



Vacancy for

Postdoctoral Research Associate in Computational Approaches to Dialogue

Grade 7 (£34,308 to £42,155 + 21% superannuation)
depending upon experience

42 months fixed term

Closing Date: 20 Nov 2022



www.dundee.ac.uk/scienceengineering/

www.arg.tech

Further Particulars

1 Background

Centre for Argument Technology

ARG-tech is one of the world's leading research groups in the computational application of theories of argument. As an interdisciplinary team, we focus on developing foundational theory in philosophy, linguistics and cognitive science that facilitates the development of practical AI applications. The goal is to help improve, teach, track and navigate the discussions and debates that run our governments, structure scientific research, underpin the corporate boardroom, drive legal process and frame religious beliefs.

Our work is at the forefront of neurosymbolic techniques for the identification, recognition, generation and management of argumentation and debate. Our research has attracted funding of over £10m, and we have over 200 refereed papers in print. Our freely available software tools such as OVA (for performing argument analysis) have tens of thousands of users, we have pioneered robust new standards such as the AIF and we have the largest freely accessible corpus of analysed argumentation anywhere in the world in AIFdb. The group also hosted the editorial office for the journal *Argument and Computation* from its inception in 2010 until 2016.

Our collaborations and consultancy with commercial and government organisations including IBM, DSTL and the BBC have driven our focus on end-user impact, and our public communication in print and broadcast media has reached over 30 million people.

Computing

Computing research at the University of Dundee has a distinctive focus. Our research benefits society and helps to enhance the lives of many individuals. The 2021 Research Excellence Framework (REF) rated **all** of our computing research as “world-leading” or “internationally excellent”, placing us on this metric first in Scotland, and first equal (with four other institutions) in the UK as a whole.

Computing is home to four distinct research groups: Computer Vision & Image Processing (CVIP), The Centre for Argument Technology (ARG-tech), Human-Centred Computing (HCC), and Space Technology Centre (STC). These groups contribute to wider Research Clusters within the School of Science and Engineering.

Our teaching programme, which offers a range of undergraduate and postgraduate degrees, is research-led and utilises a range of innovative delivery methods with a strong commitment to the student experience. Our students have a unique opportunity to collaborate with a broad range of user groups who meet in the purpose-built Queen Mother Building to ensure that technological systems are developed to meet the needs and aspirations of a wide variety of people.

School of Science & Engineering

The School of Science and Engineering comprises the disciplines of: Biomedical, Civil, Electronic, and Mechanical Engineering; Computing; Mathematics; Physics; the Graduate Apprenticeship Programme and the Centre for Anatomy and Human Identification. We host the Leverhulme Research Centre for Forensic Science, which has been designed to disrupt positively the forensic science ecosystem.

The School offers undergraduate, postgraduate, research degrees and international exchange opportunities. The School has approximately 1,500 students, with a spread across Research, Taught Postgraduate, and Undergraduate students. To mirror the diverse range of offerings for students, the School has approximately 300 members of staff (including academics, research, technicians and support staff). The School is frequented by members of the public, visiting academics, guest lecturers and external examiners.

University of Dundee

The University of Dundee aims to transform lives locally and globally through the creation, sharing and application of knowledge. We reflect this aim by excelling in teaching and research; contributing to social, economic and cultural development; and shaping the future by solving important, real-world problems.

We aim to become Scotland's leading University in all we choose to do, and to be recognised internationally for the quality of our graduates and the impact of our research. These research and teaching strengths have led to Dundee being ranked 4th in the UK (2nd in Scotland) for student satisfaction in 2019, 20th in the World (4th in the UK) in the 2019 Times Higher Education University Impact Rankings, 14th in the World for the highest proportion of highly cited publications in the 2019 CWTS Leiden Rankings, and 84th in the World for research quality in the Nature Index 2019.

The University is structured as ten academic schools and emphasises work that takes place across school and subject boundaries, bringing different expertise and viewpoints to approach issues in new, challenging and productive ways.

The University is a diverse community and is committed to equality of opportunity for all by providing a supportive, flexible and inclusive working environment. We have family-friendly policies (including flexible working and childcare vouchers), staff groups for LGBT+ and BME, and prayer room facilities. The University and the School of Science and Engineering hold Athena SWAN Bronze Awards, which recognise the promotion of gender equality, and have made further commitments to advancing an inclusive culture that supports and encourages all under-represented groups.

City of Dundee

Dundee is a post-industrial city that has worked hard to reinvent itself. With a population of 150,000, it is small enough to walk round but has all the cultural and leisure activities you would

expect in a much larger city. Excellent shopping sits side-by-side with a vibrant cultural quarter, home to Scotland's award-winning Dundee Rep Theatre and the highly acclaimed Dundee Contemporary Arts, which has become a lively social hub and film house as well as a champion of leading-edge arts.

Dundee is the UK's only UNESCO City of Design and, with the opening of the new V&A Museum of Design – an iconic building designed by renowned architect Kengo Kuma, it has a growing reputation as a creative centre. Dundee was placed by the Wall Street Journal among their top ten places to visit in 2018, and 1st in Scotland in the Sunday Times 2019 Best Place to Live Guide.

Salaries in Dundee currently go further on the property ladder than almost any other city in the UK. The range of properties within commuting distance of the University covers the widest spectrum – from country houses and seaside cottages to handsome town villas and sleek city- quay apartments.

2 Role Information

Role Title:	Postdoctoral Research Associate in Computational Approaches to Dialogue
School:	Science & Engineering
Discipline:	Science & Engineering Office
Grade of post:	Grade 7
Job category:	Research

The Centre for Argument Technology is a highly interdisciplinary environment, and candidates should be willing to work across traditional disciplinary boundaries.

ARG-tech's software stack provides an environment for academic tools (such as one of the most popular analysis tools for argumentation, OVA, ova.arg.tech, and the only automated system for grading argument analysis, Argugrader, argugrader.com) as well as public-facing systems such as the Evidence Toolkit (arg.tech/evtk) which was deployed into thousands of secondary schools in partnership with the BBC. We provide open infrastructure for datasets of argument and debate (aifdb.org) based on the AIF standard for argument representation and knowledge engineering.

Most recently, we have also been working to provide an open framework for argument mining, one of the most demanding challenges in AI natural language processing today. The engineering of these tools and systems has been driven by theory coming from philosophy and linguistics but is aimed at translating basic research and delivering it robustly to large audiences.

As a part of a research project funded by IARPA, we are looking to appoint a research associate to work on computational models of dialogue and the concept of 'dialogical fingerprinting' – the way in which someone engages in discourse is as unique to them as their fingerprint.

IARPA HIATUS

The HIATUS program aims to develop novel human-useable systems for attributing authorship and protecting author privacy. Authorship attribution capabilities address many Intelligence Community (IC) needs, including combating sophisticated malicious information campaigns online and identifying counterintelligence risks. Authorship privacy capabilities protect authors whose writing, if attributed, could place them in danger.

3 Key responsibilities

- To contribute to core theory, algorithms and techniques for dialogical fingerprinting
- To contribute to the management and growth of our open data infrastructure, including development of new corpora for dialogical fingerprinting
- To contribute to and lead the software engineering activity across the SIGNATURE project work at Dundee, including collaborating with our partners in the US
- Develop prototypes and tools incorporating dialogical fingerprinting techniques
- Liaise with our project partners plus industrial and end-user groups
- Engage in and facilitate public engagement with research in its widest context.
- Be familiar with relevant University IT-related policies (acceptable use, data protection, Freedom of Information, information security, HR, procurement etc.)
- Work independently, as well as within a team, to agreed deadlines.
- Communicate clearly on complex and specialised issues both orally and in writing.

Additional Responsibilities

- Carry out responsibilities with due regard to the University and School Equal Opportunities policies
- Respect the confidentiality of all data in line with the DPA and GDPR

Note: The duties of the post outlined above are not exhaustive and the role holder will be expected to be co-operative and flexible, undertaking such other duties as may reasonably be required.

4 Person specification

Essential knowledge, skills and experience

- PhD in an appropriate subject
- Broad knowledge of current approaches in computational linguistics
- Excellent interpersonal skills, including evidence of team working and the ability to be proactive
- Meticulous attention to detail, producing work of consistently high standard, and the ability to generate well-written documentation
- Ability to balance competing demands and prioritise effectively, monitoring own progress and working to tight deadlines, and to make independent decisions

Desirable knowledge, skills and experience

Any of the following would be an advantage, but none are required for the position:

- Experience with argument technology
- Experience with machine learning in language processing
- Good analytical skills, with the ability to process and collate complex information and manage data in a structured manner and with a high level of accuracy
- Familiarity with models of dialogue
- Familiarity with Inference Anchoring Theory, the Argument Interchange Format, or other models of argument structure
- Conducting and coordinating analysis of argument and debate
- working with either theory or practice of argument, debate or conflict
- working with models of dialogue and communicative interaction
- use of or management of linguistic datasets and models
- use of semantic web technologies
- Working with database provisioning, containerised deployment and version control management

5 Application Requirements

In addition to the online form at <https://www.dundee.ac.uk/hr/uodrecruitment/jobvacancies/>, with reference number SSEN0473, applicants must include with their application:

- Cover letter outlining the candidate's suitability for the role
- CV
- Names and contact details of at least three references

6 Contacts

To further discuss the details of this post, informal inquires may be made to Prof. Chris Reed, Director of the Centre for Argument Technology (c.a.reed@dundee.ac.uk)