



### Post Specification

<b>Post Title:</b>	Research Fellow in Multimodal Interaction
<b>Post Status:</b>	Specific Purpose Contract – Full-time (14 months if started 1 <sup>st</sup> Dec 2020)
<b>Research Group / Department / School:</b>	Sigma Research Group, ADAPT Centre, School of Engineering, Trinity College Dublin
<b>Location:</b>	Electronic & Electrical Engineering, School of Engineering, Trinity College Dublin, the University of Dublin College Green, Dublin 2, Ireland
<b>Reports to:</b>	Principle Investigator, Prof. Naomi Harte
<b>Salary:</b>	Appointment will be made on the SFI Team Member Scales <sup>1</sup> at a point in line with Government Pay Policy The appointment will be made no higher than Research Fellow Level 2B point 4 per annum, or up to €50,030 per annum (depending on experience)
<b>Hours of Work:</b>	37 hours per week (full time) Whilst the role can be started remotely in Dec 2020 if practical, the ideal candidate will be in Dublin, Ireland by Jan 2021 to allow working in our Lab in TCD. Note that the PI is open to discuss work practices that include a mixture of lab/home working.
<b>Closing Date:</b>	12 Noon (GMT), 16 <sup>th</sup> November (or until filled)

<sup>1</sup> <https://www.sfi.ie/funding/sfi-policies-and-guidance/budget-finance-related-policies/FINAL-SFI-Team-Member-Salary-Scales.pdf>

## **Post Summary**

The Science Foundation Ireland ADAPT Research Centre ([adaptcentre.ie](http://adaptcentre.ie)), seeks to appoint a Research Fellow in Multimodal Interaction.

The successful candidate will support research in online interaction in teaching scenarios, in the context of the recently funded SFI Covid 19 Rapid Response Project, RoomReader led by Prof. Naomi Harte in TCD and Prof. Ben Cowan in UCD. The candidate will be working with a team to drive research into multimodal cues of engagement in online teaching scenarios. The work involves a collaboration with Microsoft Research Cambridge, and Microsoft Ireland.

The candidate should have extensive experience in speech based interaction, and modelling approaches using deep learning with multimodal signals e.g. linguistic, audio, and visual cues. The candidate will also be responsible for supporting research in a number of areas including:

- Identifying and understanding multimodal cues of engagement in speech based interaction
- Deep learning architectures for multimodal modelling of engagement in speech interactions
- Application and evaluation of modelling approaches to the specific case of online teaching scenarios

Thus, the ideal candidate will typically have specific expertise in speech interaction, signal processing and deep learning. Reporting to a Principal Investigator, the successful candidate will work within a larger group of Postdoctoral Researchers, PhD students and Software Developers. They will have exposure to all aspects of project lifecycle, from requirements analysis to design, code, test and face-to-face demonstrations, including with our industry partners Microsoft Research and Microsoft Ireland.

The successful candidate will work alongside the best and brightest talent in speech and language technologies, and video processing in the Sigmedia Research Group on a day-to-day basis. The wider ADAPT Research centre will give exposure to a wider range of technologies

including data analytics, adaptivity, personalisation, interoperability, translation, localisation and information retrieval. As a university-based research centre, ADAPT also strongly supports continuous professional development and education. In this role you will develop as an researcher, both technically and scientifically. In addition, ADAPT will support candidates to enhance their confidence, leadership skills and communication abilities.

### **Standard Duties and Responsibilities of the Post**

- Identify and analyse research papers in online human interaction scenarios, specifically those relevant to online teaching
- Identify existing datasets suitable for baseline analysis of multimodal interaction
- Support the design and capture of new multimodal data corpus (actual task is conducted by a Research Assistant on the project)
- Develop and adapt deep learning architectures to multimodal interaction scenarios, subsequently adapting the approaches to the specifics of online teaching interactions
- Liaise with engineering and HCI experts to refine and influence approaches to the project at all levels
- Report regularly to the PI of the project, and interact regularly with other team members to maintain momentum in the project
- Dataset recording and subsequent editing and labelling for project deployment
- Publish and present results from the project in leading journals and conferences

### **Funding Information**

The position is funded through the SFI COVID-19 Research Call 2020.

### **Person Specification**

The successful candidate will have broad experience in deep learning architectures applied to speech-based interaction. The successful candidate is expected to:

- Have a thorough understanding of speech based interaction, including linguistic, verbal, non-verbal and visual cues
- Be expert in deep-learning applied to speech processing

- Be skilled at taking disparate research ideas and draw innovative conclusions or see new solutions
- Have excellent interpersonal skills
- Be highly organised in their work, with an ability to work remotely if necessary

### **Qualifications**

- Candidates appointed to this role must have a PhD in Engineering or Computer Science, or a closely related field

### **Knowledge & Experience (Essential & Desirable)**

#### Essential

- Understanding of multimodal cues in speech based interaction
- Experience of the development of deep learning architectures for speech processing
- Familiarity with running of large scale experiments e.g. on a high-performance compute farm
- Publication track record commensurate with career stage in high quality conferences or journals

#### Desirable

- Familiarity with MS Teams environment
- Experience in post-production tools for video editing
- Mentoring of junior team members
- Record of open source publishing of code

### **Skills & Competencies**

- Excellent written and oral proficiency in English (essential)
- Good communication and interpersonal skills both written and verbal
- Proven ability to prioritise workload and work to exacting deadlines
- Flexible and adaptable in responding to stakeholder needs
- Enthusiastic and structured approach to research and development

- Excellent problem-solving abilities
- Desire to learn about new products, technologies and keep abreast of new product technical and research developments

### **Benefits**

- Competitive salary and equity
- Computer and peripherals of your choice
- A fast-paced environment with impactful work
- Pension
- Day Nursery
- Travel Pass Scheme
- Bike to Work Scheme
- Employee Assistance Programme
- Sports Facilities
- 22 days of Annual Leave
- Paid Sick Leave
- Training & Development
- Staff Discounts

### **Application Procedure**

Applicants should submit a full Curriculum Vitae to include the names and contact details of 2 academic referees (including email addresses), together with a CV, cover letter (1x A4 page) as well any links to your previous projects.

**APPLICATIONS WILL ONLY BE ACCEPTED BY VIA**  
**<https://apply.adaptcentre.ie/apply.php?jobID=RF-COVNH>**  
**Applicants should reference RF-COVNH in their application**  
**Further Information for Applicants**

URL Link to Area	<a href="https://www.adaptcentre.ie/">https://www.adaptcentre.ie/</a>
URL Link to Human Resources	<a href="https://www.tcd.ie/hr/">https://www.tcd.ie/hr/</a>

## **Sigma Media Research Group**

The Signal Processing and Media Applications (aka Sigma Media) Group was founded in 1998 in Trinity College Dublin. Originally with a focus on video and image processing, the group today spans research in areas across all aspects of media – video, images, speech and audio. Prof. Naomi Harte leads the Sigma Media research endeavours in human speech communication. The group has active research in audio-visual speech recognition, evaluation of speech synthesis, multimodal cues in human conversation, and birdsong analysis. The group is interested in all aspects of human interaction, centred on speech. Much of our work is underpinned by signal processing and machine learning, but we also have researchers grounded in linguistic and psychology aspects of speech processing to keep us grounded.

## **Background on ADAPT**

The ADAPT Centre, a world-leading SFI Centre, is Ireland's global centre of excellence for digital content technology funded through Science Foundation Ireland's Centres programme. ADAPT combines the expertise of over 300 researchers across eight Higher-Education Institutes (Trinity College Dublin, Dublin City University, University College Dublin, Technological University Dublin, Cork Institute of Technology, Athlone Institute of Technology, Maynooth University and National University of Ireland, Galway) with that of its industry partners to produce ground-breaking digital content innovations. The ADAPT Centre executive function is co-hosted between Trinity College Dublin and Dublin City University.

ADAPT brings together more than 300 researchers who collectively have won more than €100m in funding and have a strong track record of transferring world-leading research and innovations to more than 140 companies. ADAPT partners are successfully advancing the frontiers of Artificial Intelligence (AI), content analysis, machine translation, personalisation, e-learning/education, media technologies, virtual and augmented reality, and spoken interaction, as well as driving global standards in content technologies.

## **Trinity College Dublin, the University of Dublin**

Trinity is Ireland's leading university and is ranked 108th in the world (QS World University Rankings 2020). Founded in 1592, the University is steeped in history with a reputation for excellence in education, research and innovation.

Located on an iconic campus in the heart of Dublin's city centre, Trinity has 18,000 undergraduate and postgraduate students across our three faculties – Arts, Humanities, and Social Sciences; Engineering, Mathematics and Science; and Health Sciences.

Trinity is ranked as the 17th most international university in the world (Times Higher Education Rankings 2020) and has students and staff from over 120 countries.

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 19 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. Trinity is also home to 5 leading flagship research institutes:

- Trinity Biomedical Sciences Institute (TBSI)
- Trinity College Institute of Neuroscience (TCIN)
- Trinity Translational Medical Institute (TTMI)
- Trinity Long Room Hub Arts and Humanities Research Institute (TLRH)
- Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN)

Trinity is the top-ranked European university for producing entrepreneurs for the past five successive years and Europe's only representative in the world's top-50 universities (Pitchbook Universities Report).

Trinity is home to the famous Old Library and to the historic Book of Kells as well as other internationally significant holdings in manuscripts, maps and early printed material. The Trinity Library is a legal deposit library, granting the University the right to claim a copy of every book published in Ireland and the UK. At present, the Library's holdings span approximately 6.5 million printed items, 400,000 e-books and 150,000 e-journals.

With over 120,000 alumni, Trinity's tradition of independent intellectual inquiry has produced some of the world's finest, most original minds including the writers Oscar Wilde and Samuel Beckett (Nobel laureates), the mathematician William Rowan Hamilton and the physicist

Ernest Walton (Nobel laureate), the political thinker Edmund Burke, and the former President of Ireland Mary Robinson. This tradition finds expression today in a campus culture of scholarship, innovation, creativity, entrepreneurship and dedication to societal reform.

### **Rankings**

Trinity is the top ranked university in Ireland and ranked 108th in the world (QS World University Rankings 2020). Trinity ranks in the top 50 in the world on 6 subjects and in the top 100 in 20 subjects (QS World University Rankings by Subject 2019). Full details are available at: [www.tcd.ie/research/about/rankings](http://www.tcd.ie/research/about/rankings).

### **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 Business, Enterprise and Innovation and further information on the Highly Skills Eligible Occupations List is set out in Schedule 3 of the Regulations

[https://dbei.gov.ie/en/What-We-Do/Workplace-and-Skills/Employment-](https://dbei.gov.ie/en/What-We-Do/Workplace-and-Skills/Employment-Permits/Employment-Permit-Eligibility/Highly-Skilled-Eligible-Occupations-List/)

[Permits/Employment-Permit-Eligibility/Highly-Skilled-Eligible-Occupations-List/](https://dbei.gov.ie/en/What-We-Do/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://dbei.gov.ie/en/What-We-Do/Workplace-and-Skills/Employment-](https://dbei.gov.ie/en/What-We-Do/Workplace-and-Skills/Employment-Permits/Employment-Permit-Eligibility/Ineligible-Categories-of-Employment/)

[Permits/Employment-Permit-Eligibility/Ineligible-Categories-of-Employment/](https://dbei.gov.ie/en/What-We-Do/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

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Applicants should submit a full Curriculum Vitae to include the names and contact details of 2 academic referees (including email addresses), together with a CV, cover letter (1x A4 page) as well as a link to any previous projects where relevant.

APPLICATIONS WILL ONLY BE ACCEPTED BY VIA

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