enhanced embedded code writing skills and gained knowledge in training and deploying lightweight machine learning models.

Advisor: Prof. Yingjie Zhang (SCUT)   February 2024 – July 2024

Collaborative Project: Remote-Controlled Multifunctional Ball Picking and Placing Robot

- Designed an efficient pick-and-place robot to complete the task of moving balls from the field to designated locations, including real-time motion control, electrical system setup, and remote wireless control.
- Utilized kinematic analysis and Mecanum wheels to achieve omnidirectional movement for the robot. Developed embedded code to control the robot's servos and motors using PID and PWM techniques. Added a signal transmission module to enable remote control signal reception. Precisely modeled and fabricated the robot using SolidWorks.
- Used the robot to participate in a ball-picking speed competition on the contest field and won the silver medal in the college，Demonstrated that the robot efficiently completes the pick-and-place task, showcasing the superiority of our technology.

Advisor: Prof. Ye Chen (SCUT), Prof. Glenn Joseph Violett (SCUT)   September 2022 – February 2023

Collaborative Project: Biomimetic Water Surface Robot with Automatic Obstacle Avoidance

- Developed a biomimetic water surface robot inspired by water striders, addressing challenges in motion control in water, obstacle avoidance, and circuit waterproof design.
- Developed a C language robot control program on an Arduino board to achieve motion control and automatic obstacle avoidance. Designed the robot's casing using SolidWorks and produced it with 3D printing technology. Additionally, performed circuit soldering and connected various components to ensure seamless functionality.
- Achieved the task of waterborne obstacle avoidance, providing a unique solution for the aquatic robot. This project enhanced team collaboration skills and successfully completed the biomimetic design explored in the course.

SKILLS

Programming Language: C/C++, Python, R
MATLAB, SolidWorks, Embedded Programming

HONORS & AWARDS

Honorable Mention in Mathematical Contest In Modeling Certificate of Achievement (**MCM**) (Top 20%)	2024
Second Prize in Competition of Multifunctional Robot (Top 20% in School of Intelligent Engineering)	2024
Third Prize in the Shenzhen Cup Mathematical Modeling Competition (Top 20%)	2024
RoboCon Third Prize in the National College Student Robotics Competition "Angkor Bloom" (Top 30%)	2023
Third Prize in the Huashu Cup Mathematical Modeling Competition (Top 30%)	2023