Yuan(Jacky) Jiang

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EDUCATION

Master of Engineering in Electronic Information Engineering, Imperial College London **Sep 2020 - Jun 2024**

- GPA: 3.7/4.0
- Modules: Software Systems, Discrete Mathematics, Machine Learning, Deep Learning, Operations Research, Computer Vision, Robotics

RESEARCH and INTERNSHIP EXPERIENCE

Segmentation of LiDAR data for Aerial Application **Oct 2023 - Present**

Supervisor: Prof. Krystian Mikolajczyk, Imperial College London

- Analyzed preprocessing methods for 3D LiDAR data and conducted comparison and evaluation of existing models.
- Developing novel **end-to-end model and approach for enhanced segmentation efficiency and accuracy for aerial application**.

Panoptic Segmentation using Deep Learning **Jun 2023 - Present**

Supervisor: Dr. Yancong Deng, University of California, San Diego

- Constructed, trained and compared various semantic segmentation, instance segmentation and panoptic segmentation model including FCN variants, DeepLab varitants SAM and their applications.
- Studied and applied the principle of **few-short and prototype learning in 3D point cloud segmentation**.

Computer Vision Algorithm Engineer, Zongmu Technology (Shanghai) Co., Ltd. **Apr 2023 - Oct 2023**

- Adopted Python scripts to complete the data pre-processing algorithms such as on-chip video playback, video deframing, image prediction, visualization, and point cloud images.
- Constructed and trained a **FCN model use for freespace detection in autonomous driving**, evaluated the model, and wrote the evaluation report. Accumulated over 70000 training data and improved the model performance from 70% to 98%
- Participated in the research and development of '***Pseudo Point Cloud 3D Annotation Technology Based on Depth Estimation***' and '***Multi-Category Boundary in AVM Automatic Parking Scenario based on semantic segmentation*** ', resulted in China **patents**.

PROJECT EXPERIENCE

Computer Vision Project **Jan 2023 - Apr 2023**

- Under the PyTorch framework, implemented image noise reduction, gradient magnitude calculation, edge detection, key point detection and object detection algorithm.
- Constructed and trained a **UNet model for brain tumor image segmentation**.

Deep Learning and Machine Learning Project **Oct 2022 - Apr 2023**

- Implemented multiple models such as SVM, SGD, MLP, KNN autoencoders and GAN under Keras framework, PyTorch and TensorFlow.
- Designed CNN and transformers for image segmentation and natural language processing.

Raspberry Pi Powered Robot **Jan 2023 - Apr 2023**

- Used Python to program the Raspberry Pi, combined with lego sonar sensors, encoders and other sensors.
- Implemented PID control, **path planning, global/local positioning, Monte Carlo Localization, automatic obstacle avoidance navigation, object recognition and studied SLAM and Large SLAM**.

Mars Rover Project **May 2022 - July 2022**

- Command Module: Designed a Front-end command panel using TypeScript and React, and a back-end database in Node.js to connect the Mars rover with a web server to display its status and to control the rover remotely.
- Vision Module: Programmed a DE10-lite FPGA board with a Terasic D8M-GPIO camera in Quartus Verilog for identifying target objects and mapping the environment.
- Control Module: Programmed the ESP32 chip in Arduino IDE to complete the data transmission between modules; Used graph theory and breadth-first algorithm in C++ to establish autonomous obstacle avoidance and route planning.

IoT Project: FPGA design, data processing in cloud **Jan 2022 - Mar 2022**

- Developed a real-time video game in PyGame with FPGA board as the game controller.
- Stored relevant data in AWS cloud server and wrote Python scripts to process data such as history scores and best scores.

SKILLS

- **Languages:** Mandarin (Native), English (Fluent)
- **Programming:** Python, C++, JavaScript, TypeScript, HTML and CSS with React, MATLAB, Quartus, Arduino IDE, NoSQL, SQL