Department	SCEBE
Supervisors	Dr Simon Wells
Project Title	A Defeasible Ensemble Model of Argumentation Mining

PROJECT DESCRIPTION

Argument mining is the automatic identification and extraction of argumentative structure from within real world textual resources such as Web pages, Internet discourse, legal documents, or newspaper articles. One of the challenges of argument mining is to construct a plausible model of argument structure that accurately reflects the argument made by the original author as there can be multiple different interpretations. Similarly, there are many techniques that individually identify different aspects of arguments but no single technique that can successfully and reliably mine arguments from arbitrary natural language resources. Furthermore, existing approaches do not explicitly take account of the defeasible nature of argument interpretation, that each techniques might provide evidence to support or reject a specific argumentative interpretation of the source text.

This project will involve a detailed study of the structure of natural language arguments and evaluation of existingnatural language understanding and machine learning techniques applied to argument mining. The novel contribution will be the construction of an evidence based, defeasible model of mined argument in which the evidence supporting each interpretation comes from the output of a suitable ensemble of mining techniques.

Prospective applicants are encouraged to contact the Supervisor before submitting their applications. Applications should make it clear the project you are applying for and the name of the supervisor(s).

Academic qualifications

A first degree (at least a 2.1) ideally in Computer Science, Computational Linguistics, or Machine Learning. with a good fundamental knowledge of either Argumentation Theory, Natural Language Processing, or Machine Learning.

English language requirement

IELTS score must be at least 6.5 (with not less than 6.0 in each of the four components). Other, equivalent qualifications will be accepted. Full details of the University's policy are available online.

Essential attributes:

- Experience of fundamental Natural Language Processing or Machine Learning techniques
- Competentce in applying NLP toolkits, such as NLTK or Spacy, or ML toolkits such as Scikit-Learn or Tensorflow
- Knowledge of Argumentation Theory
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management

Desirable attributes:

Understanding of topics in machine learning, computational argumentation, and defeasible reasoning would be advantageous.

Indicative Bibliography	S. Wells, (2014), "Argument Mining: Was Ist Das?" M. Lippi & P. Torroni (2016) “Argumentation Mining: State of the Art and Emerging Trends“
Enquiries	For informal enquiries about this PhD project, please contact s.wells@napier.ac.uk
Web page	https://www.napier.ac.uk/research-and-innovation/research-degrees/application-process