Jiajun Zhang

I recently completed a PhD from Loughborough University and am armed with strong knowledge in Artificial Intelligence (AI), Computer Vision, eXplainable AI, and Data Science. Currently, I am a sessional teacher at Keele University. My academic journey and collaborative work with industrial partners have both equipped me with solid technical skills and extensive experience in developing and deploying AI-based frameworks using Python and ML toolkits. With a strong passion for AI and data, I am seeking a Data Scientist or AI Engineering role in an innovative company to apply and further enhance my skills.

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Chinese with UK-ILR Visa

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EDUCATION

PhD in Computer Science — Jan 2020 - Dec 2023
Loughborough University, UK
* Co-funded by Railston & Co Ltd and Loughborough University
* **Thesis** - AI-based Defect and Irregular Pattern Detection, Classification and Retrieval Models Enhanced with Morphological Feature Engineering for Enabling AI Reasoning Capability
* **Research Keywords** - Industrial & Healthcare Defect Detection & Analysis, Artificial Intelligence, Explainable AI, Computer Vision, and Image Retrieval.

MSc in Computer Science — Sep 2018 - Jan 2020
University of Warwick, UK
* **Grade** - Distinction
* **Key Modules** - Natural Language Processing, Data Analytics, Data Mining, Algorithmic Game Theory.
* **Dissertation** - Extension of Sherlock Plagiarism Detection Software - Internet Resource Detection Algorithm
* **Dissertation Keywords** - Code Plagiarism Detection, Education Technology, Software Development, Natural Language Processing

BSc in Computer Science — Sep 2015 - Jul 2018
University of Birmingham, UK
* **Grade** - Class 2.2
* **Key Modules** - Machine Learning, Intro to Database, Data Structure & Algorithm, Robot Programming, Intro to Software Engineering.

PUBLICATIONS

* **Zhang, J.**, Cosma, G., Bugby, S., & Watkins, J. (2023). Efficient Retrieval of Images with Irregular Patterns Using Morphological Image Analysis: Applications to Industrial and Healthcare Datasets. *Journal of Imaging*, 9(12), 277.
* **Zhang, J.**, Cosma, G., Bugby, S., & Watkins, J. (2023, December). ForestMonkey: Toolkit for Reasoning with AI-based Defect Detection and Classification Models. In *2023 IEEE Symposium Series on Computational Intelligence (SSCI)*, Mexico City, Mexico, 519-524. IEEE.
* **Zhang, J.**, Cosma, G., Bugby, S., Finke, A., & Watkins, J. (2023, December). Morphological Image Analysis and Feature Extraction for Reasoning with AI-based Defect Detection and Classification Models. In *2023 IEEE Symposium Series on Computational Intelligence (SSCI)*, Mexico City, Mexico, 1104-1111. IEEE.
* **Zhang, J.**, Cosma, G., & Watkins, J. (2021). Image Enhanced Mask R-CNN: A Deep Learning Pipeline with New Evaluation Measures for Wind Turbine Blade Defect Detection and Classification. *Journal of Imaging*, 7(3), 46.

SKILLS

Research & Report, Problem Solving, Learning Agility, Idea Proposing, Critical Thinking, Time & Risk Management Teamwork, Communication, Presentation.

Programming Skills

Python, HTML, CSS, JS, SQL.

Computer Science Skills

Machine Learning
Tensorflow, PyTorch, Scikit Learn.

Data Analysis
Tableau, Weka.

Web Development
Flask, Django, Wordpress.

Cloud Toolkit
AWS, GCP.

Operating System
Linux, Window

Other Skills

MS Office
Word, Excel, Publisher, Powerpoint.

Design & Media
Photography, Video Recording & Editing, Sound Editing.

EXPERIENCE & PROJECTS

Keele University, UK   **Jan 2024 - To present**
Sessional Teacher
* Delivered dynamic and interactive lectures and lab practice sessions in System Design & Programming (30+ postgraduate students).
* Provided personalised academic feedback, guidance and support to students, facilitating their understanding of complex concepts.
* Designed and conducted assignments that challenged students to apply theoretical knowledge to practical scenarios, promoting critical thinking and problem-solving skills.

Loughborough University, UK   **Jan 2020 - Dec 2023**
PhD Research Project
Researched advanced AI techniques to detect and analyse defects across industrial and healthcare datasets.
* Achieved a 27% increase in defect detection and classification performance using the proposed Deep Learning-based framework.
* Proposed and developed an eXplainable AI framework to provide transparent explanations of AI outputs, enhancing interpretability by leveraging morphological features extracted from images.
* Designed and implemented an efficient Image Retrieval framework using morphological features, outperforming traditional and Deep Learning-based approaches.
* Successfully integrated and developed the research outcome into a comprehensive toolkit with continual learning capability, facilitating on-going improvements in the system.
* Deployed the toolkit on an AWS EC2 cloud server, enabling access and utilisation by a team of 10+ engineers and scientists.
* Published four peer-reviewed papers in reputable journals and conferences, contributing novel insights to the field of AI-based industrial solutions.

Loughborough University, UK   **Apr 2023 - Sep 2023**
Research Project - Themis.AI
Designed a user-friendly toolkit, integrating an advanced AI technique aimed at identifying early help referrals for young people.
* Utilised Colab/Jupyter engine to deliver a user interface, enhancing accessibility and ease of use for stakeholders.
* Integrated interactive data visualisation functionalities into the toolkit, allowing for deeper exploration and analysis of the results.
* Collaborated with fellow researchers to develop and refine the toolkit, ensuring it met the project objectives and user needs.

Loughborough University, UK   **Sep 2020 - Sep 2023**
Teaching Assistant - Part Time
* Delivered lab supports for Web Programming (120+ undergraduate students), Big Data Analytics & Visualisation (50+ postgraduate students) and Programming for Data Science (30+ postgraduate students) modules.
* Prepared comprehensive and instructive tutorial materials for Big Data Analytics & Visualisation module, enabling students to apply the theoretical knowledge into real-world scenarios.

LANGUAGE

English - Fluent
Chinese - Native

INTERESTS

Data Science,
Human Behaviour,
Simulation,
Automation,
Forecasting,
Psychology,
Aviation.

ACTIVITIES

**Chinese Society (ChiSoc)
Media Officer**

Jul 2016 - Sep 2017
University of Birmingham, UK
* Produced digital content and posters to promote ChiSoc and events.
* Led five-person team to organise 10+ ChiSoc events, responsible for event promotion, setup, photography & video recording.
* Organised monthly workshops to introduce media-related knowledge.

Q&A Volunteer

Jan 2016 - Sep 2016
University of Birmingham, UK

* Helped 100+ applicants to solve their questions regarding the accommodations and applications.