Qi Ding

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Academic Background

Tongji University, School of Automotive
Automotive Electronics and Intelligence (Grade 18, 5-year)

- **GPA**：4.8/5.0   **Ranking**：2.2%（4/180）
- **Language Skills**：CET-4: **655**, CET-6: **641**, CGT-6: **Excellent**
- **Awards**： **National Scholarship**（2020-2021）, Tongji University First Class Scholarship（2018-2019, 2019-2020）, Outstanding Student of Tongji University（2018-2019）
- **Major Courses**： Calculus(A), Linear Algebra(A), Probability and Statistics(A), Automatic Control Principle(A), Computer Hardware Technology(A), Python Programming(A), Automotive and its Sustainable Development(A)
- **Software Skills**： Python, C/C++, MATLAB, Office

Competition Awards

Third Prize in Shanghai, National University Mathematics Competition	**2021.12**
Second Prize, Shanghai University Students' Computer Application Ability Competition	**2022.05**
National First Prize, SAS Data Analysis Competition for Chinese Universities	**2021.12**

- We assessed the effectiveness and safety of xx drug in the treatment of depression, using t-test, chi-square test, and Wilcoxon rank-sum test to conduct significance of difference analysis on clinical data of depressed patients, the effects of gender and age on the efficacy of the drug were also analyzed. In addition, We filled missing data using the multiple imputation method and performed sensitivity analysis.

Third Prize, National Student Computer Design Competition   **2022.07**

- Based on the pre-trained YOLOv5s lightweight target detection model, we built our flame augmentation dataset and completed the annotation work, modified the model structure to enhance the small target detection capability, performed transfer learning to obtain a high accuracy flame detection model, and used QT to design the application interface to complete the camera real-time detection and trigger alarms and other functions.

Honorable Mention, American College Mathematical Modelling Competition   **2021.04**

- Based on nine evaluation factors, a hierarchical structure was established using AHP analysis, a judgment matrix was constructed and the weights of each factor were determined. Using the comprehensive assessment model, the health conditions of 14 national higher education systems were scored and the sample results were classified into three categories using the K-means clustering algorithm, and the scores were predicted for the next five years using a grey-scale prediction model.

Third Prize in the East China Region, National University Students Intelligent Car Race   **2021.08**

- Designing and assembling an automatic navigation car consisting of an upper computer, drive module, MCU, and sensors. We used the YOLO target detection algorithm to complete the detection and identification of the signs, wrote microcontroller code to complete the PWM drive logic of the motor and servo, controlled the vehicle along the path, and completed the task of clamping and parking at specific locations according to the instructions.

Research Experiences

Machine Learning-based Path Prediction for Electromagnetic Vehicles   **2020.03-2021.03**

- Based on the MobileNet-SSD detection algorithm, an end-to-end autonomous driving model was trained using the camera capture images after canny edge detection as input and the directional control information of the intelligent vehicle as output and deployed to the edge computing board. The design finally achieved stable autonomous driving of the intelligent vehicle even under the conditions of external disturbance and uneven lighting. Using fuzzy PID control, the PWM speed regulation of the intelligent vehicle was completed to maximize the speed of the vehicle while ensuring a smooth ride.

Research on Millimeter Wave Radar of Human Posture and Vital Signs Sensing Technology   **2021.03-2022.03**

- Based on the IWR6843 millimeter wave radar board, separate measurements of breathing and heartbeat signals were completed by differential filtering and variable modal decomposition to achieve multi-target detection of life features at different angles from the same distance. Based on the camera, the detection algorithm for driver blinking and head-down behavior was programmed, combined with face feature points recognition. Using python language, we fused two sets of detection algorithms for vital signs and facial posture to build a driver fatigue warning system and tested it in real vehicles.

Social Activities

Member of Tu-Smart Car Team

- Responsible for the structural design and programming of smart cars, I have been invited to give scientific lectures on driverless technology and hold extra-curricular activities at Shanghai High School several times.

Faculty Innovation and Entrepreneurship Base Officer

- Regularly organizing academic discussions, participating in the recording and presentation of the online course "Automotive Vibration ", and engaging in many voluntary activities