



## POSTGRADUATE RESEARCH OPPORTUNITY

**Project Title:** Humanoid Intelligence: Bridging Simulation and Reality through Goal-Aware and Delay-Resilient Learning (HINT)

### **Short Project Description:**

Technological University of the Shannon (TUS) invites applications from suitably qualified candidates for a **fully funded PhD position** in the area of Humanoid Robotics and Embodied Artificial Intelligence under the **TUS Strategic Research Fund**. The successful candidate will undertake cutting-edge research focused on **developing robust and intelligent humanoid robot learning systems capable of operating reliably under real-world conditions involving sensing uncertainty, communication delays, and actuator latency**. The project will integrate digital twins, reinforcement learning, imitation learning, and Vision–Language–Action (VLA) models to bridge the gap between simulation and real-world humanoid robot deployment.

The research will involve the development of goal-conditioned and delay-aware learning frameworks for humanoid robots using advanced simulation platforms such as NVIDIA Isaac Sim and ROS 2. The candidate will work with state-of-the-art humanoid robotic platforms and GPU computing infrastructure available at the Software Research Institute (SRI), TUS. Expected outcomes include novel humanoid robot control frameworks, open-source datasets and software tools, peer-reviewed publications, and validated real-world robotic demonstrations that contribute to next-generation embodied AI systems for manufacturing, logistics, healthcare, and assistive robotics applications.

**Type of Degree Offered:** PhD

**Duration of Project:** 48 Months (4 years)

**Funding Agency:** TUS Strategic Research Fund

### **Funding Details:**

- **PhD Stipend:** €16,000 per annum
- **Materials and consumables:** €1,500 per annum
- University fees waiver for 4 years

### **Minimum Qualifications/Experience Necessary/Any Other Requirements:**

The candidates must have:

- A primary degree in Computer Science, Robotics, Artificial Intelligence, Electrical/Electronic Engineering, Mechanical Engineering, or a closely related discipline.
- A minimum classification of 2.1 honours or equivalent.
- Strong programming skills in Python and/or C++.
- Interest in robotics, machine learning, reinforcement learning, or embodied AI research.
- Strong motivation and enthusiasm for research.
- Excellent written and verbal communication skills.
- Ability to work independently and collaboratively within team.

### **Desirable attributes include:**

- A completed Master's degree and/or applied research experience in Robotics, Artificial Intelligence, Machine Learning, Computer Vision, Reinforcement Learning, or related areas.
- Experience with robotic middleware and simulation platforms such as ROS/ROS2, Gazebo, NVIDIA Isaac Sim, MuJoCo, or Unity-based simulation environments.



- Experience with deep learning and reinforcement learning frameworks such as PyTorch, TensorFlow, Stable-Baselines, RLLib, or similar toolkits.
- Familiarity with humanoid robots, robotic manipulation, imitation learning, Vision–Language–Action (VLA) models, or digital twin technologies.
- Experience in Linux-based development environments, GPU computing, distributed systems, or real-time robotic control.
- Evidence of research dissemination such as peer-reviewed publications, conference presentations, technical reports, GitHub repositories, or open-source contributions.

**English Language Requirement:**

IELTS [International English Testing System] Applicants must have a minimum of 6.5 with no component score less than 6.5. Please contact [pro@tus.ie](mailto:pro@tus.ie) for any specific questions on this requirement.

**Project Lead Supervisor:**

Dr. Muhammad Babar Imtiaz

**Co-Supervisor:**

Dr. Yuansong Qiao

**For further information, please contact:** [muhammad.babarimtiaz@tus.ie](mailto:muhammad.babarimtiaz@tus.ie).

Closing date for receipt of completed application form is **19 June 2026**. Interviews will take place within subsequent weeks. Application forms should be emailed to [pro@tus.ie](mailto:pro@tus.ie) with the project title: **Humanoid Intelligence: Bridging Simulation and Reality through Goal-Aware and Delay-Resilient Learning (HINT)** in the subject line.

**Download TUS Scholarship application form below:**

<https://tus.ie/rdi/research/office/funded-research/>