

Trustworthy and useful tools for mobile phone extraction

Exploring the police use of mobile phone data and how processes of extracting and analysing this data can be more efficient and trustworthy.

Key details

Lead institution	University of Nottingham
Principal researcher(s)	Helena Webb, Derek McAuley, Liz Dowthwaite and Anna-Maria Piskopani helena.webb@nottingham.ac.uk
Police region	East Midlands
Level of research	Professional/work based
Project start date	April 2023
Date due for completion	July 2024

Research context

Personal mobile phones can be a valuable repository of information about a user’s geographical movements, communication behaviours and online browsing history. For that reason, they are increasingly used as a source of evidence in criminal investigations. In the mobile phone extraction (MPE) process, copies are made of a device belonging to a suspect, victim or witness and the data extracted is examined by police and others in the criminal justice system over the course of the ongoing investigation.

This extraction and use of personal digital data can provide important evidence to secure criminal convictions. However, it also raises significant concerns because the analysis process is slow and

resource intensive and there is an absence of usable and accessible digital forensics tools to support MPE. In addition, extracting and reviewing an individual's digital mobile phone data represents a significant invasion of privacy that risks causing harm to individuals and further distress to victims and witnesses of crime. Mismanagement of MPE data collection and handling has led to the collapse of cases and undermines trust in the criminal justice system.

Research methodology

Our project addresses contemporary concerns surrounding MPE by identifying ways in which processes of extracting and analysing mobile phone data can become more efficient and trustworthy. We bring together expertise in computer science, social science, law, digital forensics and software development. We are conducting a legal review and stakeholder engagement activities with different groups affected by MPE across the criminal justice system. This creates a holistic understanding of MPE processes in order to recognise organisational constraints around them and opportunities for change.

We are also developing our own platform for MPE – an open-source tool called RIME (responsible investigation of mobile environments). We use RIME to explore how privacy preserving mechanisms can be embedded into MPE tools, plus how analysis features can help users to efficiently work through large amounts of data.

Interim reports or publications

- Piskopani AM and others. 2024. '[Trustworthy and useful tools for mobile phone extraction](#)'. In: 'Smart ethics in the digital world: Proceedings of the ETHICOMP 2024. 21st international conference on the ethical and social Impacts of ICT. Universidad de La Rioja. pp. 256–258.
- [RIME source code](#) also available.

Research participation

- Hargs Solutions Ltd
- Telemarq

Tags

- [Digital intelligence and investigation](#)