# Mohamad Reza **Shahabian Alashti** Al Research, Robotics, Project Management

in linkedin.com/in/mrshahabian @ shahabian.reza@gmail.com



Researcher and project manager with an engineering background and multidisciplinary expertise in computer science, robotics, and artificial intelligence. PhD in Computer Science from the University of Hertfordshire, specializing in Human-Robot Interaction and Machine Learning, currently working as a postdoctoral fellow on projects funded by Horizon Europe and the NHS. Work covers Al-driven healthcare technologies, human activity recognition, and robotics, complemented by academic publications and recent studies on agentic AI. Experienced with Agile methodology and project management principles, with a record of coordinating teams and delivering research and development projects from concept to outcome. Holder of a UK Global Talent Visa and open to new opportunities that connect research, innovation, and applied artificial intelligence.

## **EXPERIENCE & PROJECTS**

### Present August-2024

#### Postdoctoral Research Fellow in Robotics and Deep Learning, UNIVERSITY OF HERTFORDSHIRE, Hatfield

- > Lead development of intent detection methods for the Horizon Europe SWAG (Soft Wearable Assistive Garment) project, integrating multimodal biomechanical data (EMG, IMU, kinetics, kinematics) into deep learning models.
- > Collaborated with consortium partners to design large-scale data collection workflows, including data handlers and grabbers, ensuring reliable acquisition and processing of biomechanical signals.
- > Applied deep learning models for intent detection on real-time edge devices (NVIDIA Jetson), enabling deployment and validation of methods in practical scenarios.
- > Contribute to the NHS-funded *Hospital at Home* project, developing Human-Robot Interaction (HRI) scenarios and introducing Agentic Al concepts to support adaptive and autonomous robot interactions.
- > Coordinate activities across robotics, machine learning, and human factors, working with interdisciplinary teams of engineers, clinicians, and researchers to deliver prototypes and project milestones.

#### Present September-2021

#### Visiting Lecturer (Part-Time), VARIOUS INSTITUTIONS, London and Hertfordshire

- > Delivered lectures, tutorials, and thesis supervision across undergraduate and postgraduate programs at Coventry University, London; University of Hertfordshire; and Uxbridge College.
- > Taught a broad range of subjects, including Machine Learning, Artificial Intelligence, Cloud Systems, Software Engineering, Databases, Human-Computer Interaction, Cybersecurity, Renewable Energy, and Power Electronics.
- > Supervised BSc and MSc projects, guiding students in research methods, project design, and technical implementation.

## May-2024 December-2020

#### Research in Skeleton-based Multi-view Human Activity Recognition (HAR), UH, Hatfield

- > Designed and developed the RHM-HAR-SK dataset for multi-view activity recognition in Ambient Assisted Living (AAL) scenarios.
- > Proposed and implemented an efficient architecture for multi-view skeleton-based HAR, combining deep learning methods such as CNNs, GNNs, and Transformers.
- > Conducted comprehensive experimental analyses, evaluating model performance across quantitative and qualitative dimensions using large-scale GPU clusters.
- > Published research findings and contributed to advancing state-of-the-art methods in human activity recognition and human-robot interaction.

## February-2024 September-2022

## Exposure Sensing Animated Mannequin (eSAM) | Robotics Engineer, UH, Hatfield

- > Designed and built a life-sized mannequin robot for chemical exposure testing, integrating mechanical, electronic, and software components.
- > Developed a web-based user interface for remote monitoring and control of the robot.
- > Implemented sensor integration and actuator control using Raspberry Pi and Arduino, applying industrial communication protocols (Modbus RTU).
- > Configured and programmed Maxon motors and drivers for precise motion control and operation in hazardous environments.
- > Contributed to the prototype development lifecycle, from concept and design to system integration and functional testing.

#### December-2022

#### Data Study Group (DSG) | Facilitator, ALAN TURING INSTITUTE | AMRC, London

- > Facilitated a collaborative research sprint with multidisciplinary teams, addressing industrial challenges in advanced manufacturing through data-driven methods.
- > Applied data augmentation and synthetic data generation techniques to overcome limitations of low-frequency and sparse datasets, improving robustness of analysis.
- > Contributed to the final project outcomes and co-authored the published report for the Advanced Manufacturing Research Centre (AMRC)(Project Link).

#### November-2020 January-2017

#### Senior Software Design and Development Engineer | Project Lead, ARTA VISION AVA ENG. Co., Iran

- > Led multiple software development projects from concept to deployment, managing timelines, resources, and cross-functional collaboration.
- > Coordinated project phases, including system design, verification, and client delivery, ensuring progress tracking and reporting.
- > Acted as primary contact with customer program management, aligning project goals with client requirements.
- > Directed a small team of engineers, applying project management principles to deliver reliable and scalable solutions.

#### Key Projects:

- > Designed and deployed a web-based monitoring system (IVMS) for datacenter infrastructure.
- > Led the creation of an interactive 3D online visualisation application.
- > Developed advanced graphical dashboards and trends for data analysis and monitoring.

## November-2020 February-2015

#### Senior Hardware Design Engineer | Project Lead, ARTA VISION AVA ENG. Co., Iran

- > Designed and developed embedded electronic systems for industrial automation and control applications.
- > Led hardware design projects, including PCB layout, prototyping, and system integration with software components.
- > Supervised a small engineering team, coordinating tasks and ensuring delivery within project schedules.
- > Collaborated with cross-functional teams to deliver solutions for renewable energy systems, embedded platforms, and industrial monitoring.

### November-2016 February-2012

## Mechatronics Designer, SYNTECH, Iran

- > Participated in R&D at the @Home Robot Lab, contributing to international RoboCup and IranOpen competitions.
- > Led the design and implementation of a 7DOF robotic arm and associated control systems.
- > Designed and implemented a power management system using Altium and Keil uVision.
- > Integrated mobile robot platforms with ROS, handling C++ software development on Linux.
- > Designed and manufactured a robotic lifting system for assistive robotics applications.



**Programming** Python, C, C++, JavaScript, ReactJS

Al & Machine Learning PyTorch, Keras, Scikit-Learn, Transformers, CNNs, GANs, Human Activity Recognition, Pose Es-

timation (YOLO, HRNet)

Robotics ROS1/2, Trajectory Planning, Movelt, HRI, Embedded Systems (Raspberry Pi, Arduino, Micro-

controllers)

Data & Cloud Numpy, Pandas, OpenCV, Docker, AWS, Streamlit, GPU/CPU Clusters

**Software Development** Git/GitHub, GitLab, PyCharm, Jupyter, VS Code, Web Development

**Project Management** Agile, Scrum, Kanban, Cross-functional Team Coordination Communication Collaboration, Technical Documentation, Academic Writing

# **EDUCATION**

2020–2024 PhD in Computer Science, University of Hertfordshire, UK

> Dissertation : Human Activity Recognition in Ambient Assisted Living Scenarios.

2011–2015 MSc in Mechatronics Engineering, Azad University (IAU), Qazvin, Iran

> Dissertation: Intelligent System for Estimating Spinal Cord Injury using Medical Image Segmentation.

2006–2011 **BSc in Electronic Engineering**, Hadaf University, Sary, Iran

> Dissertation: Design and Implementation of an Advanced Path-Following Robot.

# Selected Publications

- > Towards Memory-Driven Agentic Al for Human Activity Recognition, 2025
- > Efficient Skeleton-based Human Activity Recognition in Ambient Assisted Living with Multi-view CNN, 2024
- > Robotic Vision and Multi-View Synergy for Assisted Living Scenarios, 2024
- > Lightweight Human Activity Recognition for Ambient Assisted Living, 2023
- > RHM-HAR-SK: Multi-view Dataset with Skeleton Data for Ambient Assisted Living Research, 2023

# THONORS & AWARDS

- > 1st Place, @Home League, IranOpen International Robotic Competition (2012, 2013, 2014, 2015, 2017).
- > Member of Technical Committee, @Home League, International Robotic Competition (2015).
- > Participant, International RoboCup Competitions (Brazil 2014, Eindhoven 2013).

# **\*** CERTIFICATES

- > Build Basic Generative Adversarial Networks (GANs), 2022.
- > PyTorch Essential Training : Deep Learning, 2022.
- > Python Object-Oriented Programming, 2022.
- > Deep Learning for Self-Driving Cars, RSI International Conference, 2018.
- > Machine Learning, Stanford University (Online), 2014.

## **66** References

Available upon request.