Jiaqi Ye, Ph.D.

Research Scientist - Innovations in Applied AI, Sensors, and Robotics

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Summary

An academic engineer with a strong background in developing applied AI and machine vision systems in Engineering, backed by eight years of academic excellence. With two years of hands-on experience designing applied AI and robotic systems for industrial automation tasks. Passionate about bringing innovative AI techniques to diverse fields.

Experience

Research Scientist in Applied AI and Industrial Automation

The Birmingham Institute for Robotics, University of Birmingham

July 2022 – Present Birmingham, UK

- Assisted in establishing and managing a large autonomous systems lab, focusing on AI-driven industrial automation solutions using advanced sensors and robotics.
- Led a £280,000 project automating an electromechanical equipment production line. Designed and developed an AI-robot-driven solution, resulting in a 120% productivity increase and significant cost reductions.
- Directed multiple applied AI R&D projects, specialising in deep learning in computer vision (e.g. CNNs, RPNs, and FCNs) and the technical routes to apply them to real-world scenarios.
- Provided AI/ML solutions for the inspection of large infrastructures, such as railway track and track-side equipment, to key stakeholders such as Siemens, Network Rail, HS2, and Euro Tunnel, contributing to improved operational reliability and reduced maintenance costs.
- Worked with cross-functional teams on multifaceted projects encompassing system development, commissioning, research result dissemination, and report writing.

PhD Candidate in Machine Vision and Applied AI

Birmingham Centre for Railway Research, University of Birmingham

February 2018 — April 2022 Birmingham, UK

- Designed and developed two innovative laser scanners for onboard and handheld 3D scanning of railway tracks, achieving a remarkable 0.05mm measurement accuracy in challenging conditions. Integrated laser, camera, IMU, and displacement sensors for enhanced performance. *[Ref-1] [Ref-2]*
- Developed optimised deep learning-based pipelines and UI interfaces for large point cloud data processing, covering denoising, registration, reconstruction, and deep semantic segmentation. Enabled rapid 3D visualisation and assessment of substantial objects like rails. *[Ref-3] [Ref-4]*

Volunteer - STEM Ambassador

HUST-UoB Summer Lab Organiser

Every July since 2018 China

- Coordinated summer exchange programs between the University of Birmingham's School of Engineering and multiple Chinese universities. Mentored hundreds of undergraduate students annually in projects involving self-navigating cars. Instructed electronic circuit design and PIC programming as part of the curriculum.

Tech Stack

Machine Vision Deep Learning Sensors Electronic Circuit Design Modern Robotics Python C/C++ MATLAB SDK & API SolidWorks Microsoft Office VS code AWS TensorFlow PyTorch tkinter OpenCV PCL

Education

PhD in Machine Vision and Applied AI

University of Birmingham

2018 – 2022 Birmingham, UK

Publication List
http://scholar.google.com/citations?user=Gn39XzgAAAAJ&hl

MRes in Electronic, Electrical and Systems Engineering

University of Birmingham

2015 – 2017 Birmingham, UK

BEng in Electronics and Information Engineering (First Class Hons)

Huazhong University of Science and Technology

2011 – 2015 Wuhan, China

Strengths

Research Skills
Proficient in meticulous data analysis, rapid assimilation of cutting-edge research, and skilled in hardware and software development.

Hard-working
12 peer-reviewed publications (6 first-authored) in the field of Applied AI. Passed PhD viva with "no corrections".

Team and Project Management
Two years of effective team management, leading a team of five researchers and successfully delivering two projects.