# Two Fully Funded PhD Positions and One Post-doctoral Research Fellow Position in Intelligent Robotic Systems

Industrial AI Research Group at The University of Auckland

https://iai.auckland.ac.nz/

## 1.    2xPhD Position Details

We are seeking two highly motivated and talented individual to join our research team as a PhD student in robot learning. The successful candidate will be engaged in cutting-edge research that aims to advance the capabilities of robots through machine learning techniques. This position offers a unique opportunity to contribute to the development of intelligent robotic systems and to work in an interdisciplinary environment that includes experts in robotics, artificial intelligence, and computer science.

**PhD position #1:** Learning and Control for Interactive Robots

**PhD position #2:** Machine Learning for Human Monitoring and Action Understanding

## Key Responsibilities

- Conduct original research in the field of computer vision or robot learning, focusing on areas such as action understanding, robot control learning, reinforcement learning or imitation learning.
- Develop and implement novel algorithms that enable robots to understand and learn from their environment and interactions with humans and improve their performance over time.
- Collaborate with other researchers and team members to design experiments and evaluate the efficacy of learning algorithms on robotic platforms.
- Present research findings at international conferences and publish results in peer-reviewed journals.
- Work proactively with a diverse research team across research organisations, and industry partners.
- Participate in ongoing dissemination and public engagement activities related to the project.

## Qualifications

- Master's degree in Robotics, Computer Science, Electrical Engineering, or a related field.
- Strong background in machine learning, with experience in reinforcement learning and/or imitation learning being highly desirable.
- Proficient programming skills in languages such as Python, C++, and familiarity with machine learning frameworks like TensorFlow or PyTorch.

- Excellent analytical and problem-solving abilities, with a keen interest in applying these skills to real-world robotic systems.
- Good communication skills, both written and oral, with the ability to work effectively in a collaborative research environment.
- Previous experience with robotic hardware and software is a plus.

## Application Process

Candidates interested in this position should submit the following documents:

- A cover letter detailing your research interests and relevant experience.
- A current curriculum vitae (CV).
- Copies of academic transcripts.
- Contact information for at least two academic or professional references.

Application deadline: **1st November 2024**.

Applications will be reviewed on a rolling basis until the positions are filled. For further information or to submit your application, please contact Dr. Yuqian Lu at yuqian.lu@auckland.ac.nz with email subject line "2024MBIE_Position_PhD_Applicant Name".

## 2.  1xPostdoc Position Overview

We are seeking one highly motivated and talented postdoctoral researcher to join our team in robot learning and control. The successful candidate will be engaged in cutting-edge research that aims to advance the capabilities of robots through machine learning techniques. This position offers a unique opportunity to contribute to the development of intelligent robotic systems and to work in an interdisciplinary environment that includes experts in robotics, artificial intelligence, and computer science. The successful candidate will work together with the above two PhD students, as well as other project investigators in a highly collaborative team. The position has an expected start date of **1st July 2025** for two years as the initial term, with the possibility to be extended.

## Responsibilities

- Conducting innovative research in robot skill learning and control.
- Developing and implementing algorithms for robot learning and adaptive control.
- Developing and executing end-user studies to validate research outcomes.
- Collaborating with a multidisciplinary team of researchers and engineers.
- Publishing research findings in top-tier conferences and journals.
- Mentoring graduate and undergraduate students.
- Effectively leading sub-themes of a large government funded research programme.
- Leading ongoing dissemination and public engagement activities related to the project.

- Contributing to undergraduate/postgraduate teaching in relevant disciplines.

## Qualifications

- A Ph.D. (or close to complete) in Robotics, Computer Science, Electrical Engineering, or a related field.
- Strong background in machine learning, control theories and systems, and robotic manipulation.
- Proficient programming skills in languages such as Python, C++, and familiarity with machine learning frameworks like TensorFlow or PyTorch.
- Experience with robotic platforms and simulation environments.
- Strong publication record in relevant fields.
- Excellent problem-solving and communication skills and the ability to work independently and as part of a team.

## Application Process

Candidates interested in this position should submit the following documents:

- A cover letter detailing your research interests and relevant experience.
- A current curriculum vitae (CV), including the full publication list.
- Contact information for at least two academic or professional references.

Application deadline: **1st November 2024**.

Applications will be reviewed on a rolling basis until the position is filled. For further information or to submit your application, please contact Dr. Yuqian Lu at yuqian.lu@auckland.ac.nz with email subject line "2024MBIE_Position_Postdoc_Applicant Name".

## 3. About Us

All three positions are to work under Dr. Yuqian Lu's Industrial AI Research Group (https://iai.auckland.ac.nz) at Faculty of Engineering, University of Auckland to deliver a new $1M New Zealand MBIE Endeavour project on "ultra-flexible human-robot collaborative product assembly". The project focuses on advancing the field of robot skill learning and smooth collaborations with humans in unstructured product assembly context. We are committed to advancing the field of intelligent robotics through interdisciplinary research, collaboration and knowledge transfer. We offer a vibrant academic environment with state-of-the-art facilities and a strong network of industry partnerships. Our mission is to train the next generation of leaders in robotics and AI, who will drive innovation and address the complex challenges of the future. The candidates will be working with experts in the field, including Distinguished Professor Bruce MacDonald, Associate Professor Andrew MacDaid, Dr. Ho Seok Ahn, and Dr. Yuqian Lu. The project also involves deep collaborations with other research groups within and outside the University of Auckland, as well as government agencies, industrial partners and end-users.