

Professor Yifan Zhao

EDUCATION

10/03-01/07 PhD in Automatic Control and System Engineering, **University of Sheffield**, UK.
09/00-03/03 MSc in Automatic Control Engineering, **Beijing Institute of Technology**, China.
09/96-07/00 BEng in Automatic Control Engineering, **Beijing Institute of Technology**, China.

WORK EXPERIENCE

08/23- **Professor** of Data Science, **Cranfield University**
07/21-08/23 **Reader** in Data Science, **Cranfield University**
07/19-07/21 **Senior Lecturer** in Data Science, **Cranfield University**
10/13-07/19 **Lecturer** in Image and Signal Processing, **Cranfield University**
01/07-10/13 **Research Fellow** in Nonlinear System Identification, **University of Sheffield**

Generation of new ideas, tools, methodologies, or knowledge

Prof Zhao's research vision is to lead a world-class research team in Applied Data Science, focused on pioneering digital engineering solutions that enable a safe, healthy, zero-emission, and sustainable future. He has over 20 years of experience in solving Inverse Problems based on data science and digital engineering, including AI, Digital Twins, pattern recognition, and system identification. The covered themes include operational excellence in construction, asset management within Manufacturing, driver monitoring and human-machine interface for Transport, and brain functional imaging and analysis in Healthcare.

PUBLICATIONS

Peer-reviewed journal papers: 155; Conference papers: 50; Books: 6; Patents: 3

Full list: <https://profiles.cranfield.ac.uk/1423-yifan-zhao/publications>

AWARDED MAJOR GRANTS

2024-2025 **PI**: "TRAMS-Enterprise - Trustworthy, Responsible AI and ML for construction, Secure and Enterprise Ready", funded by Innovate UK (Ref: 10093011), £815K
2024-2028 **PI**, "Trust evaluation of autonomous systems", funded by EPSRC, iCASE, in partnership with Jaguar Land Rover (voucher: 240102), £140K
2024-2026 **Co-I**, Airbus Landing Gear Grand Challenge Project "Gear Mass Reduction with Hybrid Materials and Structures", Ref: ME2319096, £2M
2025-2028 **Co-I**, "Adaptive AI for Wind Control and Predictive Maintenance", EPSRC DLA, £120k
2024-2027 **Co-I**, "Scalable Digital Twins with Advanced Machine Learning Integration for Offshore Wind turbine Operation and Maintenance", funded by EPSRC DTP, £100k
2023-2024 **PI**, **Royal Academy of Engineering Industrial Fellowship**, titled "A Digital Twin of Construction Machinery for improved energy efficiency", IF2223B-110, £59K.
2022-2023 **PI**: "Fuel Coach", funded by **Department for Business, Energy & Industrial Strategy (BEIS)** (Ref: EEF8037), £652K
2022-2023 **PI**, "Cognitive states estimation using non-intrusive electroencephalogram", funded by **Jaguar Land Rover**, £11K.
2022-2022 **Co-I**, "Sonar data processing using machine learning", **DSTL** (QinetiQ), £8K.
2022-2022 **PI**: "Commercialisation and knowledge exchange of BAMCAM for the construction sector", funded by **Higher Education Innovation Fund**, £31K.
2020-2021 **Academic PI**: "One Source of Truth" funded by **Innovate UK** (Ref: 44190), £650K.
2020-2022 **PI**: "Development of driver behaviour tracking technology for semi-autonomous vehicles", **EPSRC Impact Acceleration Funding** (EP/R511511/1), £40K.
2018-2020 **PI**: "Prototype development of a Real-time Electronic Counterfeit Batch Inspection Technique" funded by **Lloyd's Register Foundation** (GA\100113), £250K.
2018-2019 **Academic PI**: "The Learning Camera" funded by **Innovate UK** (Ref: 22994), £274K.
2019-2020 **PI**: "Exploration of The Learning Camera in construction sector" funded by **Higher Education Innovation Fund**, £20K.
2017-2019 **PI**: **KTP** project "Data Analytics for Satellite Infrastructure Monitoring", *iDirect*, £135K.
2018-2021 **Co-I**: "Distributed Intelligent Ultrasound Imaging System for Secure in-community Diagnostics" funded by **EPSRC GCRF** Grant (EP/R013950/1), £1M.

- 2015-2019 **Co-I:** "TASCC: Driver-Cognition-Oriented Optimal Control Authority Shifting for Adaptive Automated Driving (CogShift)" (EP/N012089/1), **Jaguar Land Rover and EPSRC**, £2.4M.
- 2016-2019 **Co-I:** PhD project "Process monitoring and control for Wire + Arc Additive Manufacture" funded by **BAE Systems**, £100K.

SELECTED AWARD

- 2023 The Engineer, Collaboration to Innovation (C2I) 2023 award
- 2022 The Royal Academy of Engineering Industrial Fellowships, titled "A Digital Twin of construction machinery for improved energy efficiency", Royal Academy of Engineering
- 2022 Journal cover, "Spatial-Temporal Graph Convolutional Network for Alzheimer Classification based on Brain Functional Connectivity Imaging of EEG", Volume 43, Issue 17, December 1, 2022, *Human Brain Mapping*
- 2021 The 2021 Chinese Government Award for The Supervisor of Outstanding Self-financed Students Aboard, China Scholarship Council
- 2019 Institute Denny Medal for the paper "Forecasting the severity of the Newfoundland iceberg season using a control systems model" which was published in the *Journal of Operational Oceanography*, The Institute of Marine Engineering, Science and Technology (IMarEST)
- 2019 Impact story, "Combating counterfeit electronic components", Lloyd's Register Foundation
- 2019 Best Paper Award for the paper "Filter-generating system of Zernike Polynomials" which was published in *Automatica*, The Czech Academy of Sciences

Development of others and maintenance of effective working relationships

SUPERVISION EXPERIENCE

- Successfully supervised 21 research students (20 PhDs, 1 MSc by Research) to completion; Currently supervising 12 PhD candidates
- Line managed and currently managing 6 research staff (Research Assistant, KTP Associate, Research Fellow, Senior Research Fellow), 3 lecturers and 1 visiting professor.
- Successfully supervised 80 MSc students to completion.

RESEARCH LEADERSHIP

- Head of the Complex Systems and Intelligent Data Processing Group which includes 4 academic staff, 2 research staff and more than 20 research students.
- Academic Lead of the Through-life Engineering Services Lab which involves three research centres, more than 20 academic staff and 30 research students.

Contributions to the wider research and innovation community

MEMBERSHIP

- 2019 **Fellow** of the Higher Education Academy
- 2018 **Senior** IEEE member

CONFERENCE COMMITTEE

- 2024 12th International Electrical Engineering Congress (iEECON2024), Thailand,
- 2022 Competition Panel, Xiamen-UK Industrial Innovation Contest, Cambridge
- 2022 Members of UKRI Talent Peer Review College (PRC) and UKRI Talent Panel College (TPC)
- 2020 4th IFAC Workshop on Advanced Maintenance Engineering, Services and Technologies, Cambridge, UK
- 2020 5th International Conference on Maintenance Science and Technology, Xi'an, China
- 2020 IECON 2020, the 46th Annual Conference of the IEEE Industrial Electronics Society (IES), Singapore
- 2016 5th International Conference on Through-life Engineering Services 2016, Cranfield University, UK
- 2014 11th International Conference of Condition Monitoring and Machinery Failure Prevention Technologies, Manchester, UK

ASSOCIATE OR GUEST EDITOR

Space: Science & Technology

Sensors

Frontiers of Mechanical Engineering

Frontiers in Neuroinformatics

Chinese Journal of Mechanical Engineering

Bioengineering

Mathematical Problems in Engineering

Frontiers in Neuroinformatics