

CAREER OVERVIEW AND OBJECTIVES

I conduct research on intelligent home environments that integrate 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. Across these directions, I focus on developing adaptive, privacy-preserving, and sustainable systems that promote user trust and comfort.

EDUCATION

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| • 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

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| Lecturer in AI and Data Science: University of Hull | June. 2025 – Present |
| • Module leader for Programming for AI and Data Science, coordinating assessments and leading a team of Lecturers to ensure high academic performance. | |
| • Develop and deliver innovative and inclusive teaching resources that blend theory with real-world application, ensuring engagement across diverse student cohorts. | |
| • 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. | |
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Lecturer in Computing: Ulster University (QA Higher Education) | Jan. 2025. – Nov. 2025 |
| • Teach and support learning in computer science-related subjects. | |
| • Provide guidance, support and tutorship for students. | |
| • Supervise postgraduate dissertation projects, guiding students through the research process from topic selection to completion. | |
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Postgraduate Teaching Assistant: Aston University | Oct. 2022 – Sept. 2025 |
| • Delivered tutorials and practical sessions across computing science modules, including Software Engineering, Data Mining, and Machine Learning. | |
| • Assessed coursework, exams, and projects, providing detailed, constructive feedback to enhance student learning | |
| • Provided academic support through one-to-one and group sessions. | |
| • Supervise postgraduate dissertation projects, guiding students through the research process from topic selection to completion. | |
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Research Assistant: The Hong Kong Polytechnic University | Nov. 2021 – July 2022 |
| I Worked on the project " <i>Human-Centred Smart and Sustainable Building Management System.</i> " 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

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

PUBLICATIONS

Selected Publications (For full list, kindly visit: <https://gbouna.github.io/publications/>)

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>
2. 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>
3. 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
4. Eyes on nature: Embedded vision cameras for terrestrial biodiversity monitoring.
Darras, Kevin; Balle, Marcel; Xu, Wenxiu; Yan, Yang; Zakka Gbouna, Vincent; Toletdo, Manuel; Sheng, Dong; Lin, Wei; Zhang, Boyu; Lan, Zhenzhong; Fupeng, Li; Wanger, Thomas.
Method in Ecology: <https://doi.org/10.1111/2041-210X.14436>
5. 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

(Best Paper Award)

6. 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.
Automation in Construction: <https://doi.org/10.1016/j.autcon.2024.105811>
7. A generalized thermal comfort model using thermographic images and compact convolutional transformers Towards scalable and adaptive occupant comfort optimization.
Vincent Gbouna Zakka, Minhyun Lee.
Building and Environment: <https://doi.org/10.1016/j.buildenv.2024.112118>
8. User-interactive robot skin with large-area scalability for safer and natural human-robot collaboration in future telehealthcare.
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)

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 , awarded by UKRI. 2022–Present
- **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

PROFESSIONAL SERVICE

Peer Reviewing

- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025)
- 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/>)

RESEARCH TALKS

- **Guest Lecture for Deep Learning module (Level 7).**
Computer Vision for Ambient Assisted Living: A Practical Perspective
- **16th International Conference on Ubiquitous Computing and Ambient Intelligence (UCAmI 2024), Belfast, UK.**
Hierarchical Temporal Convolution Network: Towards Privacy-Centric Activity Recognition.
- **International Conference on AI in Healthcare (AIiH 2024), Swansea, UK.**

Action Recognition for Privacy-Preserving Ambient Assisted Living.

- **Aston Centre for Artificial Intelligence Research and Application (ACAIRA), 2024, Aston University.**
Temporal Decoupling Graph Depthwise Separable Convolution Network (TD-GDSCN)
- **International Conference on Construction Applications of Virtual Reality (CONVR 2022), Seoul, South Korea.**
An Integrated Design of Energy and Indoor Environmental Quality System for Effective Building Performance Management.
- **Internation Conference on Intelligent Robotics and Applications (ICIRA 2021), Yantai, China.**
IoT-Enabled Robot Skin System for Enhancement of Safe Human-Robot Collaboration.