**Project Title:** A usability Analysis of Privacy-preserving mobile applications through crowd sourcing  
**Company:** NICTA  
**Supervisors:** Mohamed-Ali (Dali) Kaafar

**Abstract:**  
Smartphones security/privacy research has been active and productive since the inception of app markets. A number of projects seeking to protect users privacy have developed privacy-preserving tools and control applications (e.g. [1] [2] and [3]). These tools are designed to detect possible information leakage and generally notify users when potential sensitive information is accessed by any installed application. Even though today, there is a lot of discussion about users expectations for more privacy preserving applications, control tools are not widely deployed. In this project, we aim at understanding the main barriers towards the deployment of privacy controller applications. The objective is to use crowd sourcing to capture users’ expectations and to analyse user behaviour with respect to privacy beaches in mobile environments.

**Requirements:** Understanding of networking protocols, and programming expertise are essential. A solid knowledge of pattern recognition and machine learning techniques is needed. An expertise in signal processing and information theory is helpful.

**Research Environment**  
The student will work closely with researchers in the Trusted Networks project within the NICTA Networks Research Group. The project will be primarily based at the NICTA ATP laboratory, where the work environment is a group comprised of junior and senior research staff, and PhD students. IT support and resources will be provided by NICTA.

**Novelty and Contribution**  
The project will result in a novel methodology to capture users expectations using crowd sourcing. It will also identify key factors to the success/failure of the deployment of privacy-preserving applications. The findings of this project will provide new insights into privacy risks resulting from use of mobile apps.

**Expected Outcomes**  
This project would result in a research report and a developed software prototype.

In this project, the student is expected to:  
1. Perform a literature review and become familiar with previous research.  
2. Design a privacy-oriented survey novel tool, and implement it as a large Crowd sourcing tool to collect feedback of mobile phone users.  
3. Analyze the implemented system and understand the implications of the collected results.  
4. Report on the findings of this work.
If successful, there is a potential to extend this project as a long-term research work suitable for a PhD thesis.

**Reference Material**

http://appanalysis.org/tdroid10.pdf

[2] Peter Hornyack, Seungyeop Han, Jaeyeon Jung, Stuart Schechter, and David Wetherall, "These Aren't the Droids You're Looking For": Retrofitting Android to Protect Data from Imperious Applications, ACM CCS, October 2011  
http://appfence.org/ccs210-hornyack.pdf