



School of Computing, Engineering, and the Built Environment Edinburgh Napier University

PHD STUDENT PROJECT

Application instructions:

Detailed instructions are available at:

<https://www.napier.ac.uk/research-and-innovation/doctoral-college/how-to-apply>

Prospective candidates are encouraged to contact the Director of Studies (see details below) to discuss the project and their suitability for it.

Project details

Supervisory Team:

- DIRECTOR OF STUDY: Dr Simon Wells (Email: s.wells@napier.ac.uk)
- 2ND SUPERVISOR: tbc

Subject Group: Computer Science

Research Areas: Artificial Intelligence

Project Title: Reliable Guided Conversational AI

Project description:

Formal dialogue models have been developed over the last several decades to shed light on the conversational practises of people in a wide range of communicative contexts. More recently conversational AI, particularly based on large language models, has made rapid progress in generating plausible content for human-machine dialogue. Generally, formal approaches to dialogue can be less flexible than ML based-approaches, however, ML-based approaches can easily go off piste and diverge from human expectations. The goal of this project is to bring together the advantages of each approach, by using formal models of various types of dialogue to plan, guide, manage, and self-evaluate utterances emitted from the LLM.

This project will involve a detailed study of both existing formal dialogue systems as well as state of the art, LLM-based conversational AI. The novel contribution will be a theoretical and applied model that brings together useful elements of formal and ML based approaches to conversational AI.

Candidate characteristics

Education:

A second class honour degree or equivalent qualification in Software Engineering, Computer Science, Machine Learning, Artificial Intelligence

Subject knowledge:

- Artificial Intelligence

Essential attributes:

- Knowledge of Artificial Intelligence
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management