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DEPARTMENT OF COMPUTER SCIENCE

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1. **Study title**
   Investigating the impact of device-specific feature distributions on the security of behavioural biometrics, CUREC reference R50977/RE001

2. **Background and aims of the study**
   The goal of the study is to evaluate the security of a number of behavioural biometrics (i.e., distinctive behaviour). To this end, we will collect data relating to the following:
   - Touchscreen input patterns which will be recorded using a standard smartphone
   - Mouse movement patterns recorded while performing regular tasks on a PC
   - Gait patterns, recorded during a short walk in the university parks
   - Eye movement patterns, recorded using an optical eye tracker while performing common tasks on a PC
   - Electrocardiography (ECG) using commercial ECG monitors

3. **Why have I been invited to take part?**
   You have been invited to take part because you indicated your interest and are at least 18 years old.

4. **Do I have to take part?**
   Your participation in the study is entirely voluntary. You will have the opportunity to ask any questions about the study before deciding whether or not to take part. If you change your mind at any point during the experiment you are free to withdraw without giving a reason. If you are a current student withdrawing from the study will have no impact on your academic or career prospects.

5. **What will happen in the study?**
   If you agree to take part in this study we will collect data relating to a number of behavioural biometrics. Touchscreen input patterns will be recorded while you play a game on a regular smartphone. Mouse movement and eye movement patterns will be collected during a variety of simple computer tasks. Eye movements are collected through a non-invasive video-based tracker. To collect gait patterns you will be asked to walk/jog a short route in University Park while carrying smartphones. Lastly, we will record traces of your Electrocardiography (heartbeat patterns, ECG) using commercial ECG monitors.
   We will split the data collection into two separate sessions, each of which will take approximately 1 hour and 45 minutes. You will receive £40 at the end of the second session to compensate you for time and effort. The sessions must be between 5 and 15 days apart. This compensation will be made in the form of amazon gift cards. You may be invited for further measurements in the future but whether you choose to take part again is entirely up to you.

6. **Are there any potential risks in taking part?**
   Due to its diagnostic power, ECG data is potentially sensitive information. In order to protect your privacy the data will be collected and stored anonymously and at no time will the researchers or any third party be able to link the data back to a specific participant. The data will only be used to evaluate ECG-based biometrics, neither the researchers nor other involved party will perform any sort of medical diagnosis based on the data. Any potential

diagnostic capabilities of the measurement devices will be disabled to prevent the results of that diagnosis from being made public to the researchers or to you.

7. **What happens to the research data provided?**

   All data will be stored electronically on department machines, initially only the researchers involved with the experiment will have access to it. At a later stage it may be shared with researchers within Oxford or at other institutions and might be used in future studies. In any case no personal information or other sensitive data will be shared with third parties. The collected data will be stored for a minimum of three years after completion of the study.

   In order to protect your privacy the data will be collected and stored anonymously and at no time will the researchers or any third party be able to link the data back to a specific participant. Due to this process it is impossible to withdraw a specific person's dataset once it has been collected and stored.

8. **Will the research be published?**

   The results of this study will form part of my DPhil thesis and may be submitted for peer review. The University of Oxford is committed to the dissemination of its research for the benefit of society and the economy and, in support of this commitment, has established an online archive of research materials. This archive includes digital copies of student theses successfully submitted as part of a University of Oxford postgraduate degree programme. Holding the archive online gives easy access for researchers to the full text of freely available theses, thereby increasing the likely impact and use of that research. If you agree to participate in this project, the research will be written up as a thesis. On successful submission of the thesis, it will be deposited both in print and online in the University archives, to facilitate its use in future research. The thesis will be published open access.

9. **Who has reviewed this project?**

   This study has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee.

10. **Who do I contact if I have a concern about the study or I wish to complain?**

    If you have a concern about any aspect of this project, please speak to the relevant researcher (Simon Eberz, 07447691000) or their supervisor (Ivan Martinovic, 01865 6-10745) who will do their best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how he/she intends to deal with it. If you remain unhappy or wish to make a formal complaint, please contact the chair of the Research Ethics Committee at the University of Oxford (using the contact details below) who will seek to resolve the matter in a reasonably expeditious manner:
    Chair, Social Sciences & Humanities Inter-Divisional Research Ethics Committee
    Email: ethics@socsci.ox.ac.uk
    Research Services
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    Wellington Square
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