

Postdoctoral Researcher at the Centre for Argument Technology

School of Science & Engineering

Full-time, Permanent with funding review after 36 months

Grade 7 to 8 (£35,308-£47,047)

We are looking for a highly motivated postdoctoral researcher with a PhD and experience in computing, linguistics, philosophy, AI, argumentation, cognitive science or related fields to join a team that develops and applies artificial intelligence to theories of arguments and debates.

ARG-tech is a world-leading research group in the application of theories of argument. We have attracted funding of over £10m and have over 200 peer-reviewed papers. We have led in the development of robust, standardised file formats, as well as designing an open-source, argument analysis tool (OVA) with thousands of users.

Our goal is to improve, teach and navigate discussions and debates that run our governmental and legal institutions; businesses and corporations; the media and broadcasting; academic research and intelligence analysis. We are passionate about public communication, and improving debate and analysis. We collaborate and consult with commercial and government organisations including IBM, Dstl, UN, WHO and the BBC.

We are recruiting for an exceptional individual to join as a Postdoctoral Researcher. The post is permanent, subject to a funding review after 36 months.

The successful candidate will be expected to contribute to a variety of grant-funded research projects working in multi-disciplinary teams. They will be involved in design, analysis, publishing and presenting work at conferences and in journals. The position offers the candidate an unparalleled opportunity to grow their expertise in fields such as argumentation theory, machine learning, large language models and AI. As a member of ARG-tech, a world-leading university-based research group, you will get the chance to drive innovation and best practices in this exciting, fast-growing field.

Your priorities will include:

- Contribute to research in areas including theories of argumentation, machine learning, AI, data analysis and visualisation.
- Contribute to the management and growth of projects and our open-data infrastructure.
- Work collaboratively with project partners, industrial and end-users.
- Deliver project milestones to an agreed deadline.
- Present work in oral, written and online formats, contributing to the authoring of research outputs.

Who we're looking for:

- PhD in an appropriate subject.
- Broad knowledge of areas related to argumentation, including but not limited to, philosophy, linguistics, literature, rhetoric, communication, AI, mathematics, computer science, engineering, economics, international relations, law, politics, forensics, and healthcare.
- Excellent interpersonal skills and evidence of teamwork.
- Meticulous attention to detail, proactive, with good analytical and communication skills.

We are one of the UK's leading universities - internationally recognised for our expertise across disciplines, including science, medicine and engineering. Conveniently located on the banks of River Tay, our city-centre campus is at the heart of Dundee - an up-and-coming, friendly, compact and affordable city with a rich heritage in design and technology.

For further information please contact Prof. Chris Reed at chris@arg.tech and visit www.arg.tech. The closing date for applications is 14th August 2023, interviews will take place soon after.

The diversity of our staff and students helps make the University of Dundee a UK university of choice for undergraduate and postgraduate. Family friendly policies, staff networks for BME, Disabled and LGBT staff, membership of Athena SWAN, the ECU Race Equality Charter, Stonewall as well as a full range of disability services, create an enjoyable and inclusive place to work.



Vacancy for

Postdoctoral Researcher

Grade 7 to 8 (£35,308 to £47,047)
depending upon experience

Permanent position subject to funding review after 3 years



www.arg.tech

www.dundee.ac.uk/scienceengineering/

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, drive intelligence analysis, 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), and Human-Centred Computing (HCC). These groups contribute to wider Research Clusters within the School of Science and Engineering.

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 (CAHID). 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 around 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
School: Science & Engineering
Discipline: Computing
Grade of post: Grade 7 to 8
Job category: Research

The post is permanent, but subject to a funding review after 36 months.

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

The Centre's theoretical research focuses on developing an understanding of phenomena of argumentation that present challenges when trying to unpick the complexities of what happens in real, situated examples of debate, dissensus, and argumentative discourse. Recent themes have included the role of questions, dynamics of conversational implicatures, reconciling argumentative and rhetorical structure, and the adequacy of argumentation expressing reasoning for forecasting and analysis.

The group also put these theories to the test in building and curating the largest datasets of analysed argumentation anywhere in the world. In addition to recently releasing QT30, the largest of these corpora to date, the group's recent corpus linguistics research has explored themes of annotator disagreement, improving annotation of argumentation schemes, and analytical expressivity.

ARG-tech also designs and builds innovative computational solutions that exploit, navigate and provide insight into these datasets. We have developed tools that use Analysis of Competing Hypotheses, a common technique from the intelligence analysis community, tools that use network structure properties to summarise debate activity, and tools that use argumentation semantics to identify key steps in chains of reasoning.

Finally, the Centre also works in building tools for harvesting and engaging in human argumentation, and is a pioneer in the fields of argument mining and mixed initiative argumentation. The Centre built the world's first public deployment of argument mining technology in partnership with the BBC, and has built mixed initiative argumentation systems for both the WHO and Dstl. The new open argument mining framework and dialogue-as-a-service infrastructures are allowing ARG-tech to develop new applications for new partners rapidly and efficiently,

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.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.

We currently run a portfolio of research projects for government, charity and commercial funders in the UK, US, EU, Germany, Portugal and Switzerland worth over £1m per year and with many dependencies between these projects, we need someone to help drive forward the research of the Centre. This is a unique opportunity for someone with interest and expertise in working with argumentation to join a world-leading research group – regardless of their disciplinary background. If you think you would be a good fit, we would be keen to hear from you regardless of whether you have degrees in philosophy, linguistics, literature, communication, cognitive science, AI, mathematics, engineering, economics, international relations, law, or any other cognate disciplines.

3 Key responsibilities

- Contribute to core theory, algorithms or techniques in the research of the Centre
- Contribute to the management and growth of our open data infrastructure, dataset availability, data analysis standards or underpinning theory
- Contribute to the authoring of high-impact outputs communicating our research to the academic community
- Liaise with our project partners plus industrial and end-user groups
- Engage in and facilitate public engagement with research in its widest context
- Work independently, as well as within a team, to agreed deadlines.
- Communicate clearly on complex and specialised issues both orally and in writing.

At the higher end of the grading, the post holder would further be expected to

- lead on the development of research initiatives, high profile publications and research collaborations
- contribute to the authoring of funding bids
- communicate effectively with management in the Centre in order to help advance the research agenda
- deliver initiative in decision making in leading the projects to their goals
- planning and organising project resources to best deliver on project goals
- demonstrate a high level of initiative and problem solving in ensuring that the work of projects is completed in the face of deep academic challenges and constrained resourcing

Additional Responsibilities

- Carry out responsibilities with due regard to the University and School Equal Opportunities policies
- Be familiar with relevant University IT-related policies (acceptable use, data protection, Freedom of Information, information security, HR, procurement etc.)
- 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 cooperative 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 one or more areas related to argumentation or argument technology, including but not limited to, philosophy, linguistics, literature, rhetoric, communication, cognitive science, AI, mathematics, computer science, engineering, economics, international relations, law, politics, forensics and healthcare.
- 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 making 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 or argumentation theory
- Experience with working in an interdisciplinary environment
- 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 Inference Anchoring Theory, the Argument Interchange Format, or other models of argument structure
- Familiarity with argument and debate
- Working with datasets

At the higher end of the grading, the appointee would further require

- substantial postdoctoral experience

5 Application Requirements

In addition to the online form at <https://www.dundee.ac.uk/hr/uodrecruitment/jobvacancies/>, with reference number UOD738, 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 inquiries may be made to Prof. Chris Reed, Director of the Centre for Argument Technology (chris@arg.tech)