



Please do not adjust the template or font

Post Specification (Comp: Robotics HRI-PhD)

Post Title:	Full-time Doctoral Candidate Position in Robotics. Project title: Development of a control system for robot-mediated social interaction.
Post Status:	Four Year Full Time PhD Position
Research Group / Department / School:	Robotics and Innovation Lab, School of Engineering
Location:	Department of Mechanical and Manufacturing Engineering, Trinity College Dublin, the University of Dublin, College Green, Dublin 2, Ireland
Reports to:	Dr. Conor McGinn (Principal Investigator)
Terms & Conditions:	Open to EU and Non-EU candidates and include an annual stipend of €16,000 for four years
Closing Date:	12 Noon (Irish Standard Mean Time), 15th June 201

Post Summary

The Robotics And Innovation Lab (RAIL)

The project will be conducted within the Robotics And Innovation Lab (RAIL), based in the School of Engineering. Due to the interdisciplinary nature of project objectives, the research will involve interactions (most likely in the form of consultations, but collaborations are also possible) with several other research groups in Trinity. The project will make extensive use of the 'Stevie' robot platform, which is a bespoke robot that was recently developed by members of the RAIL group for applications involving human-robot interaction (HRI) (see figure 1).

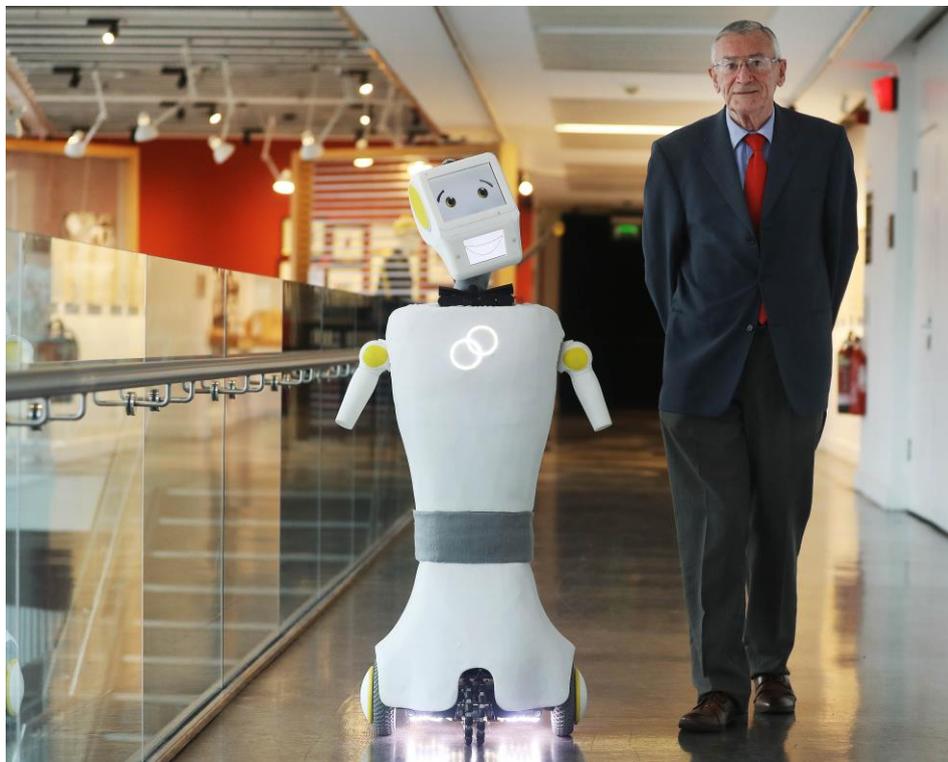


Figure 1: Stevie the robot walking alongside test user

Project Background

Social isolation is a major problem for people living alone, especially the elderly and those living with disabilities. A compelling solution to this problem is the development of technology that can help keep people socially connected and mentally stimulated. Anthropomorphic social robots have great potential for promoting cognitive engagement and combating social isolation, especially if they can operate as a medium to connect people with the outside world. Their features/form facilitate natural interactions, communication of affective states

and provide high levels of redundancy. However, controlling these systems, either autonomously or manually by a human operator, remains a major research challenge. Artificial social intelligence, as applied to service robots, is currently in its early stages of development and it is expected to take many more years before robots will be capable of achieving even basic levels of social competence in unstructured settings. A more practical, yet equally compelling approach is to explore how the quality of remote social interaction between two (or more) people can be enhanced using robots to mediate human-human communication.

Project Description:

This project seeks to advance the state-of-the-art in human-robot interaction through the development of a robot control interface that facilitates intuitive and multi-modal tele-presence. The primary aim of the research is to create (and evaluate) a tele-presence system that enables a remotely located operator to simultaneously control robot modalities such as navigation, gesture, speech, facial expression and eye gaze.

Research Objectives:

It is expected that completing the project will involve meeting some (or all) of the following technical objectives:

1. Development of an immersive interface that enables the operator to experience the robot's first-person viewpoint.
2. Development of a gesture-based control system for mapping the limb movement of the human operator to the limb movement of the robot.
3. Using eye-tracking technology, development of a system for mapping the gaze of the operator to the eye movement of the robot.
4. Construction of a program that can capture speech from the operator, and make it instantly reproducible (content and prosody) by the robot.
5. Development of a manual controller that enables the operator to control facial expressions and emotional states in real-time.
6. Formulation and instantiation of a framework for integrating objectives (1-5) in a real-time control system involving a physical robot.

7. Demonstration of the performance of the system through live experiments, and utilization of quantitative and qualitative methods for analysis.

Standard duties and Responsibilities of the Post

The candidate will be based in Dublin and expected to maintain normal office hours. The candidate will be expected to take on a reasonable amount of teaching activities, which may include running tutorials, practical lab sessions, etc. The candidate will be expected to earn 10 ECTS credits through participation in taught modules.

Person Specification

Qualifications

The candidate should currently hold a minimum 2.1 degree in Computer Science or related Engineering discipline. Ideally, the candidate should also have (or is soon to receive) a Masters degree in Robotics, Computer Science or related Engineering discipline.

Knowledge & Experience (Essential & Desirable)

Essential

- Strong programming skills – ideally in C++ and/or Python.
- Strong background in statistics and experimental methods.
- Competency using Linux operating system.

Desirable

- Prior research experience in robotics, ideally with a focus on human-robot interaction.
- Competency using Robot Operating System (ROS) and Gazebo robot simulator.
- Experience developing applications in VR environment.
- Competency with the following software programs:
 - o Blender
 - o Unity
 - o Solidworks (or similar CAD package)
 - o MatLab

Skills & Competencies

Candidates should have excellent communication and organisational skills; be highly motivated and passionate; and have strong written, oral, and interpersonal skills. The candidate should be able to work independently and as a part of team. Applicants should be highly motivated with an ability to engage with disciplines outside of their fields.

Further Information for Candidates

Starting Date: September 2018.

Funding Information: This post is supported by a Provost's PhD Project Award granted to Dr. Conor McGinn. Trinity College Dublin has launched 40 fully funded PhD positions across a wide variety of disciplines. The 40 Provost's PhD Project Awards are open to EU and Non-EU candidates and include an annual stipend of €16,000 for four years. These doctoral awards are generously funded through alumni donations and Trinity's Commercial Revenue Unit.

To Apply: Applicants should submit:

- Personal statement of interest (i.e., why are you interested in this project, and what makes you the best candidate to be awarded this PhD Studentship?).
- Evidence of research potential (link to thesis, research paper, video of project, etc.).
- A detailed CV/resume.
- Contact details of two referees.

All of this should be contained in ONE .pdf file. The application pack should be emailed to Dr Conor McGinn at c.mcginntcd.ie with the subject heading 'Robotics HRI-PhD'.

Informal enquiries (with CV included) can be made by contacting c.mcginntcd.ie

URL Link to School	www.tcd.ie
URL Link to Research Group	https://www.tcd.ie/mecheng/research/robotics/

Trinity College Dublin, the University of Dublin

Trinity is Ireland's premier university, with a proud tradition of excellence stretching back to its foundation in 1592. The oldest university in Ireland, and one of the oldest in Europe, today Trinity sits at the intersection of the past and the future, and is ideally positioned as a major university in the European Union. Our 47-acre campus is located in the heart of Dublin city centre and is home to historic buildings dating from the University's establishment, as well as some of the most cutting-edge teaching and research facilities in Ireland. Students at Trinity benefit from a unique educational experience across a range of disciplines in our three faculties – Arts, Humanities, and Social Sciences; Engineering, Mathematics and Science; and Health Sciences. The pursuit of excellence through research and scholarship is at the heart of a Trinity education, and our researchers have an outstanding publication record and strong record of grant success.

Trinity has developed [18 broad-based multidisciplinary research themes](#) that cut across disciplines and facilitate world-leading research and collaboration within the University and with colleagues around the world. These internationally recognised themes include such diverse areas as Cancer, Immunology, Telecoms, Identities in Transformation, Nanoscience, Neuroscience, and Making Ireland. Researchers from across the University work together in innovative ways to develop new and exciting approaches to their research and explore the frontiers of knowledge in the 21st century. In creating these dedicated research themes, Trinity's researchers are able to become a more powerful force on the global stage, successfully competing for large-scale grants and attracting top students and faculty to the University. Trinity is home to Ireland's first purpose-built Nanoscience research institute, CRANN, which opened in January 2008. This state-of-the-art facility houses 150 scientists, technicians, and graduate students in specialised laboratories, fostering creative innovations that have seen Trinity's researchers make significant breakthroughs.

The Trinity Long Room Hub for Arts and Humanities Research Institute is the University's flagship institute for research in the Arts and Humanities, providing a world-class environment for cross-disciplinary collaborative projects. The Long Room Hub provides a central location through which the University's internationally respected Arts and Humanities research can become more visible, demonstrating its relevance for contemporary and future societies.

Researchers from across the University regularly participate in debates on topical issues facing the world today. As well as operating an International Visiting Research Fellowship programme, the Long Room Hub also hosts major EU-funded Digital Humanities projects.

One of the most instantly recognised parts of Trinity's campus is the famous Old Library, home to the historic Book of Kells as well as other internationally significant holdings in manuscripts, maps, and early printed material. Trinity's Library is the largest research library in Ireland and is an invaluable resource to Trinity's students and research community. Built up over the four centuries of the University's existence, the Library's collections have benefitted from its status as a Legal Deposit library for the past 200 years, granting Trinity the right to claim a copy of every book published in Ireland and the UK. At present, the Library's holdings span approximately 4.25 million books, 22,000 printed periodical titles, and access to 60,000 e-journals and 250,000 e-books.

Trinity attracts top students from Ireland and abroad and prides itself on the consistently high standard of student admitted to the University every year. These students are drawn to Trinity for the excellence of our research-led teaching and for the quality and prestige a degree from this University confers. Trinity has also pioneered accessibility to education in Ireland, becoming the first university in the country to reserve 15% of its undergraduate places for students from non-traditional learning groups. Trinity is the top-ranked European university for student entrepreneurship and Europe's only representative in the world's top-50 universities.

Our alumni have gone on to shape the history of Ireland and of Western Europe in a wide range of fields. These include such notable figures as Jonathan Swift, Oscar Wilde, William Rowan Hamilton, Edmund Burke, William Stokes, Denis Burkitt, Louise Richardson, Lenny Abrahamson, and Anne Enright. Three of Trinity's graduates have been awarded Nobel prizes: Ernest Walton for Physics in 1951; Samuel Beckett for Literature in 1968; and William Campbell for Physiology / Medicine in 2015. Trinity also counts the first female President of Ireland among its alumni in Mary Robinson, as well as other notable former Presidents Douglas Hyde and Mary McAleese. At Trinity we are justifiably proud of our tradition, and we strive to uphold this excellence as we face the demands of the 21st century.

Ranking Facts

Trinity is the top ranked university in Ireland. Using the QS methodology we are ranked 88th in the world and using the Times Higher Education World University Rankings methodology we are 117th in the world.



Overall

- Trinity is Ireland's No.1 University in the QS World University Ranking, THE World University Ranking and the Academic Ranking of World Universities (Shanghai).
- Trinity is ranked 88th in the World, and 29th in Europe, in the 2017/2018 QS World University Ranking.
- Trinity is ranked in the Top 100 for Graduate Employability in the QS 2017 Rankings.
- Trinity is in the Top 50 most innovative universities in Europe according to Reuters.¹
- Between 2010 and 2015, Trinity was ranked the top university in Europe for entrepreneurship according to Pitchbook's independent analysis.²

¹ <http://www.reuters.com/article/us-innovative-stories-europe-idUSKCN0Z00CT>

² <http://pitchbook.com/news/reports/2015-2016-pitchbook-universities-report>

Internationalisation

- Trinity is ranked 52nd in the world in the THE World University Ranking for international outlook.

Research Performance

- Of the 981 institutions included in the THE World University Rankings for 2017, Trinity is in the top 15% internationally for research performance.
- Trinity is ranked in the top 15% internationally by QS for citations.

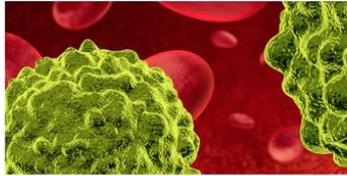
In the QS World University Subject Rankings:

- Trinity is ranked in the top 50 worldwide for 4 subjects according to the QS World University Subject Rankings 2018. The University is ranked in the top 100 globally for 20 subjects overall.
- Trinity's Top 50 subjects include Classics (28th), English (28th), Politics (43rd) and Nursing (25th).
- Trinity is ranked in the top 100 for each of the following 16 subjects: History, Languages, Philosophy, Theology, Computer Science, Biology, Medicine, Pharmacy, Chemistry, Geography, Materials Science, Education, Law, Social Policy, Sociology and Sport.
- The University is ranked in the top 100 for three broad subject areas: Arts & Humanities (57th), Life Sciences & Medicine (87th), and Engineering & Technology (89th).

Research Themes



Ageing



Cancer



Creative Arts Practice



Creative Technologies



Digital Engagement



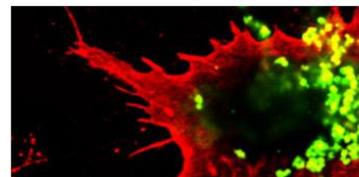
Digital Humanities



Genes & Society



Identities in Transformation



Immunology, Inflammation & Infection



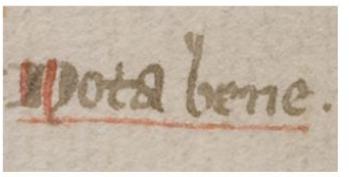
International Development



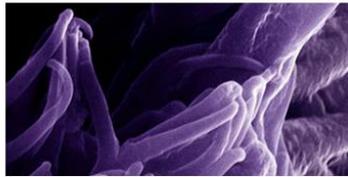
International Integration



Making Ireland



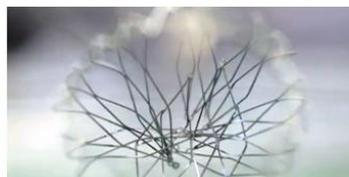
Manuscript, Book and Print Cultures



Nanoscience



Neuroscience



Telecommunications



Smart Sustainable Planet



Next Generation Medical Devices

The Selection Process in Trinity

The Selection Committee (Interview Panel) may include members of the Academic and Administrative community together with External Assessor(s) who are expert in the area. Applications will be acknowledged by email. If you do not receive confirmation of receipt within 1 day of submitting your application online, please contact the named Recruitment Partner on the job specification immediately and prior to the closing date/time.

Given the degree of co-ordination and planning to have a Selection Committee available on the specified date, the University regrets that it may not be in a position to offer alternate selection dates. Where candidates are unavailable, reserves may be drawn from a shortlist. Outcomes of interviews are notified in writing to candidates and are issued no later than 5 working days following the selection day.

In some instances the Selection Committee may avail of telephone or video conferencing. The University's selection methods may consist of any or all of the following: Interviews, Presentations, Psychometric Testing, References and Situational Exercises.

It is the policy of the University to conduct pre-employment medical screening/full pre-employment medicals. Information supplied by candidates in their application (Cover Letter and CV) will be used to shortlist for interview.

Applications from non-EEA citizens are welcomed. However, eligibility is determined by the Department of Jobs, Enterprise and Innovation and further information on the Highly Skills Eligible Occupations List is set out in Schedule 3 of the Regulations

<https://www.djei.ie/en/What-We-Do/Jobs-Workplace-and-Skills/Employment-Permits/Employment-Permit-Eligibility/Highly-Skilled-Eligible-Occupations-List/> and the

Ineligible Categories of Employment are set out in Schedule 4 of the Regulations

<https://www.djei.ie/en/What-We-Do/Jobs-Workplace-and-Skills/Employment-Permits/Employment-Permit-Eligibility/Ineligible-Categories-of-Employment/>. Non-EEA

candidates should note that the onus is on them to secure a visa to travel to Ireland prior to interview. Non-EEA candidates should also be aware that even if successful at interview, an appointment to the post is contingent on the securing of an employment permit.

Equal Opportunities Policy

Trinity is an equal opportunities employer and is committed to employment policies, procedures and practices which do not discriminate on grounds such as gender, civil status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community. On that basis we encourage and welcome talented people from all backgrounds to join our staff community. Trinity's Diversity Statement can be viewed in full at <https://www.tcd.ie/diversity-inclusion/diversity-statement>.

Pension Entitlements

This is a pensionable position and the provisions of the Public Service Superannuation (Miscellaneous Provisions) Act 2004 will apply in relation to retirement age for pension purposes. Details of the relevant Pension Scheme will be provided to the successful applicant.

Applicants should note that they will be required to complete a Pre-Employment Declaration to confirm whether or not they have previously availed of an Irish Public Service Scheme of incentivised early retirement or enhanced redundancy payment. Applicants will also be required to declare any entitlements to a Public Service pension benefit (in payment or preserved) from any other Irish Public Service employment.

Applicants formerly employed by the Irish Public Service that may previously have availed of an Irish Public Service Scheme of Incentivised early retirement or enhanced redundancy payment should ensure that they are not precluded from re-engagement in the Irish Public Service under the terms of such Schemes. Such queries should be directed to an applicant's former Irish Public Service Employer in the first instance.

Application Procedure

Application Procedure

Applicants should submit a personal statement of interest (i.e., why are you interested in this project, and what makes you the best candidate to be awarded this PhD Studentship?), evidence of research potential (thesis, research paper, link to video of project, etc.) full Curriculum Vitae, to include the names and contact details of 2 referees (including email addresses), to:-

Name: Dr. Conor McGinn

Email Address: c.mcginntcd.ie



**UNIVERSITY
VACANCIES IRELAND**
universityvacancies.com

