YITONG WANG

+44 07900492737⋄ +86 13265139183 ⋄ yitong.7.wang@kcl.ac.uk ⋄ ytwangcs@gmail.com

Interests: Medical AI, HCI, Machine Learning

EDUCATION

KING'S COLLEGE LONDON, London, UK *Sep. 2023 - Present*
MRes(Master of Research) Student in Healthcare Technologies
GPA:72/100(Currently, Estimated: Distinction)

South China University of Technology, Guangzhou, CHN *Sep. 2018 - Jun. 2022*
Bachelor in Engineering(supervised by Prof. Zhang Dong) GPA:3.15/4 or 82.48/100
Major: Process Equipement and Control Engineering Minor: Computer Science and Technology

EXCHANGE EXPERIENCE

NUS School of Computing Summer Workshop 2022 *May 2022 - Aug. 2022*
Cluster: Deep Learning and Embedded System(supervised by Dr. Colin) Grades:A

Imperial College London MasterClass 'Robotics, AI and iOT' *Jan. 2021 - Feb. 2021*
Theme: Fire inspection robot(supervised by Dr. Penny Lo) [*Best Project*] Grades: 95/100

SELECTED AWARDS

3rd Prize of AI Challenge at International Conference on Robot and Automation(***ICRA***) 2021.
1st Prize of RoboMaster Championship(Chinese Undergraduate Competition for robots) 2021.
Merit completion of the National Undergraduate Innovation Training Program(Director)
1st Prize of RoboCon Quadruped Robot Simulation Competition 2020.
Merit Student and University Scholarship by SCUT(top 25%).
2nd Prize in 32th Chinese Physics Olympiad(CPhO).
3rd Prize in 31th Chinese Physics Olympiad(CPhO).

PROJECTS

(in progress) Multimodal Deep Learning for mental stress state and loneliness detection
Responsible for developing Transformer-based deep learning models capable of accepting variable modal signal inputs, and further exploring the effect of modality loss of variable signals on the output results, and exploring ways to enhance the robustness of the models.

Tele-Operated Robotic Thrombectomy in Acute Stroke[***Related article expected to be published in 2025***][DOC]
Responsible for the automated navigation of mechanical thrombectomy using PPO within the SOFA framework. (1) Develop an automated navigation system for mechanical thrombectomy using PPO enhanced learning in the SOFA framework. and transfer the learned model to a real robot. (2) Design experiments to compare the performance of the algorithm with human operation. (3) Develop an interactive controller for the robot for human experiments.

Intelligent Plant Incubator
I oversee the deep learning segment and the development of the interface between software and hardware. My duties include compiling datasets for plant pests as well as meteorological information. I employ Inception V3 for the detection of plant pests, and Long Short-Term Memory (LSTM) networks to assess

the growth environment, which encompasses factors like temperature, humidity, and light. Specifically for the workshop presentation, I have created both a poster and a video to showcase our project.

Dual Robot task collaboration under rules based on Reinforcement Learning
Project for ICRA Artificial Intelligence Challenge 2021 (3rd Prize)
1)**Localization**: firstly based on YoLo V4 algorithm to realize the recognition of the robot body (Mosse filter tracking to enhance robustness and stability), localization is realized by PCL coordinate transformation, the accuracy is higher than 98.84 percent.2)**Decision-making**: using A3C and behavioral trees to implement event decision-making (attack, supply, movement and defense, etc.) for the robot. 3)**Navigation**: LIDAR is chosen for the sensor, and the robot's own localization is achieved using Cartographer and AMCL algorithms based on graph optimization, and global and local planning at frequencies of 3HZ and 40HZ is achieved using A* and TEB algorithms, respectively. 4)**Gimbal auto-targeting**: using OpenCV for color threshold segmentation and separation, and Kalman filtering to predict the opponent's motion (faster than learning-based methods), with recognition accuracy of over 90 percent and error of no more than 5cm within 4 meters, and PID algorithm for the gimbal's own control.

SRP Project
Theme: *Research on the Structure and Algorithm of Bionic Quadruped Robot*
Project for RoboCon 2021 Quadruped Robot Simulation Competition
I conducted a dynamic analysis of the bionic robot's leg structure and applied computational science techniques using Fusion360 to achieve biomimetic optimization. This process successfully reduced the structure's weight by 30% without compromising its mechanical strength. Concurrently, I also learned about and rewrite its control algorithm.

WORK EXPERIENCE

Engine Plant of Dongfeng Commercial Vehicle Co., Ltd , Wuhan *August 2021*
Processing Engineer Intern

· On-site internship under this leading vehicle company. As part of undergraduate studies, work in the safety supervision of heat treatment, and technological production processes. Participated in equipment design and maintenance.

Botai Robot Technology Co., Ltd, Foshan *Jan. 2021 - May. 2021*
Algorithm Researcher Intern

· Robot Algorithm internship under this robot startup. Engaged in research on perception algorithms for mobile robots, especially visual slam and multi-sensor fusion.

TECHNICAL STRENGTHS

Modeling and Analysis	AutoCAD, SolidWorks, Fusion360, ANSYS, 3D Printing
Software & Tools	MS Office, LaTeX, Adobe Softwares
Framework	Pytorch, TensorFlow, OpenCV, ROS, Sofa(Soft Robot Simulation)
Programming	Python, C++, HTML, JavaScript, Matlab
Language	Chinese(native), English