Project Title: Automatic Speech Recognition for Dysarthric Speech

Project Description: Automatic speech recognition (ASR) systems are encountered in everyday life. Insurance companies, banks and other businesses use machine-recognised responses from callers to a series of pre-recorded voiced questions to guide the callers to the appropriate department or agent. ASR is widely deployed in commercial products and in the home. Examples include Apple’s Siri, Amazon’s Alexa and Google Assistant.

While ASR systems work well for persons whose speech capabilities are within the normative population ranges, there are issues for persons suffering from speech impairments or disorders. Hence, there is a need for research on how ASR systems can support such persons for whom existing ASR algorithms struggle in terms of speech recognition performance. The result is frustration, feelings of exclusion and a negative impact on quality of life for those with such speech issues when dealing with voice-enabled technologies.

This project will investigate ASR for dysarthric or impaired speech, with a view to improving the speech recognition accuracy of ASR systems for persons with a speech disorder. Anticipated outcomes from the project include; the definition of a new dysarthric speech feature set, extracted from the speech utterances, for use in the recognition process; a framework for an ASR to improve recognition accuracy for dysarthric speech.

The potential impacts of the project include greater confidence and inclusion for those with a speech difficulty and pronunciation training to improve oral communication for those with speech dysarthria.
Duration of Project: 48 months

Funding Agency: AIT President’s Doctoral Scholarship 2019

Type of Degree Offered: PhD

Minimum Qualifications/Experience Necessary/Any Other Requirements:

- Minimum 2.1 Second Class Honours Degree in Electronic/Software Engineering, Computer Science, or relevant area.
- Knowledge of digital signal processing.
- Knowledge and experience in the following areas would be an advantage: pattern processing, statistical analysis and programming (e.g. C/C++, Matlab).
- Strong written and oral communication skills

Research Supervisors: Dr Ronan Flynn and Dr Niall Murray

For further information, please contact: rflynn@ait.ie

Applications: Download Application Form at https://www.ait.ie/research-and-innovation/postgraduate-research-opportunities

Closing date for receipt of completed application forms is 5pm on the 20th of March 2020. It is expected that interviews will be held during the week beginning March 30th 2020.

Please submit your completed application:
- By Post to: President Doctoral Scholarship Awards, Office of Research, Athlone Institute of Technology, Dublin Road, Athlone Co. Westmeath
- By Email to: pro@ait.ie