

## 2014 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 2014.

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

<b>Date</b>	21 <sup>st</sup> January 2014
<b>Main Supervisor's Name</b>	Dr Janet Clegg
<b>Main Supervisor's Department</b>	Electronics
<b>Co-supervisors' name(s) and Departments</b>	Prof Cynthia McDougal Psychology
<b>Project Title</b>	<i>The detection of psychopathy in voice recordings using evolutionary techniques</i>
<b>Project Description</b>	<p>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. Wavelet transforms and 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.</p> <p>The project would begin by investigating the differences in the wavelet transforms of the voice signals in a psychopath's voice compared to that of a non-psychopath's voice. Following on from this initial work evolutionary techniques will be used to detect patterns in the voice of a psychopath which do not occur in the voice of a non-psychopath. This project extends current work which has very successfully detected traits of anger in a voice.</p>
<b>Required skills</b>	<i>Ability to program in C language</i>
<b>Project dates</b>	<i>No special requirements</i>
<b>Other information</b>	<i>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 (eg pitch) from the voice signal.</i>
<b>References</b>	<i>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.</i>

When complete, please email the form to [sarah.christmas@york.ac.uk](mailto:sarah.christmas@york.ac.uk)