Vacancy for

PhD Studentship

in Argument Mining

Tax free stipend of £15,609 (plus payment of fees)

48 months fixed term

Closing date 17 Sep 2021

Athena
SWAN
Bronze Award

ECU GENDER CHARTER

Stonewall
Acceptance without exception

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 research has attracted funding of over £8m, 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 2014 Research Excellence Framework (REF) rated our computing research 3rd in Scotland and 22nd in the UK (of 89 institutions); the panel noted in particular the strength of our Research Environment and Impact, where we were rated as world-leading or internationally excellent throughout. We aim to improve this position in 2022.

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 (CAHID). We host the Leverhulme Research Centre for Forensic Science, which has been designed to disrupt positively the forensic science ecosystem.

The School benefits from superb research infrastructure, substantial opportunities for interdisciplinary collaboration, and the University's established excellence in delivering undergraduate and postgraduate taught courses. Excellence in teaching and research consistently leads to impressive National Student Survey scores and a Research Excellence Framework (REF 2014) profile marking Civil Engineering, General Engineering (encompassing Physics) and Mathematics all 1st in Scotland and in the top 10 in the UK. Computing and CAHID also deliver world-leading research with impact.

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: PhD studentship in Argument Mining

School: Science & Engineering
Discipline: Science & Engineering Office
Grade of post: PhD UKRI-equivalent stipend (https://www.ukri.org/our-work/developing-people-and-skills/find-studentships-and-doctoral-training/get-a-studentship-to-fund-your-doctorate/) plus payment of fees at home student rates
Job category: Research Studentship

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.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 be 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 the Swiss National Science Foundation, we are looking to appoint a PhD student to work on argument mining and its role in financial communication.

The proposed research is a large-scale study of argumentative patterns in a corpus of quarterly Earnings Conference Calls (ECCs), a key dialogical genre in the financial communication of listed companies.

Traditionally, the study of argumentation in context has relied on the analytical reconstruction of individual discourses examined in relation to descriptions of activity types in order to outline how the goals, incentives and procedures of activities constrain the issues and the material and procedural starting points of argumentative discussions. Recently, researchers have advocated a shift towards larger corpus studies not only to test and refine hypotheses on the contextual constraints on argumentation, but also to map inherently more complex networks of arguments in multi-party discussions that shape broader debates in society. This shift is also necessary in order to start addressing the effects of argumentation on the context itself. Corpus research on argumentation, however, requires the development of theory-based annotation schemes and time-consuming annotation by trained analysts, which risks being an insurmountable bottleneck. Furthermore, it requires quantitative analytics to relate analyzed arguments to contextual parameters and, if the effects of argumentation are to be addressed, the possibility to measure change in contextual parameters at appropriate points in time. Recourse to Argumentation Mining and related Argumentation Analytics appears promising, but tools and techniques developed in this growing field have so far seen limited application to research on discourse in context.

The project seeks to demonstrate how these challenges can be met with an Argumentation Mining approach designed to investigate the interdependency of argumentation and activity type through the notion of argumentative pattern (AP), which refers to significant constellations of argumentative moves whose occurrence can be explained in view of the goals and rules of the activity type.

3   Key responsibilities

- To contribute to core theory, algorithms and techniques in argument mining

- To contribute to the management and growth of our open data infrastructure, including development of new corpora for argument mining

- To explore sub-specialisms of argument mining in the context of financial communication

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

- First degree at 2i or above in an appropriate subject

- Exposure to machine learning and natural language processing techniques

Desirable knowledge, skills and experience

- Broad knowledge of current approaches in computational linguistics
- Interest in or experience with argument and debate
- 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

5   Application Requirements

In addition to the online form, 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 (chris@arg.tech)