JINHANG ZHU

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EDUCATION

University of Bristol *September 2019 - Present*
MSc. in Robotics
Department of Engineering Mathematics.

Wuhan University *September 2015 - June 2019*
B.S. in Measuring & Controlling Technology and Instrumentations Overall Percentage: 88
Department of Structural Engineering.
Thesis title: *Acquisition of the Electromyography Signal.*

Ecole Centrale de Nantes *September 2018 - May 2019*
Exchange student in Robotics. GPA: 3.79

RESEARCH EXPERIENCE

Acquisition of the Electromyography Signal *November 2018 - May 2019*
Software developer

- Designed and built all circuits.
- Implemented AD conversion algorithm for ADC chip MCP3302 using Python, collecting the EMG signals, then visualised and stored the data in real-time at the sampling frequency 2kHz. The system could finally stably conduct acquisition of EMG signals between the range of $20Hz \sim 300Hz$.

Panorama Stitching and Laser Point Cloud Registration *March 2017 - October 2018*
Software Developer

- Found that the errors in coordinates of matching points severely cause loss of accuracy and wrote a program in MATLAB to choose correspondence points. The number of pairs was doubled from 10 to 20-24, the order of magnitude of error decreased to 0.01 from 1, yielding a nearly seamless panorama.

COURSEWORK

Robot Kinematics and Motion Planning *October 2019 - December 2019*
Software Developer

- Implemented forward kinematics and inverse kinematics of 5-DOF serial Lynxmotion arm via MATLAB. Animated all the solutions (0-2 sets) of DH convention and analytical approach.
- Implemented the TangentBug motion planning algorithm for mobile robot. I made the agent smoothly avoid obstacles in the step size at 0.01/0.02 with the sensor range at $0.5/+\infty$.

Creating A Mosaic of Several Tiny Images Design Report *February 2019 - March 2019*
Software Developer

- Create a mosaic of images that builds up an image. I tested the mosaic generator under different configurations and found that setting the similarity function as Euclidean distances in 3 channels yielded the best result, from the database of 102 images. The process lasted about 240s.

NAO Robot for Autistic Children *September 2018 - December 2018*
Motion Designer & Software Developer

· Responsible for robotic motion design and software implementation process.

Design of Point Light Source Tracking System *May 2018 - July 2018*
Hardware Designer & Software Developer

· Designed amplification, filtering and anti-aliasing circuit and soldered circuit board. Designed control logic using C++ language, reduced the error within 1 cm and delay time within 0.8s by adjusting motor parameters.

Synthesis Design of Robot Car Control System *September 2017 - December 2017*
Hardware Builder & Software Developer

· Assembled the robot car with the car frame, DSP module, steering machines, sensors, gyroscopes, etc.
· Designed and developed control logic using C++ to achieve multiple functions including QTI line following, barrier-averting, object-grabbing, colour recognition, RFID control, etc.

HONOURS/AWARDS

National Encouragement Scholarship (Top3) *September 2016 & 2017*
National Innovation and Entrepreneurship Training Project (Merit Award) *December 2018*
Second-class Scholarship & the Title of Merit Student (Top3) *September 2017*

INTERESTS

Languages Chinese (Native)
English (Highly proficient, IELTS score: 7.5)
French (Elementary)

Interests Calligraphy (Engraver's Script)
Hiking (Hiked 179 km on Camino de Santiago in Spain in 6 days)