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 John Paul Vargheese (Email: j.vargheese@napier.ac.uk)
- 2ND SUPERVISOR: Dr Dimitra Gkatzia

Subject Group: Applied Informatics

Research Areas: Computer Science

Project Title: Intelligent Social Autonomous Assistive Companions

Project description:

As the ageing population continues to grow, there is increasing pressure on health and social care resources designed to support healthy ageing. Social assistive robots (SARs) and intelligent virtual agents (IVAs) may help alleviate this pressure, through the provision of digital health and social care services. This may include the provision of activities designed to facilitate cognitive stimulation, social interaction, entertainment, and monitoring of physical and mental health. Furthermore, there are opportunities to support common activities of daily living, individuals may experience difficulties with, not exclusive to the ageing population.

SARs and IVAs offer a potential means for delivering behaviour change interventions designed to reduce barriers and obstacles to healthy independent living. In addition, SARs and IVAs may be beneficial in supporting health and social care professionals, and others responsible for caring for older adults,

who are consistently in extensive demand. This includes friends, family, carers, and others, whom older adults frequently rely upon. Unofficial proxies are among this group and assist older adults with digital activities of daily life such as managing online prescriptions, appointments, banking, email, and social media.

The design, development, and evaluation of such digital health and social care services for older adults is significantly challenging, due to a broad range of diverse and complex issues. These include the digital divide, technological acceptability, trust, privacy, and security. Consequently, evaluation studies required to provide sufficient evidence of effective behaviour change interventions, facilitated through SARs and or IVAs; are equally complex, and challenging. Such studies are fundamental to justify investment for ongoing research, development, and deployment.

This research will investigate how SARs and or IVAs may support independent living for older adults while simultaneously supporting health and social care workers in their duties. This research will build upon related works to demonstrate how SARs and or IVAs acting as intelligent proxies may help in the delivery of high-quality effective health and social care for older adults. This will involve engaging with stakeholders and applying state of the art research methods in Human Computer / Robot Interaction.

Candidate characteristics

Education:

2:1 degree in Computing Science, Human Computer Interaction

Subject knowledge:

Human Computer Interaction, user experience design and research methods

Essential attributes:

- Self motivated, self learning, organisational and time-management skills
- Persistence and resilience
- Attention to detail
- Ability and willingness to collaborate with others

Desirable attributes:

- Knowledge and experience of machine learning
- Recommender systems
- Statistical analysis
- User research
- Programming