2013 YCCSA SUMMER SCHOLARSHIP PROJECT SUBMISSION

This form is for prospective project supervisors to submit their projects to be included in the YCCSA Summer Scholarships Programme for 2013.

It is the purpose of the Summer School that any projects submitted are interdisciplinary in nature.

Date	*4th March 2013*
Main Supervisor's Name	*Janet Clegg*
Main Supervisor's Department	*Electronics Department*
Co-supervisors' name(s) and Departments	*Cynthia Mcdougall* *Psychology Department*
Project Title	*The detection of psychopathy in voice recordings using evolutionary techniques*
Project Description	The aim of this research would be to be able to detect traits which appear in the voice of a psychopath which do not appear in the voice of a non-psychopath. Evolutionary algorithms will be used to find the traits of voice which are attributable to psychopathy. Evolutionary algorithms are search techniques based on natural evolution. The project would use the evolutionary algorithm to search for optimal weights in a weighted sum of many traits of the voice signal (eg pitch, number of pulses, jitter,…). The algorithm would choose the weights in order that the average difference between this weighted sum in a psychopath's voice is as different as possible to a non-psychopath's voice. This extends current work which has very successfully detected traits of anger in a voice.
Required skills	*Ability to program in C language*
Project dates	*No special requirements*
Other information	*A C program is already written for this project. The student would need the knowledge of C in order to make changes to this current program. Software is also available to extract traits from the voice signal.*
References	*SM Louth, S Williamson, M Alpert, ER Pouget and R Hare, "Acoustic Distinctions in the Speech of Male Psychopaths", Journal of Psycholinguistic Research, Vol 27. No 3, 1998.*

When complete, please email the form to sarah.christmas@york.ac.uk