

# XIJIA WEI

☎ (+44) 07754106664 | ✉ xijia.wei.21@ucl.ac.uk | 🏠 xijiawei.com | 📄 Google Scholar

## Education

### University College London

PH.D. IN UCL INTERACTION CENTRE

London, UK

May. 2022 - Present

- **Research Interest:** Human-Centered AI, Multimodal Machine Learning, Ubiquitous Computing, Sensing Technology
- **Primary Supervisor:** Prof. Nadia Berthouze

### The University of Edinburgh

M.Sc ARTIFICIAL INTELLIGENCE

Edinburgh, UK

Sep. 2017 - Nov. 2018

- **Research Interest:** Applied Machine Learning, Ubiquitous Computing, Pattern Recognition
- **Supervisor:** Dr. Valentin Radu
- **M.Sc Thesis:** Smartphone-based Location Tracking using Recurrent Neural Networks

### The University of Edinburgh

B.ENG (HONOURS) ELECTRONICS AND ELECTRICAL ENGINEERING

Edinburgh, UK

Sep. 2013 - July. 2017

- **Research Interest:** Machine Learning, Wearable Technology, Human Tracking
- **Supervisor:** Prof. Tughrul Arslan
- **B.Eng Thesis:** Artificial Neural Network Based Indoor Positioning System

## Publications

- [1] **X. Wei**, S. Fangzhan, S. Wu, T. A. Olugbade, N. Gold, A. C. D. C. Williams, Y. Cho, K. Ketty, and N. Bianchi-Berthouze, “Leveraging wifi sensing toward automatic recognition of protective behaviors,” in *2023 13th International Conference on Affective Computing and Intelligent Interaction Workshops (ACIIW)*, pp. 324–330, IEEE, 2023. **Top Conference in Affective and Multimodal Human-machine Interaction Systems.**
- [2] **X. Wei**, S. Fangzhan, S. Wu, T. A. Olugbade, N. Gold, A. C. D. C. Williams, Y. Cho, K. Ketty, and N. Bianchi-Berthouze, “Understanding the quality of body movement by leveraging wifi sensing,” in *2023 UK Mobile, Wearable and Ubiquitous Systems Research Symposium (MobiUK)*, MobiUK, 2023.
- [3] **X. Wei** and V. Radu, “Leveraging transfer learning for robust multimodal positioning systems based on smartphone multi-sensory data,” in *2022 International Conference on Indoor Positioning and Indoor Navigation (IPIN)*, pp. 1–8, IEEE, 2022. doi: 10.1109/IPIN54987.2022.9918135. **Top Conference in Positioning and Navigation.**
- [4] **X. Wei** and V. Radu, “MMLoc+: A transfer learning based multimodal machine learning localization system for dynamic sensor networks,” in *2022 UK Mobile, Wearable and Ubiquitous Systems Research Symposium (MobiUK)*, MobiUK, 2022.
- [5] **X. Wei**, Z. Wei, and V. Radu, “Sensor-fusion for smartphone location tracking using hybrid multimodal deep neural networks,” *Sensors*, vol. 21, no. 22, p. 7488, 2021. doi: 10.3390/s21227488. **JCR: Q2 in Instruments & Instrumentation. Impact Factor: 3.847.**
- [6] **X. Wei**, Z. Wei, and V. Radu, “MM-Loc: Cross-sensor indoor smartphone location tracking using multimodal deep neural networks,” in *2021 International Conference on Indoor Positioning and Indoor Navigation (IPIN)*, pp. 1–8, IEEE, 2021. doi: 10.1109/IPIN51156.2021.9662519. **Top Conference in Positioning and Navigation.**
- [7] **X. Wei** and V. Radu, “Calibrating recurrent neural networks on smartphone inertial sensors for location tracking,” in *2019 International Conference on Indoor Positioning and Indoor Navigation (IPIN)*, pp. 1–8, IEEE, 2019. doi: 10.1109/IPIN.2019.8911768. **Top Conference in Positioning and Navigation.**
- [8] **X. Wei** and V. Radu, “End-to-end machine learning for smartphone-based indoor localisation and tracking using recurrent neural networks,” in *2018 UK Mobile, Wearable and Ubiquitous Systems Research Symposium (MobiUK)*, MobiUK, 2018.

## Invited Talks

### The Hong Kong Polytechnic University

INVITED SPEAKER FOR <ACADEMIC SEMINAR>

Hong Kong, China

Sep. 2022

- From Single Modality to Modality Fusion: The First Step Towards Robust Multisensory Based Localization

### HUAWEI Technologies

INVITED SPEAKER FOR <INDUSTRIAL EVENT>

Shenzhen, China

April. 2022

- End-to-end Multimodal Hybrid Neural Network for Sensor-fusion Systems

### Liaoning Shihua University

INVITED SPEAKER FOR <ACADEMIC TALK OF INFORMATION AND CONTROL ENGINEERING>

Liaoning, China

Aug. 2017

- Applications of Artificial Intelligence in Cyber Physical Systems

# Presentations

---

## International Conference on Affective Computing and Intelligent Interaction (ACII) 2023

CONFERENCE PRESENTER FOR <AFFECTIVE COMPUTING IN HEALTH AND VR SESSION> @MIT MEDIA LAB

- Leveraging WiFi Sensing toward Automatic Recognition of Protective Pain Behaviors

Cambridge, MA, USA

Sep. 2023

## UK Mobile, Wearable and Ubiquitous Systems Research Symposium (MobiUK) 2023

SYMPOSIUM PRESENTER FOR <SENSING AND NETWORKING SESSION> @LANCASTER UNIVERSITY

- Unleash the Power of Non-intrusive Wireless Sensing Technology in Healthcare

Lancaster, UK

July. 2023

## International Conference on Indoor Positioning and Indoor Navigation (IPIN) 2022

CONFERENCE PRESENTER FOR <MACHINE LEARNING SESSION> @CHINESE ACADEMY OF SCIENCES

- Leveraging Transfer Learning for Robust Multimodal Positioning Systems based on Smartphone Multisensory Data

Beijing, China

Sep. 2022

## International Conference on Indoor Positioning and Indoor Navigation (IPIN) 2021

CONFERENCE PRESENTER FOR <MACHINE LEARNING SESSION> @UNIVERSITAT OBERTA DE CATALUNYA

- Introduced an end-to-end multimodal deep neural network based smartphone cross-sensor tracking system

Barcelona, Spain

Nov. 2021

## International Conference on Indoor Positioning and Indoor Navigation (IPIN) 2019

CONFERENCE PRESENTER FOR <MACHINE LEARNING SESSION> @UNIVERSITY OF PISA

- Introduced a sensor-fusion based pedestrian location tracking system using recurrent neural networks

Pisa, Italy

Oct. 2019

## UK Mobile, Wearable and Ubiquitous Systems Research Symposium (MobiUK) 2018

SYMPOSIUM PRESENTER FOR <UBIQUITOUS COMPUTING SESSION> @UNIVERSITY OF CAMBRIDGE

- Introduced an infrastructure-free smartphone locationing system based on inertial sensor data

Cambridge, UK

Sep. 2018

# Experiences

---

## Bell Labs

PHD RESEARCH INTERN

- Employed deep learning techniques in the realm of ubiquitous computing;
- Develop wearable devices targeting healthcare applications;
- Conducted user studies to validate device usability and efficiency;
- Authored and contributed to scientific papers;
- Filed patent for innovative solutions.

Cambridge, UK

June. 2023 - Sept. 2023

## UCL Interaction Centre

RESEARCH ASSISTANT

- Build wireless sensing based human behaviour tracking system;
- Construct data collection procedure;
- Implement data analytics;
- Machine Learning Algorithms Development;
- Deployment in physical rehabilitation healthcare system.

London, UK

Sept. 2022 - Present

## Ubiquitous AI Lab (Edinburgh-Sheffield Universities Shared Lab)

AI RESEARCHER

- Proposed a novel end-to-end multimodal network architecture for smartphone sensor-fusion tracking system;
- Responsible for research project design, conceptualisation, data analysis and system development;
- Published papers as the first author at the Sensors Journal and the IPIN Conference;
- Presented at the IPIN19/21/22 International Conference.

Edinburgh/Sheffield, UK

Nov. 2018 - Mar. 2022

## CNPC

FINTECH DEPARTMENT MANAGER & TECH LEAD

- In charge of the FinTech Research Group;
- Led the Commercial Paper Exchange/Risk Management Platform Engineering Team;
- Optimised the system intelligence by utilising AI algorithms to detect money-laundering behaviours;
- Implemented robotic process automation technologies to the Treasury Management System;
- Developed the AI-based Position Investment Strategy Assistant.

Beijing, China

Mar. 2019 - Mar. 2022

## Scotland Microelectronics Centre

AI RESEARCHER

- Developed an end-to-end neural network navigation system on smartphone platforms;
- Researched machine learning algorithms to improve human activity recognition accuracy;
- Evaluated system performances using WiFi fingerprints and magnetometer cross-sensory dataset;
- Built an Android application to sample and recognise user activities on smartphones.

Edinburgh, UK

Oct. 2016 - May 2017

## Guozi Robotics Co.,Ltd

EMBEDDED SOFTWARE ENGINEER & AI RESEARCHER

- Optimised the inspection robots chassis control system using supervised machine learning techniques;
- Evaluated real-time robot performances of accuracy and robustness under practical scenarios.

Hangzhou, China

Jun. 2016 - Aug. 2016

## Bank of England

DIGITAL SECURITY SYSTEM INTERN

- Worked with the Digital Transaction System Team;
- Investigated on transaction encryption strategies on smartphones;
- Explored the risk management methodologies on mobile platforms.

London, UK

Dec 2015 - Jan 2016

## Awards

---

2017 **International Student Scholarship**, University of Edinburgh  
2016 **International Student Scholarship**, University of Edinburgh

*Edinburgh, UK*  
*Edinburgh, UK*

## Skills

---

**Artificial Intelligence** Machine Learning & Pattern Recognition, Multimodal Machine Learning, Data Analysis and Mining, Network Architecture Design

**Electrical Engineering** Electronics/Electrical System Design, Signal Processing, Analogue/Signal Circuit Design, Sensing Technologies

**Interpersonal Skills** Fast Learner and High Adaptability, High Working Efficiency, Critical Thinking, Project Management, Networking, Presenting/Written Communication

**Programming Skills** Python, JAVA, C/C++, Matlab, VHDL,  $\LaTeX$ , PyTorch, TensorFlow, Keras, Create ML, OpenCV

**Teaching** Affective Computing and Human-computer Interaction (UCL), Affective Interaction (UCL)

**Languages** Chinese (Native), English (Proficient)

**Interest** Violin, Photography, Cooking, Travelling