JIANHAO YUAN

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EDUCATION

MEng Engineering Science, Pembroke College, University of Oxford　　　　2019.10 – 2023.6
- Overall Score: 75.7%
- First Class (Rank 19/172)
- Modules: Computer Vision and Robotics, Machine Learning, Probability, Optimisation, Control Theory, Computer Architecture and Cloud Computing.

DPhil Engineering Science, Mansfield College, University of Oxford　　　　Start in 2023.10
- Robotics & Computer Vision

AWARDS

Distinction Scholarship (2020/2021/2022): First/Second/Third Year Final Exam
Collection Exhibition Prize (2020/2021/2022): First/Second/Third Year Collection Exam
Rokos Award (2022): Summer Internship Fund

PUBLICATIONS

Off the Radar: Uncertainty-Aware Radar Place Recognition with Introspective Querying and Map Maintenance, Jianhao Yuan, Paul Newman, Matthew Gadd. IROS2023
Not Just Pretty Pictures: Text-to-Image Generators Enable Interpretable Interventions for Robust Representations, Jianhao Yuan, Francesco Pinto, Adam Davies, Aarushi Gupta, Philip Torr. Preprint (https://arxiv.org/abs/2212.11237)

RELEVANT EXPERIENCE

Final-Year Project, Mobile Robotics Group, University of Oxford　　　　2022.10 – Present
- Investigated contrastive learning method for unsupervised place recognition with FMCW radar sensor to improve model robustness and generalisability.
- Utilizing a reconstruction loss based on variational inference for learning a noise-invariant radar signal representation.

Research Internship, Torr Vision Group, University of Oxford　　　　2022.6-Present
- Investigated an interpretable and controllable causal mechanism that enables people to break spurious correlation and learn an invariant representation for image classifier.
- Proposed a novel data augmentation method by utilizing a text-vision generative model to improve model performance on domain generalisation and achieve state-of-the-art performance.

Third-Year Project, Local Energy Oxfordshire, Oxford e-Research Center　　　　2021.10-2022.4
- Designed a local net-zero energy system in Culham Science Village, Oxford, mainly focusing on quantitative system modelling for design optimisation and time-series data analysis.
- Developed a receding horizon optimisation method with a predictive LSTM model and linear programming for the optimal sizing and operation strategy of energy storage units.

Internship Recommender System Engineer, Aida Tech　　　　2021.6-2021.9
- Responsible for automatically personalized outfit recommendations based on deep learning methods, mainly focusing on product feature extraction.
- Developed a multi-modal auto-labelling tool to label outfit features, including category, texture, and style, based on the product image and description inputs.
- Developed ETL skills with SQL and model deployment skills in the production environment.

ADDITIONAL SKILLS

IT: Programming Language: Python, C++, MATLAB,
　　Machine Learning Framework: PyTorch, TensorFlow

　　Development: JavaScript, HTML, Flask, Django, TorchServe

　　Database: SQL