

CAREER OVERVIEW

I am a Lecturer in AI and Data Science with a research and teaching profile. My research focuses on intelligent home environments, integrating computer vision, embedded AI, and human–computer interaction to support independent living and ageing in place. My work spans human activity recognition, user acceptance of ambient assisted living technologies, and occupant-centred control for energy-efficient home management. I have published in high-quality international journals and conferences, including venues with high impact factors, and my work has been recognised through best paper awards. Alongside my research, I have experience in teaching and leading modules in AI, data science, and computer science, with a commitment to inclusive, research-informed teaching and student success.

EDUCATION

- Aston University:** Ph.D. in Computer Science Oct. 2022 – Sept. 2025
- Aston University:** Postgraduate Certificate Learning and Teaching in Higher Education (PGCert) Oct. 2023 – Nov. 2024
- Aston University:** Introduction to Learning and Teaching Practice in Higher Education (ILTP) March 2023 – Sept. 2023
- Zhejiang University:** Master of Engineering in Mechatronic Engineering 2018 – 2021
- Liaoning University of Technology:** Bachelor of Engineering in Electronics Information Engineering 2014 – 2018

PROFESSIONAL EXPERIENCE

- Lecturer in AI and Data Science:** University of Hull June. 2025 – Present
 - Module leader for Programming for AI and Data Science, and Understanding AI, coordinating assessments and leading a team of Lecturers to ensure high academic performance.
 - Supervise postgraduate dissertation projects, guiding students through the research process from topic selection to completion.
 - Serve as a personal tutor, offering academic and pastoral support that contributes positively to student wellbeing.
 - Develop and deliver teaching resources that blend theory with real-world application, ensuring engagement across diverse student cohorts for the following modules:
 - Programming for AI and Data Science
 - Understanding AI
 - Fundamental of Data Science
 - Applied AI
- External Academic Collaborator (AI Research & Doctoral Supervision):** The Hong Kong Polytechnic University. Dec. 2025 – Present
 - External collaboration on AI-driven research in occupant-centric building control.
 - Co-supervision of PhD student, providing expertise on application of AI in Solar Photovoltaic post disaster inspection.
 - Contribution to research development and academic publications.
- Lecturer in Computing:** Ulster University (QA Higher Education) Jan. 2025. – Nov. 2025
 - Taught and supported students in the Scalable Advanced Software Solutions module.
 - Supervise postgraduate dissertation projects, guiding students through the research process from topic selection to completion.

Postgraduate Teaching Assistant: Aston University

Oct. 2022 – Sept. 2025

- Assessed coursework, exams, and projects, providing detailed, constructive feedback to enhance student learning
- Supervised postgraduate dissertation project.
- Delivered tutorials and practical sessions for the following modules:
 1. CS2SE Software Engineering
 2. CS3SPM Software Project Management
 3. CS2IAI Introduction to Artificial Intelligence
 4. CS4850/AM41UD Data Mining/Understanding Data
 5. CS4730 Machine Learning

Research Assistant: The Hong Kong Polytechnic University, Hong Kong

Nov. 2021 – July 2022

I Worked on the project "*Human-Centred Smart and Sustainable Building Management System*." The roles included:

- **Research:** Developed personalised and generalised thermal comfort models using computer vision to predict occupant thermal comfort levels.
- **Hardware Procurement:** Managed procurement of devices, evaluating options and ensuring cost-effective, timely delivery.
- **Research Outputs:** Contributed to high-quality publications addressing energy efficiency and thermal comfort for occupants.
- **Administration:** I worked alongside the PI for the overall management of the research group.
- **Research group website:** I designed and managed the research group's website (<https://ibeems-lee.com/>)

Research Assistant: Westlake University, China.

June 2021 – Nov. 2021

I worked on the project "*Ecosystem Monitoring Project*" at Westlake University. My roles included:

- **Hardware Development:** I designed and developed electronic hardware components for an autonomous camera system to monitor agrobiodiversity.
- **Procurement Management:** I managed the procurement of devices, coordinating with vendors to ensure cost-effective and timely delivery.
- **Field Testing Support:** I collaborated with field testers to integrate and validate the system in real-world environments.
- **Team Collaboration:** I worked with multidisciplinary teams, including software designers and AutoCAD specialists, to deliver a comprehensive solution.
- **Research Contributions:** Contributed to research publication on Embedded vision cameras for terrestrial biodiversity monitoring.

PROFESSIONAL CERTIFICATION

- **AdvanceHE:** Fellowship of the Higher Education Academy (FHEA) Nov. 2024
- **AdvanceHE:** Associate Fellow of the Higher Education Academy (AFHEA) Sept. 2023

AWARDS

- **Best Paper Runner-Up:** International Conference on AI in Healthcare 2024
- **Best Paper Award:** 22nd International Conference on Construction Applications of Virtual Reality 2022
- **UK Research and Innovation (UKRI) PhD Studentship:** Fully funded doctoral research in Human activity analysis in smart environments 2022–Present
, awarded by UKRI.
- **F.C.T Scholarship Board:** Ministerial Special Scholarship Award: Award of Excellence 2018

- **Liaoning University of Technology:** Best Student in Electronic and Information Engineering Department 2016/2017 Academic Year
- **Liaoning University of Technology:** Second Best Student in Electronic and Information Engineering Department 2015/2016 Academic Year
- **Liaoning University of Technology:** Second Best Student in Electronic and Information Engineering Department 2014/2015 Academic Year
- **F.C.T Scholarship Board:** Best Indigene Student in West African Senior School Certificate Examination 2013

STUDENT SUPERVISION

Master's Dissertation Supervision (Selected)

The following is a representative selection of Master's dissertation students supervised.

- **Student Name:** Maimunatu Tunau
Project: Sparse Point Cloud Data Processing for Privacy-aware Human Action Recognition
Institution: Aston University
Outcome: Distinction; resulted in peer-reviewed publication (https://link.springer.com/chapter/10.1007/978-3-032-00656-1_11)
- **Student Name:** Mehedi Hassan
Project: Improving Trust in AI-Based Histopathology: Transfer Learning and Explainability for Breast Cancer Image Classification
Institution: Ulster University
Outcome: Distinction
- **Student Name:** Shreya Shivanand Hadimani
Project: Macroeconomic Spillovers and Deep-Learning Forecasting of Exchange Traded Fund (ETF) Returns: An Integrated Econometric–AI Approach
Institution: University of Hull
Outcome: Distinction
- **Student Name:** Muhammad Tayyab Shahid
Project: Real-Time Fall Detection in Ambient Assisted Living
Institution: University of Hull
Outcome: Distinction

Doctoral Supervision (Ongoing)

- **Student Name:** Wenjun GAO
Role: Co-supervisor (External)
Institution: The Hong Kong Polytechnic University
Topic: Application of Artificial Intelligence in Solar Photovoltaic (PV)

PROFESSIONAL SERVICE

Peer Reviewing

- IEEE/RSJ International Conference on Intelligent Robots and Systems
- Proceedings of Machine Learning Research
- IEEE 33rd International Symposium on Industrial Electronics (ISIE 2024)

Organising Committee

The Third UK AI Conference 2025 ([Index | The Third UK AI Conference 2025](#))

Editorial Role

Editor, UK AI Proceedings in Proceedings of Machine Learning Research (<https://proceedings.mlr.press/v295/>)

PUBLICATIONS

Impact Factor

1. Action Recognition in Real-World Ambient Assisted Living Environment.
Vincent Gbouna Zakka, Zhuangzhuang Dai, Luis J. Manso.
Journal of Big Data Mining and Analytics:
<https://doi.org/10.26599/BDMA.2025.9020003> 6.2
2. GazeTarget360: Towards Gaze Target Estimation in 360-Degree for Robot Perception.
Dai, Zhuangzhuang and **Zakka, Gbouna Zakka**, and Manso, Luis J. and Li, Chen.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS):
<https://arxiv.org/abs/2507.00253> N/A (conference publication)
3. Enhanced Sparse Point Cloud Data Processing for Privacy-aware Human Action Recognition.
Maimunatu Tunau, **Vincent Gbouna Zakka**, Zhuangzhuang Dai.
International Conference on AI in Healthcare:
https://link.springer.com/chapter/10.1007/978-3-032-00656-1_11 N/A (conference publication)
4. Analysing different household energy use patterns using clustering and machine learning
Xue Cui, Minhyun Lee, Mohammad Nyme Uddin, Xuange Zhang, **Vincent Gbouna Zakka**
Journal of Renewable and Sustainable Energy Reviews
: <https://doi.org/10.1016/j.rser.2025.115335> 16.3
5. Hierarchical Temporal Convolution Network: Towards Privacy-Centric Activity Recognition.
Vincent Gbouna Zakka, Zhuangzhuang Dai, Luis J. Manso.
16th International Conference on Ubiquitous Computing and Ambient Intelligence: https://doi.org/10.1007/978-3-031-77571-0_33 N/A (conference publication)
6. Sensors, Techniques and Future Trends of Human Engagement Enabled Applications: A Review.
Zhuangzhuang Dai, **Vincent Gbouna Zakka**, Luis J. Manso, Martin Rudorfer, Ulysses Bernardet, Johanna Zumer, Manolya Kavakli-Thorne
Journal of Algorithms: <https://doi.org/10.3390/a17120560> 2.1
7. Action Recognition for Privacy-Preserving Ambient Assisted Living.
Vincent Gbouna Zakka, Zhuangzhuang Dai, Luis J. Manso.
International Conference on AI in Healthcare: https://doi.org/10.1007/978-3-031-67285-9_15 N/A (conference publication)
(Best Paper Award)
8. A computer vision-based model for occupancy detection using low-resolution thermal images
Xue Cui, Minhyun Lee, **Vincent Gbouna Zakka**
6th International Conference on Building Energy and Environment. Accepted paper on arXiv: <https://arxiv.org/abs/2505.08336> N/A (conference publication)
9. Eyes on nature: Embedded vision cameras for terrestrial biodiversity monitoring.
Darras, Kevin; Balle, Marcel; Xu, Wenxiu; Yan, Yang; **Zakka Gbouna, Vincent**; Toletto, Manuel; Sheng, Dong; Lin, Wei; Zhang, Boyu; Lan, Zhenzhong; Fupeng, Li; Wanger, Thomas.
Method in Ecology: <https://doi.org/10.1111/2041-210X.14436> 6.2
10. Non-invasive vision-based personal comfort model using thermographic images and deep learning.
Vincent Gbouna Zakka, Minhyun Lee, Ruxiaoxiao Zhang, Lijie Huang, Seunghoon Jung, Taehoon Hong. 11.5

- Automation in Construction: <https://doi.org/10.1016/j.autcon.2024.105811>
11. A generalized thermal comfort model using thermographic images and compact convolutional transformers Towards scalable and adaptive occupant comfort optimization. 7.6
Vincent Gbouna Zakka, Minhyun Lee.
Building and Environment: <https://doi.org/10.1016/j.buildenv.2024.112118>
 12. The impact of personal environmental control on the performance of thermal systems: Building energy consumption, occupant thermal comfort and productivity. 7.1
Kexin Xie, Minhyun Lee, Rihab Khalid, Vincent Gbouna Zakka.
Energy and Buildings: <https://doi.org/10.1016/j.enbuild.2023.113552>
 13. An Integrated Design of Energy and Indoor Environmental Quality System for Effective Building Performance Management.
Vincent Gbouna Zakka, Minhyun Lee.
Proceedings of the 22nd International Conference on Construction Applications of Virtual Reality (CONVR 2022) (pp. 455-466):
<https://arxiv.org/abs/2503.23323>
(Best Paper Award)
 14. User-interactive robot skin with large-area scalability for safer and natural human-robot collaboration in future telehealthcare. 6.7
Zakka Vincent Gbouna, Gaoyang Pang, Geng Yang, Zeyang Hou, Honghao Lv, Zhangwei Yu, Zhibo Pang.
IEEE Journal of Biomedical and Health Informatics:
<https://doi.org/10.1109/JBHI.2021.3082563>
(Featured on Cover Paper)
 15. IoT-Enabled Robot Skin System for Enhancement of Safe Human-Robot Collaboration.
Zakka Vincent Gbouna, Zeyang Hou, Gaoyang Pang, Huayong Yang, Geng Yang.
International Conference on Intelligent Robotics and Applications:
https://doi.org/10.1007/978-3-030-89098-8_43
 16. Facile Fabrication of Highly Soft Tactile Sensor based on Porous Sponge with Geometry Effect on Sensing Characteristics.
Wenzhou Heng, Gaoyang Pang, **Zakka Vincent Gbouna**, Zhibo Pang, Kang Yi, Huayong Yang, Geng Yang.
2nd IEEE International Flexible Electronics Technology Conference:
<https://doi.org/10.1109/IFETC46817.2019.9073774>