

HONGZHOU LUAN

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EDUCATION

University of Oxford MEng Engineering Science Third year modules: Information Engineering, Control Engineering (95% final results), Software Engineering, Biomechanics and Medical Modelling and Monitoring (81% final results). Fourth year modules: Machine Learning, Non-linear and Optimal Control, Medical Imaging and Informatics, Cellular Engineering and Therapy, Probability, Systems and Perturbation Methods and Mathematical Techniques.	2018-2022
St Swithuns's School A levels Subjects: 7 A*s in Maths, Further Maths, Physics, Chemistry, Biology, Chinese and EPQ.	2016-2018

TECHNICAL SKILLS

Languages	(Ranked in the order of familiarity) Python, Matlab, C++, C
Libraries	PyTorch, Tensorflow, Sci-kit learn, Numpy, MNE, Matplotlib, Pandas.
Utilities	VSCode, Office, L ^A T _E X

ACHIEVEMENTS

Jardine Scholar A very prestigious full scholarship for the whole duration of the course sponsored by the Jardine Foundation with an additional annual stipend of £10,300.	2018 - 2022
Trinity College Progress Award A college prize awarded to mark the progress in academic work over the 2020/2021 academic year.	2020 - 2021

SELECTED RESEARCH EXPERIENCE

Research Assistant <i>National Engineering Lab of Neuromodulation, Tsinghua University</i> Supervisor: Professor Yanan Sui, Tsinghua University · Leading individual research project on Human Activity Recognition for Parkinson's Disease Monitoring using machine learning algorithms and IMU data. · Participating in research projects on Healthy and Parkinson's Disease Elderly Population Movement Analysis. · Assisting lab members on their projects involving computer vision and speech analysis. · Carrying out clinical experiments for data collection.	2022 - 2023
Master's Project <i>Algorithms for Epilepsy Diagnosis in Low- and Middle Income Countries: Deep Learning Algorithms for Signal Integrity and Epilepsy Detection</i> Supervisors: Professor Timothy Denison and Dr Tingting Zhu, IBME Center, University of Oxford Funding source: Wellcome Trust · Developed a seizure prognostic device using inter-ictal EEG channel data for low-cost epilepsy diagnostic device. · Built an EEG signal quality detector to exclude artifact-heavy signals and an epilepsy detector using supervised variational autoencoders, yielding high sensitivity and specificity.	2021 - 2022
Bachelor's Group Project <i>Close-loop Controlled Anaesthesia</i> Supervisor: Professor Timothy Denison, IBME Center, University of Oxford · Independently proposed the research aim and methodology for the group project. team of four students and achieved a first-class grade. · Developed a closed-loop controlled anaesthesia procedure based on the BIS index extracted from EEG signals for steady and stable anaesthetic states. · A simulation of the controller system was built using Simulink and yielded successful results when tested using human data. · Built a first-in-all pharmacodynamical and pharmacokinetics-based simulation modelling the patient reaction to anaesthetics to the BIS index with required open access data of the controller system was built using Simulink and yielded successful results when tested using human data.	2020 - 2021

TEACHING EXPERIENCE

Teaching Assistant

Course Title: *Human Factor Artificial Intelligence*

2022 Fall

Lecturer: Prof. Yanan Sui

- Prepared course materials with cutting-edge machine learning advancements.
- Marked homework and exams.
- Mentored undergraduate students on their course research projects.
- Held office hours to assist students with programming.

ADDITIONAL TRAINING AND PROJECTS

Neuromatch Deep Learning Summer School

github.com/hzluan/nma2022_RL_riskychoice_project

Insight From Reinforcement Learning: A Study of Risky Choices Decision-Making

- Attended lectures on deep learning and led a team of 8 to complete a project on reinforcement learning and human decision-making.