JI'AN ZHOU

COMPUTER SCIENCE DEPARTMENT
UIVERSITY COLLEGE LONDON
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■ EDUCATION

University College London   Sep. 2022 – Sep. 2023
MSc Robotics and Computation   (expected)
Expect a Distinction honor degree **(GPA 3.7+)**

Related courses:
Machine Vision (79.2%), Inverse Problems in Imaging (70.1%)
Acquisition and Processing of 3D Geometry (75.93%),
Multi-agent Artificial Intelligence (84%),
Robotic Control Theory and Systems (81%),
Robotic system Engineering (77.75%),

University of Liverpool   Sep. 2019 - Jun. 2021
BEng Mechatronics and Robotic System   AVG: 80/100
First Class Degree **(GPA 3.8+)**

Distinctive Courses:
Year3 (79/100):
Robotics system (93%), Image processing (87%),
Neural Network (86%), Digital Control and Optimisation (80%),
Final year project (75%).
Year2 (82/100):
Distinctive Courses: Signals and Systems (92%),
Field Theory and Partial Differential Equations (91%),
Digital Electronics and Microprocessor Systems (88%),
Instrumentation and Control (84%), Electronic Circuits and Systems (80%).

Xi'an Jiaotong-Liverpool University   Sep. 2017 – Jun. 2019
Major: Mechatronics and Robotic System

■ WORK EXPERIENCE

Radar Algorithm Engineer -- Jelicomm   Aug. 2021 - Aug. 2022
(affiliated to South China University of Technology, Full time)
• Tracking multiple people in visual field. Used mmWave radar to track, including recognising human and managing their trajectories
• Vital Sign Detection. Detecting the heartbeat and breathing of stationary human or pets with the high precision distance difference detection capability of millimetre waves
• Hand gestures recognition. Training a Neural Network to classify the gestures of hands. Feeding it with point-cloud images generated by mmWave radar
• Accumulating knowledge about radar and related algorithm, such as FMCW and Kalman Filter.

■ PROJECT EXPERIENCE

Dissertation Summer Project (2 months, 2023)
Working on 3D reconstruction via NeRF, aiming to integrate multi-resolution hash encoding with spherical harmonics as a practice on CUDA programming. Two links below are the first stage deliverable results and current progress.
[GitHub Links]: First Stage Results https://github.com/jianzhou0420/MScProject
[GitHub Links]: Current Progress: https://github.com/jianzhou0420/test_nerf

Implementation of Deep Q-Learning Network (DQN) with several tricks (2023).
This is a self-monitored mini project starting from 1st May 2023 and ended on 10th May 2023 and is designed to fill the gap of free time between the completion of course exams and the start of the graduation thesis. This mini project was motivated by my interest on reinforcement learning. After a series of attempt and exploration A double DQN was implemented for environment 'Acrobot-v1' in OpenAI gym package.
[GitHub Links]: *https://github.com/jianzhou0420/DQN_Acrobot_Agent*

Implementation of Poisson Surface Reconstruction (2023).
We firstly implemented an adaptive 'Poisson Surface Reconstruction', a traditional and classic method in reconstruction field. Secondly a comparison between different reconstruction methods will be presented. We will also investigate the latest reconstruction methods, and in particular the impact of deep learning on them in the end.
[GitHub Links]: https://github.com/jianzhou0420/PoissonSurfaceReconstruction_implementation

Design and implement of a robotic exoskeleton hip for rehabilitation (B.S. Final Year Project, 2021)
This project involves several stages including sensors and motor determination, control system design, power system design, Body 3D model, code training program and Optimization process. I firstly designed a mechanical hip exoskeleton with SOLIDWORKS. Then I chose other parts for a robot system. The robot hip was driven by ROS and was finally simulated in Gazebo.

DC motor speed control (B.S Year 2 Mini Project, 2019)
We used a proportional-integral-derivative (PID) controller to achieve a constant motor speed under different loads. The parameters of this PID controller were firstly determined with reasonable ranges and then squeezing method was used along with observing the experimental results.

IoT: Project to control home air conditioners via the internet (B.S Year 1 Mini Project 2018)
A cloud server was used to help penetrate the home network, therefore exposing the communication channel of the ESP8266 to the public network. We also designed an IOS application to send command messages to the target IP. In local, there is a device consisting of an Arduino, an infrared transmitter and Wi-Fi module. It is responsible for receiving commands from the internet and translating them into infrared messages and then send to the air conditioner.

■ SKILLS

Programming Skills: Good at   C   Python   MATLAB   ROS
                              Familiar with   C++/CUDA   Java   Linux Shell

Other Skills: Familiar with   SOLIDWORKS PSPISE   Robot Studio VMware Google Cloud

■ LEADERSHIP & ACTIVITIES

AIESEC in Suzhou   Sep. 2017 – Jun. 2019
• Vice-president of IGN group (2018-2019) – managing three projects, which received volunteers all over the world to contribute to solving hungry, education and environmental problems.
• Project leader (summer,2018) – running a project, named 'Dare to Dream', which was targeted at improving condition of one of the educationally backward schools.
AIESEC in Indonesia   Winter, 2017, 50 days
• Volunteer (Winter, 2017) – cooking and distributing food to homeless people in Jakarta and promoting awareness of food conservation to middle schools' students.

■ Summary

I am an individual with a clear sense of self-awareness, a long-term vision, strong execution ability, a high level of resilience, and a strong aptitude for learning, who place great importance on evaluation and reputation, and I aspire to achieve personal fulfilment through academic pursuits but faced with the challenge of lacking professional academic experience and guidance from supervisors.