

SICSA Report: SICSA AAL Summer School 2019

Context

The 1st *SICSA Ambient Assisted Living (AAL) Summer School* took place between August 6-8th 2019 at Heriot-Watt University.

The school adopted a *learning-by-doing* approach, delivered in the form of a hackathon embedded throughout the three days. 13 PhD students from multiple disciplines had the opportunity to work together and experience the full cycle of a participatory-design AAL project.

The summer school was organised by Dr Mauro Dragone, Dr Alasdair Gray, Dr Robert Stewart (Heriot-Watt University), Dr Jaun Ye and Dr Kasim Terzic (University of St Andrews).

Activities

Stakeholder Presentations

The first day started with presentations from representatives from industry and healthcare organisations.

- **Dr Miranda Loh**, Head of Environmental and Public Health at **IOM**, presented her research that aims to understand how people interact with their environment, and how this affects their exposure to both negative and positive aspects of the environment.
- **Dr Mario Parra**, Lecturer in Psychology at the **University of Strathclyde**, provided an overview of cognitive and behavioural changes in neurodegenerative diseases and presented the latest results in his research using on virtual-reality techniques for technology-enabled assessment and interventions.
- **Joanne Boyle**, Head of Business Engagement at **Digital Health and Care Institute**, illustrated how the centre works with the Scottish Government, academic, civic and businesses partners to provide innovation support and leadership in digital health and care.
- **Dr Grant Gibson**, Lecturer in dementia studies at the **University of Stirling**, discussed issues associated with the design and implementation of assistive technology for people with dementia and presented results from his studies on the user-driven personalisation of these technologies.
- **Colin Foskett**, Head of Innovation at **Blackwood**, provided an overview of Blackwood's digitally enhanced care system and the way it was developed in collaboration with relevant stakeholders.

In the afternoon, the speakers interacted with the students and helped them to devise suitable projects.

Lectures and Tutorials

Lectures and tutorials on sensing, linked data, machine learning and robotics for AAL applications were delivered on the second and third days.

- **Dr Stefano Chessa**, Associate Professor at the Department of Computer Science, **University of Pisa**, presented the lessons learnt in the implementation of an EU project evaluating AAL systems.
- **Dr Kristina Yordanova**, Lecturer at the **University of Rostock**, gave a lecture on issues related to collection and labeling of human activity recognition datasets.
- **Dr Mauro Dragone**, Assistant Professor at the School of Engineering and Physical Science, **Heriot-Watt University**, provided an overview of robotics research for AAL applications.
- **Dr Jaun Ye**, Lecturer of Computer Science at **University of St Andrews**, presented a framework for implementing life-long human-activity recognition (HAR) systems.
- **Dr Lei Fang**, Research Fellow at **University of St Andrews**, gave a lecture on machine learning techniques for HAR.
- **Dr Alasdair Gray**, Associate Professor in Computer Science at **Heriot-Watt University**, gave a lecture on linked-data and ontology tools for AAL applications.
- **Dr Kasim Terzic**, Lecturer of Computer Science at the **University of St Andrews**, gave a lecture on computer vision techniques for understanding visual scenes.

Collaborations

Collaborative activities occurred during the summer school and future collaborations are planned:

- Activity annotation is a time- and effort-consuming task and it is often done manually and in an ad hoc manner, which makes the annotation between different datasets comparable. One collaboration opportunity emerging from the summer school is on automated semantic annotation on video for human activity recognition.
- During the summer school, we had an extensive discussion on how to automate semantic annotation by integrating ontologies and computer vision (the organisers' expertise) with logical reasoning and textual mining (Dr Kristina Yordanova, our external speaker's expertise).
- We have planned collaborative publications and student projects.

AAL Summer School website:

<https://sites.google.com/site/aalsicsasummerschool>