Wen Fan

Date of Birth: 1997/09/05
Gender : Male
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Education

2020.09 - 2021.10 **MSc.Advanced Control and System Engineering**, *University of Manchester*.
Core courses: State-space & Multivariable Control (79), Control Fundamentals (80), Digital Control & System Identification (78), Process & Model Predictive Control (84), Optimal & Robust Control (82), Applied Control (86), Nonlinear & Adaptive Control (82), Robotics & Autonomous Systems (82) .
Average score: 79.4% Award: Distinction

2016.09 - 2020.06 **B.Eng.Automation**, *HeFei University of Technology*.
Core courses: Graduation Design (90), Single Chip Microcomputer (96), Modern Control (93), Motion Control System (93), Fundamentals of Electrical Machines & Drives (88), Data Communication & Network (92), Principles of Automatic Control (93), Sensor & Detection Technology (95) .
Average score: 88% Average score of core modules: 90%

Honors and Awards

2019.11 The First-Class Scholarship in University (Rank Top 1% to 4%)
2017.11 The Second Award of The 2nd Engineering Robot Competition of HFUT

Thesis

2022.05 Graph Neural Networks for Interpretable Tactile Sensing
2022.03 From Teleoperation to Autonomous Robot-Assisted Microsurgery: A Survey
2021.09 Monocular Vision-based Robot Navigation in Fully Simulated Scamp5d and CoppeliaSim

Researches and Projects

2022.03 - Now **Adaptive Human-Robot Shared Control for Micromanipulation**, *Supervised by Dr.Dandan Zhang*, Bristol Robot Laboratory(BRL), funded by the Royal Society.

- Research assistant, in collaboration with the Medical Robotics Group at Imperial College Hamlyn.
- This project is motivated by the urgent need for intuitive and flexible micromanipulation systems to support manipulation of micro-object, where the poor sensory feedback, physiological tremor, and obstructive view hamper the precise micron-scale maneuvers.
- Human-robot shared control can integrate the advantages of both humans and robots. With the higher level of autonomy, operators can focus on more crucial and complex parts of micromanipulation while the repetitive and tedious work can be done by robots.

2021.10 - Now **Graph Neural Networks for Interpretable Tactile Sensing**, *Supervised by Dr.Dandan Zhang*, Bristol Robot Laboratory(BRL), University of Bristol.

- Visiting student in BRL, work on the internship project of tactile-sensing based object classification.
- TacTip sensor can extract vision features from the finger surface deformation and predict the object shape information, which leads to the tactile-sensing ability to reconstruct the environment objects.
- Train Graphical Neural Network (GNN) method to process those vision information and apply the object recognition task. By introducing interpretable methods such as GradCAM, the proposed GNN-based model show more intuitive performance than traditional CNNs.

2021.06 - 2021.10 **Monocular vision-based robot navigation via fully simulated Scamp5d**, *Supervised by Prof.Piotr Dudek*, School of Electrical and Electronic Engineering, University of Manchester.

- Imply ScampSim simulator on image processing by C++. The Scamp5d vision system uses Pixel Processor Array (PPA) camera sensor which supports on-chip processing.
- Finish obstacle avoidance and target navigation in CoppeliaSim robot simulator depends on the feature extraction results in ScampSim which produced by convolution or flood algorithms.
- Built communication between CoppeliaSim and ScampSim via interface and API module in Python.

Languages And Skills

English IELTS:Overall: 6.5; Listening: 6.5, Reading: 6.5, Writing: 6, Speaking: 6.5.
Tools C/C++, Python ; MATLAB, Labview, Multisim, Coppelia