

# Zhiyi Zhao

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## EDUCATION

<b>M.S. in Design Informatics</b> <i>Supervised by Dr Arno Onken</i>	Sep 2023 - Dec 2024
University of Edinburgh, Edinburgh, United Kingdom	GPA: 3.9/4.0 Expected Distinction Degree
<b>B.Eng. in Data Science</b> <i>Supervised by Dr Yuxuan Zhao</i>	Sep 2019 - Jul 2023
University of Liverpool, Liverpool, United Kingdom	GPA: 3.9/4.0 First Class Hons
<b>University of Liverpool</b> <i>Outstanding Graduate</i>	2023
<b>University of Liverpool</b> <i>Scholarship for AIAC School</i>	2023
<b>University of Liverpool</b> <i>Outstanding Student Representative</i>	2021-2022

## PUBLICATIONS

- Z. Zhao** and Y. Zhao, YOLOv5s-Transformer: Improved YOLOv5 Network for Real-Time Detection of Cigarette Smoking Based on Image processing, *4th International Seminar on Artificial Intelligence, Networking and Information Technology (AINIT)*, Nanjing, China, 2023.
- Z. Zhao** and Z. Ge, Plug-and-Play Self-Distillation for Multimodal Sentiment Analysis with Incomplete Modalities, In Process.
- Z. Zhao** and X. Liu, Using Machine Learning and Bayesian-based Hyperparameter Tuning (RFBOCV): A Predictive Model for Initial Public Offering (IPO) in the Hong Kong Stock Market, In Process.
- Z. Zhao** and Y. Li, Stacked Bi-Convolutional Neural Network with feature pre-extraction and fusion module to diagnose common lung diseases from x-ray imagery, Under Review.
- Z. Zhao** and A. Onken, Transformer Adapter for Efficient Static-to-Dynamic Prediction of Mouse V1 Responses using V1T Core Model, Under Review.

## PROJECTS

- Deep Learning Model for Neuron Response** | *Research Assistant* ANC EDINBURGH, 2024 - Present
- Proposed a ViT-based model integrating visual and behavioral inputs to predict mouse V1 neural responses, surpassing CNNs, and explored attention weights for behavioral insights, achieving strong generalization across diverse stimuli with a deep neural network trained on extensive neuronal data.
- AI-powered clinical decision assistance for acute stroke** | *Research Assistant* Monash Medical AI, 2023 - Present
- Developed a method using Mixture of Student's t-distributions and confidence scores to handle anomalies and enhance robustness with incomplete data through Confidence-Aware Knowledge Distillation.
- Predicting IPO initial returns using machine learning algorithm** | *Research Assistant* UNSW Science, 2023 - Present
- Developed a hybrid random forest model with Bayesian optimization and cross-validation for feature selection to predict HKEX IPO initial returns, demonstrating superior accuracy over models like Linear Regression, Boosting, and MLP.
- Smoking Detection based on Attention Mechanism** | *Research Assistant* MMAI LIVERPOOL, 2022 - 2023
- Developed "YOLOv5s-Transformer" by integrating a C3TR Transformer block into YOLOv5s, reducing complexity and improving accuracy for real-time smoking image recognition, and evaluated it with data augmentation against SOTA models for efficient use in resource-constrained environments.

## ACADEMIC ACTIVITIES

- Invited keynote speaker on the industrialization of AI, AINIT 2023.
- IJCNN 2024 conference reviewer, unsupervised learning and diffusion models, with 20 completed reviews.

## SKILLS

- Tools:** TensorFlow, PyTorch, Hugging Face, and DeepSpeed.
- Programming:** C++, Python, MATLAB, and Shell.
- Interdisciplinary:** Neurodegenerative Conditions, Image Analysis of Medical Image.
- Communication:** Academic English, Leadership and Project Management.