School of Computer Science
University of Nottingham

Information to be provided to research participants

PROJECT TITLE: Biometric Recognition of the Hand in Uncontrolled Images

1. The research
a) Aims and objectives of the research
The aim of the research is to find effective methods of comparing two images of hands to determine if they contain the same hand ('match' the hands). This will be done using deep learning to extract features and create biometric profiles which should be consistent in every image of the same hand, even where the pose of the hand is very different. The purpose of this is to use the insights to improve the scale of forensic analysis of hand images during criminal investigations. This automation should allow the fast retrieval of likely matches from a large quantity of images, reducing the time spent searching by human analysts. This should both improve the efficiency of investigations and alleviate some human burden in dealing with the harmful material.
b) Funder information
This research is funded by the Engineering and Physical Sciences Research Council Centre for Doctoral Training in Horizon: Creating Our Lives in Data, *EP/S023305/1*
c) Governance
This research has been approved by the School of Computer Science Research Ethics Committee (CS REC), ethics application ID CS-2022-R12.

2. Taking part in the research
I will ask you to perform some hand movements and basic gestures on video, including providing full views of the front and back of your hand. The camera will be focused on your hand and include no other part of you except the wrist and forearm. 8 videos will be taken: Your two hands (left and right), in four lighting conditions (bright daylight, shaded daylight, bright artificial light, and dim artificial light).

3. Risks of participation
a) Risks
There is always a risk of unauthorised access to data. There is a risk of identification from the data if you have any particularly characteristic or distinguishing features on your hand (e.g. scars, tattoos) or anyone directly compares the dataset image with you or an image of you.
b) Mitigation of risks

See section 5 for the measures we put in place to mitigate the risk of unauthorised access.

To mitigate risk of identification steps will be taken to not show prominently any features such as scars or tattoos in any internal or external reports, presentations, or publications. You may also opt out of your image being used in any reports, presentations, or publications.

4. Purpose of data processing

a) Data collected

We collect the following categories of data during your participation in the research:

Video recordings of hands

b) Specific purposes for which the data are processed

Data collected during the research that identifies you may be:

- Analysed to meet the aims and objectives described in Section 1.
- If visual images that identify you are collected during the research, they may be used in scientific works, including presentations, reports and publications stored in databases and posted online, and in marketing materials that promote the research and its findings; you will **not** be named if visual data is used for these purposes and you may **opt out** in Section 9b.

c) Automated decision-making and profiling

No automated decision-making or profiling will take place.

d) Legal basis for processing your data

We collect personal data under the terms of the University of Nottingham's Royal Charter and in our capacity as a teaching and research body to advance education and learning. We thus process your data on the legal basis that our research is in the public interest, we have legitimate interests and / or that you consent to data processing in freely and voluntarily participating in our research activities.

5. Storage and retention of your data

a) Data protection measures

We put the following organisational and / or technical safeguards in place to protect your data and your identity to the best of our ability:

i) All data stored digitally will be encrypted and password protected and all physical data will be stored in a secure location.

ii) All data will be referenced using random numerical IDs and not stored with any identifying information.

b) Retention period

Your data will only be retained for the duration of the project and will be deleted once the project is finished. This retention period is expected to be 3 years and will be reviewed again in June 2025. Your data will not be made available to others in any archives or repositories.

6. Third party recipients, services and data transfers

a) Project partners
Your data will not be shared with others.

b) Third-party services
Your data will not be processed using any third-party services.

c) Data transfers
Your data will not be transferred to another country.

7. Your legal rights

Data protection rights (Data Protection Act 2018)

You have the right:

- To be informed about the collection and use of personal data (as per this document).
- To access and receive a copy of your personal data, and other supplementary information, on request.
- To object to and restrict data processing if you think we are not complying with data protection law, and to rectify inaccuracies.
- To be forgotten, i.e., to have your personal data erased.
- To data portability and to obtain your data in an accessible and machine-readable format if appropriate, or to transfer your data to another organisation if technically feasible.
- To complain to about the way we process your personal data to our ethics committee (cs-ethicsadmin@cs.nott.ac.uk), our Data Protection Officer (dpo@nottingham.ac.uk) or the Information Commissioner's Office (https://ico.org.uk/make-a-complaint).*

8. Your ethical rights

a) Right to withdraw
You have the right to withdraw from the research at any time without explanation. You also have the right to request that your data be deleted if you do withdraw. Deletion of your data may not be possible once it has been anonymised.

b) Handling of 'mixed' data
There is no 'mixed' data (eg. a video containing multiple participants) collected for this project.

c) Withdrawal procedure
If you wish to withdraw, please notify Gabrielle Hornshaw at gabrielle.hornshaw@nottingham.ac.uk If you do not receive confirmation of withdrawal from the research, please email cs-ethicsadmin@cs.nott.ac.uk

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* Our DPO's postal address is Data Protection Officer, Legal Services, A5 Trent Building, University of Nottingham, University Park, Nottingham NG7 2RD.