Luo Xinyu

Mobile: (+86) 133-5014-5658 | Email: xinyu.luo2003@outlook.com | Personal Webpage: carsonluo.com/academic

EDUCATION

Oxford Brookes University & Chengdu University of Technology (CDUT)
BSc Software Engineering 09/2021-07/2025

- Degree Classification: First Class Honours (Overall Average Mark: 72.125%)
- Relevant modules: *Mathematics for Computing* (81), *Object Orientated Programming* (80), *DevOps* (74), *Basic Communications and PC Networking* (76)
- Recipient of CDUT Oxford Brookes College Scholarship (2023, 2024)

RESEARCH EXPERIENCE

Final Year Project: *Early Cancer Detection Using Multi-Scale CNN and Transformer-Based Deep Learning Approaches*
1st Author 10/2024-05/2025

- Developed a hybrid framework integrating EfficientNetV2 and Vision Transformer (ViT) for cancer detection
- Designed Shifted Patch Tokenization (SPT) and Learned-Scale Attention (LSA) to improve feature extraction
- Achieved 87.3% validation accuracy and 0.892 AUC (area under ROC curve) on the Breast Cancer Histopathological Image Classification (BreakHis) dataset
- Produced a technical report and prototype system under faculty supervision

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Ensemble Learning-based Multimodal Framework for Predictive Modelling of Chest Diseases
2nd Author 04/2024-07/2024

- Created a multimodal predictive framework to detect chest diseases
- Applied ensemble learning techniques to analyse X-ray images and electronic health record (EHR) data
- Conducted data analysis, evaluated models, and implemented transfer learning and bagging algorithms
- Increased AUC values by 3%-20% across 11 diseases, and co-authored a paper currently under review

Enhancing Customer Behaviour Prediction in E-commerce: A Comparative Analysis of Machine Learning and Deep Learning Models
Co-1st Author 08/2023-09/2023

- Assisted Professor Shlomo Ta'asan at Carnegie Mellon University in predicting purchase intent and building a data analysis framework
- Developed test cases to ensure the accuracy of data analysis and prediction models
- Analysed datasets and gleaned insights to advise the research team

Design and Implementation of a Self-built Plagiarism Detection System for University Academic Integrity
2nd Author 07/2023-08/2023

- Built the software development framework and developed test cases for a plagiarism detection system
- Wrote a paper based on literature searching and analysis
- Co-developed algorithms for plagiarism detection and improved the system's accuracy and efficiency

University Scientific Innovation Project: *iShare Learning Platform
Team Member 03/2023-07/2023

- Explored the status of and development trends in online education and wrote an industry research report
- Attended discussions about the design of platform functions and optimisation of user experience
- Produced a progression report and took the minutes to facilitate collaboration between members

Chilli Pepper Pest Recognition Based on HSV (Hue, Saturation, Value) Colour Space and Convolutional Neural Networks
5th Author 01/2023-05/2023

- Analysed experimental data using statistical techniques to learn about chilli pepper pest recognition
- Developed tailored data pre-processing methods to ensure analysis accuracy
- Consulted academic literature, synthesised research findings, and wrote a paper

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EXTRA-CURRICULAR ACTIVITIES

China Robotics and Artificial Intelligence Competition
Team Leader 08/2024

- Built upon the outcomes from previous research on a self-built plagiarism detection system
- Planned, implemented and collaborated on the technical project
- Led members to resolve technical issues, improve algorithms, design UI and ensure system reliability
- Reached the national final and received a 3rd-class prize

National University Students Innovation and Entrepreneurship Programme
Team Member 11/2023-04/2024

- Participated in a project aimed at developing image anti-counterfeiting detection technology
- Developed and researched image recognition algorithms to enhance security features
- Collaborated with team members to draft the project proposal
- Achieved accurate detection of multiple tampering methods

Institute of Innovation and Entrepreneurship Promotion Association
Co-ordinator 09/2022-06/2023

- Organised lectures on subject-oriented competitions
- Posed 7 science communication articles on social media
- Managed and ensured the success of 7 competitions

"Challenge Cup" National University Student Extra-curricular Academic Science and Technology Works
Team Leader 03/2023-04/2023

- Managed team workflow and outlined the intended paper
- Led team-mates to write the paper within 2 weeks and reached the university-level final

Students' Union of Chengdu University of Technology (CDUT)
Organisation Department Officer 09/2021-06/2022

- Co-organised subject-oriented competition training activities 10 times
- Liaised with members and interacted with teachers and peers to guide campers

ADDITIONAL SKILLS

Languages: English (Proficient), Mandarin (Native)

Technical Skills
Programming:

- Proficient: Python, Java (OOP, Multithreading)
- Familiar: TypeScript, JavaScript, SQL

Machine Learning & Artificial Intelligence:

- Deep Learning Frameworks: TensorFlow, PyTorch
- Scientific Computing & Data Analysis: Pandas, NumPy, Matplotlib, Scikit-learn
- Deep Learning Models: Solid theoretical understanding and practical experience with Transformer architectures (BERT, GPT), CNNs, RNNs, GNNs, and Attention Mechanisms
- Classical Machine Learning: Experienced in implementing and evaluating algorithms, *e.g.*, Linear Regression, Support Vector Machines (SVM) and XGBoost

Other Advanced Skills:

- Prompt Engineering: In-depth knowledge of advanced prompting techniques (*e.g.*, Zero/Few-shot, CoT, ReAct, Reflexion, Prompt Chaining)
- AI Agent Development: Hands-on experience with AutoGen Studio for developing and orchestrating multi-agent systems