

# Alastair Beresford

The Computer Laboratory,  
Dept of Computer Science and Technology,  
15 JJ Thomson Avenue,  
Cambridge. CB3 0FD

+44 1223 763597  
<https://www.cl.cam.ac.uk/users/arb33>  
Alastair.Beresford@cl.cam.ac.uk

- Research statement      My research work examines the security and privacy of large-scale networked computer systems. I currently focus on networked mobile devices, such as smartphones, tablets and laptops. I examine the security of the devices themselves as well as the security and privacy problems induced by the interaction between mobile devices and other Internet services. I approach this through the critical evaluation of existing products, by designing and building novel prototype technologies, and by measuring human behaviour.
- Current appointments
- ◇ **Professor of Computer Security** previously Reader, Senior Lecturer, Lecturer and RCUK Academic Fellow (2007–present)  
Department of Computer Science and Technology, University of Cambridge
  - ◇ **Robin Walker Fellow in Computer Science** (2017–present)  
Queens' College, University of Cambridge
- Education
- ◇ PhD, Engineering Department, University of Cambridge (2000–2004)  
Dissertation title: *Location privacy in ubiquitous computing*
  - ◇ BA, First-class degree in Computer Science, University of Cambridge (1996–1999)
- Current projects and grants
- ◇ Co-Director of the **Centre for Mobile, Wearable Systems and Augmented Intelligence** at the University of Cambridge, supporting five PhD students and a postdoctoral researcher. Funded by donation from Nokia Bell Labs (2018–present).
  - ◇ Deputy Director at the **Cambridge Cybercrime Centre**, a multi-disciplinary initiative combining expertise from computer science, criminology and law. We take a data-driven approach to improve our understanding of criminal activity and develop robust identifiers and evidence of criminal behaviour. An important goal of the project is to provide data to other academics and therefore drive a step change in the amount of research conducted into cybercrime. Funded by EPSRC (2015–2021).
  - ◇ Technical Director of the **Isaac Learning Platform**. The Isaac platform is used to support the teaching of Computer Science, Physics and Maths in English schools. We work with Prof. Warner and Dr Jardine-Wright from the Physics Department as well as The Raspberry Pi foundation to develop, deploy and measure the effectiveness of novel technology to support learning. More info: [IsaacPhysics.org](http://IsaacPhysics.org) and [AdaComputerScience.org](http://AdaComputerScience.org). Funded by the Department for Education (2013–2024).
- Previous grants and projects
- ◇ **Trve Data**, a project to bring better security to collaborative applications. For example, we are devising and implementing the distributed computing algorithms needed to replace systems such as Google Docs, Evernote and Wunderlist with solutions which do not require you to trust service providers with the contents of your shared documents, todo lists or notes. I was funded as PI with The Boeing Company (2015–2019); Dr Martin Kleppmann predominantly funded through a Leverhulme Fellowship to continue working with myself and PhD students (2019–2022).
  - ◇ I directed the Device Analyzer project in the Computer Laboratory jointly with Prof. Rice. The project provided a free Android app on the Google Play store coupled to computer infrastructure in the Computer Laboratory. The app provided our users with better insight

into what their phone does and, with their permission, uploads a subset of the collected usage statistics to our servers to help us answer research questions. We have received data from over 30,000 participants around the world and used this to explore research questions ranging from the energy consumption of mobile devices to the security of the Android ecosystem. Where our users agree, we also share data with more than 80 organisations worldwide. More info: <https://deviceanalyzer.cl.cam.ac.uk>. Funded by donation from Google (2011–2019).

- ◇ Principal investigator of a research grant to improve our understanding of the flows of personal information in a connected world. In this work, we are developing technical means to empirically measure how personal data flows inside mobile devices, and to track how and when personal information moves between mobile devices and servers on the Internet. Funded by Microsoft (2014–2018).
- ◇ Principal investigator for *Nigori: storing secrets in the cloud*, a project to build a secure mechanism for storing sensitive user data on servers connected to the Internet in such a way that the server provider cannot read it. We have devised significant improvements beyond the version currently deployed by Google in the Chrome web browser, as well as finding security flaws in the version currently deployed by Google. Funded by donation from Google (2012–2018).
- ◇ Principal investigator for the Smart Transport Internet of Things Data Ecosystem (STRIDE), a project to improve the delivery of real-time and historic transport and traffic data in the UK. Funded by the Technology Strategy Board (2013–2014).
- ◇ Principal investigator of the TIME Impact Grant, supporting the dissemination of knowledge and software developed in TIME grant (below) to partners and the public. Funded by EPSRC (2012–2013).
- ◇ Principal investigator of Privacy Calculus, a joint research project between Cambridge and TU Berlin to better understand how formal methods can be used to reason about negotiable privacy policies. Funded by the British Council and DAAD (2009–2011).
- ◇ Research co-investigator on TIME-EACM, building novel sensors, distributed systems, and statistical techniques to improve transport and travel infrastructure. Funded by EPSRC (2005–2011).

Research  
associates &  
research  
assistants

I have had the pleasure of working closely with the following researchers.

- ◇ **Chris Purdy** Research Assistant (2021–present)
- ◇ **Matthew Patterson** Project Coordinator (2020–present)
- ◇ **Meurig Thomas** Senior Research Software Engineer (2017–present)
- ◇ **James Sharkey** Senior Research Software Engineer (2015–present)
- ◇ **Dr Ian Davies** Research Associate (2013–present)
- ◇ **Dr Stephen Cummins** Research Associate (2013–present)
- ◇ **Dr Andrea Franceschini** Research Associate (2016–2022)
- ◇ **Dr Martin Kleppmann** Senior Research Associate (2015–2022)
- ◇ **Ben Hanson** Research Assistant (2018–2022)
- ◇ **Dr Daniel Thomas** Research Associate (2015–2019)
- ◇ **Dr Dan Underwood** Research Associate (2017–2018)
- ◇ **Dr Alistair Stead** Research Associate (2015–2016)
- ◇ **Dr Meredydd Luff** Research Associate (2015–2016)
- ◇ **Dr Ian Sheret** Senior Research Associate (2013–2014)
- ◇ **Dr David Evans** Senior Research Associate (2011–2012)
- ◇ **Daniel Thomas** Research Assistant (2011–2012)

- ◇ **Daniel Wagner** Research Assistant
(2010)
- PhD students ◇ **Ceren Kocaogullar** *Primary Supervisor.*
(2021-2025)

Usable and Private Discovery in Anonymity Networks.
- ◇ **Luis Adan Saavedra del Toro** *Primary Supervisor.*
(2021-2025)

Mobile ecosystems, application sideloading and user privacy.
- ◇ **Daniel Hugenroth** *Primary Supervisor.*
(2019-2023)

Privacy in group communications.
- ◇ **Jovan Powar** *Primary Supervisor.*
(2017-2022)

Privacy-aware data sharing.
- ◇ **Diana Vasile** *Primary Supervisor.*
(2015-2022)

Using gossiping to support authentication and confidentiality in mobile devices.
- ◇ **Michael Dodson** *Primary Supervisor.*
(2018-2021)

Security of control systems.  
Completed.
- ◇ **Stan Zhang** *Primary Supervisor.*
(2017-2020)

Security and privacy on mobile devices.  
Completed.
- ◇ **Stephan Kollmann** *Primary Supervisor.*
(2014-2018)

Privacy preserving decentralised collaborative applications.  
Completed.
- ◇ **Daniel Thomas** *Primary Supervisor.*
(2012-2016)

Towards an understanding of the security of modern smartphone platforms.  
Completed.
- ◇ **Sören Preibusch** *Primary Supervisor.*
(2008-2012)

Researching the models, principles and tools to support negotiable privacy policies.  
Completed.
- ◇ **Robin Message** *Jointly supervised with Prof. Alan Mycroft.*
(2007-2011)

Programming for humans: a new paradigm for domain-specific languages.  
Completed. Available as Computer Laboratory Technical Report 843.
- ◇ **Julien Quintard** *Jointly supervised with Prof. Jean Bacon.*
(2006-2010)

Towards a worldwide storage infrastructure.  
Completed.
- ◇ **Jonathan Davies** *Jointly supervised with Prof. Andy Hopper.*
(2005-2009)

Programming networks of vehicles.  
Completed. Available as Computer Laboratory Technical Report 761.
- Departmental Teaching ◇ **Software and Security Engineering** an 11-lecture first-year course to introduce students to the challenges of building large systems including safety-critical systems and systems that must withstand attack by capable opponents.
(2018-2019)
- ◇ **Computer Security: Principles and Foundations** an MPhil and Part III course focusing on the important historical themes in computer security. This 16-hour course is taught in a reading class style with weekly assessed essays and presentations. Jointly with Prof. Anderson and Drs Watson and Hutchings.
(2014-2022)
- ◇ **Computer Security: Current Applications and Research** an MPhil and Part III course focusing on contemporary themes in computer security. This 16-hour course is taught in a reading class style with weekly assessed essays and presentations. Jointly with Prof. Anderson and Dr Watson.
(2014-2018)

- ◇ **Further Java** a second-year course teaching the Java language. A 10-hour course which builds on the Programming in Java course above, using a similar teaching style and methods of assessment. The content covers fundamental concurrent and distributed computing primitives in Java. (2009–2022)
  - ◇ **Research Skills** the compulsory research module for all MPhil and first-year PhD students. Optional for Part III students. This 16-hour course provides an introduction to a range of research skills which are essential to develop in the process of becoming an independent researcher. The content is taught in a traditional lecture style and I acted as the coordinating lecturer alongside Dr Blackwell, Prof. Copestake and Prof. Robinson. (2014–2015)
  - ◇ **Prolog** a second-year course teaching the Prolog language. We co-designed and built an online interactive video platform to teach this 8-hour course and adapted existing content to fit a new flipped-classroom mode of teaching. Jointly with Dr Rice. (2012–2017)
  - ◇ **Programming in Java** a first-year course teaching the Java language. I co-designed and wrote this 16-hour course with Dr Rice. We teach the basics of the Java language to all first-year computer science students as well as natural scientists taking the computer science option in their first year. Material is taught in a practical class format with demonstrators and semi-automated assessment. (2008–2015)
  - ◇ **Programming in C and C++** a second-year course teaching C and C++ programming languages. I created and delivered this 8-hour C & C++ programming course. The material was presented in a traditional lecture style combined with live coding; delivered as part of the Comparative Programming Languages course in the first year. (2005–2008)
- College Teaching
- ◇ **Director of Studies** at Queens' College, Cambridge (2017–2022)
  - ◇ **Director of Studies** at Robinson College, Cambridge (2006–2017)
  - ◇ **Supervisor** for many Cambridge Colleges in Computer Science and Engineering, including algorithms, artificial intelligence, computer graphics and image processing, concepts in programming languages, concurrent and distributed systems, databases, digital communications, economics and law, programming in C & C++, numerical methods, operating systems, probability, professional practice and ethics, security, and software engineering. (2000–present)
- Management and Admin
- ◇ **Deputy Head of Department** Department of Computer Science and Technology. (2019–2022)
  - ◇ **Chair of Examiners** overseeing the first three years of the Computer Science Tripos. (2018–2019)
  - ◇ **Internal Examiner** Internal Examiner for Part IB and Part II of the Computer Science Tripos. (2017–2018)
  - ◇ **Course Director** for the MPhil in Advanced Computer Science and Part III of the Computer Science Tripos. I take overall responsibility for the selection and education of approximately 40 MPhil students and 10 Part III students each year. (2012–2015)
  - ◇ **Chair of Ethics Committee** taking overall responsibility for assessing any experiment involving human participants in the Department, including controlled experiments, ethnographic studies, survey research, release of instrumented software and research involving personal data. (2011–2012)
  - ◇ **Outreach Coordinator** preparing and delivering an annual series of talks about computer science to school students on the Oxbridge Conference tour and elsewhere; coordinating the Departmental open days; managing the Departmental web pages on admissions; running the annual CS competition for UK students. Jointly with Dr Harle. (2007–2012)
  - ◇ **Graduate Admissions, Robinson College** working with the Graduate Tutors to manage the admissions process for Robinson College. (2007–2010, 2013–2015)

- ◇ **Trustee, Queens' College** including membership of the Governing Body, the day-to-day executive body with responsibility for the good running of the institution. (2017–present)
  - ◇ **Trustee, Robinson College** including membership of College Council, the day-to-day executive body with responsibility for the good running of the institution. (2012–2015)
  - ◇ **Committee membership:** Council of the School of Technology (2019–2022), CST Faculty Board (2019–2022), CST Degree Committee (2012–2015; 2019–2022), CST Tripos Teaching (2019–2022), Queens' Library (2019–present), Queens' Teaching and Learning (2017–present), CST Advanced Taught Courses Management Committee (2012–2015), CST Joint Teaching Strategy Committee (2012–2015), Robinson IT Committee (2005–2017), Robinson Gardens Committee (2012–2017), Robinson Archives Committee (2012–2017), Robinson Audit Committee (2015–2017).
- PhD examination
- ◇ **Tobias Höller** A Privacy Preserving Networking Approach for Distributed Digital Identity Systems, Johannes Kepler University Linz, 2022
  - ◇ **Nikolaos Lykousas** Analysis and Detection of Deviant and Malicious Behaviors in Social Media and Beyond, University of Piraeus, 2022
  - ◇ **Hesham Almatary** CHERI Compartmentalisation for Embedded Systems, University of Cambridge, 2022
  - ◇ **Alberto Sonnino** Scaling Distributed Ledgers and Privacy-Preserving Applications, UCL, 2021
  - ◇ **Andreas Gutmann** Is this what you wanted? An analysis of systems for the creation and verification of user instructions, 2020
  - ◇ **Alexander Vetterl** Honeypots in the age of universal attacks and the Internet of Things, University of Cambridge, 2020
  - ◇ **Ruba Abu-Salma** Designing user-centered privacy enhancing technologies, UCL, 2019
  - ◇ **Daniel Hintze** Continuous Risk-Aware Multi-Modal Authentication Across Mobile Devices, Johannes Kepler University (Linz, Austria), 2019
  - ◇ **Pygelis Apostolos** Evaluating Privacy-Friendly Mobility Analytics on Aggregate Location Data, UCL, 2018
  - ◇ **Abdalnaser M. Algwil** Security and Usability of Cross-Device Captchas, University of Lancaster, 2018
  - ◇ **Elena Reshetova** Mobile and Embedded Platform Security, Aalto University (Finland), 2018
  - ◇ **Khaled Baqer** Resilient payment systems, University of Cambridge, 2018
  - ◇ **Kumar Sharad** Learning to de-anonymize social networks, University of Cambridge, 2016
  - ◇ **Mads Andersen** Multidimensional Location Privacy – Concepts, Architecture, and User Interface, Aarhus University (Denmark), 2013
  - ◇ **Shailendra Fuloria** Robust security for the electricity network, University of Cambridge, 2011
- External appointments
- ◇ **Visiting Professor, Department of Informatics, University of Piraeus** (2022–2023)
  - ◇ **UK Cyber Security Council, Advisory Group** (2020–2021)  
Provide advice on establishing a new independent body to set standards and define career and learning paths for the cyber security sector.
  - ◇ **EPSRC Peer Review College** (2016–present)  
Reviewer for EPSRC grant proposals.
  - ◇ **Member of the Scientific Advisory Board, OpenClassrooms.com** (2016–2018)  
Distance learning degrees recognised by the French state.

- ◇ **Virtual Visiting Professor, AcademicPartnerships.com** (2014–2018)  
AP help universities transition their courses into interactive online modules.
- ◇ **External Examiner, University of Oxford** (2013–2016)  
MSc in Software and Systems Security, Department of Computer Science
- ◇ **External Examiner, The Open University** (2012–2016)  
M362: Developing Concurrent and Distributed Systems, Department of Computing
- Awards and prizes
  - ◇ My students were the winners of the Andreas Pfitzmann Best Student Paper Award at PETS 2022.
  - ◇ Winner of the Best Academic Paper prize in the department, as judged by the Computer Lab Ring, the official department alumni association. (2020)
  - ◇ **Google Security and Privacy Research Prize** worth \$100,000 (2018)
  - ◇ Winner of the Best Academic Paper prize in the department, as judged by the Computer Lab Ring, the official department alumni association. (2015)
  - ◇ **Pilkington Prize in recognition of excellence in teaching** (2014)
  - ◇ Research Fellow, Robinson College, Cambridge (2005–2006)
  - ◇ Sponsored Ph.D. student, AT&T Labs – Cambridge (2000–2003)
  - ◇ Sponsored 'A' level and undergraduate student, BT Laboratories (1994–1999)
- Previous positions
  - ◇ Reader in Computer Security, Computer Laboratory, University of Cambridge. (2017–2019)
  - ◇ Senior Lecturer, Computer Laboratory, University of Cambridge. (2013–2017)
  - ◇ Teaching Fellow, Robinson College, Cambridge. (2006–2017)
  - ◇ University Lecturer, Computer Laboratory, University of Cambridge. (2012–2013)
  - ◇ RCUK Academic Fellow, Computer Laboratory, University of Cambridge. (2007–2011)  
Responsibilities similar to a lecturer, including preparing and delivering undergraduate lectures and supervising PhD students and RAs.
  - ◇ Visiting Scientist, Google London. (2011)  
Worked on Google Maps and wrote a Java implementation of the open source Nigori Protocol
  - ◇ Research Associate, Computer Laboratory, University of Cambridge. (2004–2007)  
Designed and developed a prototype computer platform for collecting, processing and distributing data concerning road and rail networks.
  - ◇ Senior Technical Associate, Fraser Research, Princeton, NJ, USA. (Summer 2004)  
Evaluation of a digital rights management system and the design and analysis of a naming scheme for future computer and communication networks.
  - ◇ Internship, AT&T Labs – Research, Florham Park, NJ, USA. (Summer 2001)  
Designed and implemented a dynamic routing algorithm for 155Mb/s optical fibre residential cable network.
  - ◇ Researcher, BT Labs, Martlesham Heath, Suffolk, UK. (1999–2000)  
Built a 2 GHz three-dimensional radio channel sounder, analysed ad-hoc network routing strategies and managed the BT Virtual University Research Initiative on Mobility.
- Programme committees & journal editorships
  - ◇ Proceedings of Privacy Enhancing Technologies Symposium (PoPETs) 2021, 2022, 2023
  - ◇ IEEE Workshop on Research and Opportunities on Secure Software Development (DevSec-OpsRO) 2023, 2024
  - ◇ Cryptography And Network Security (CANS) 2022 [PC co-chair]
  - ◇ ACM International Conference on Mobile Systems (Mobisys) 2019, 2020, 2021, 2022
  - ◇ ACM Workshop on Mobile Computing Systems and Applications (HotMobile) 2019, 2020

- ◇ UK Mobile, Wearable and Ubiquitous Systems Research Symposium 2018, 2019, 2020
- ◇ ACM 1st International Workshop on Earable Computing (EarComp 2019) [PC co-chair] 2019
- ◇ Special Issue co-editor, IEEE Pervasive Computing 17(3), The specter of malicious computing: Securing the internet of things
- ◇ IEEE Workshop on Innovations in Mobile Privacy and Security (IMPS) 2017
- ◇ Associate Editor for the Proceedings of the ACM on Interactive, Mobile Wearable and Ubiquitous Technologies (IMWUT) 2016–2019.
- ◇ ACM Internet Measurement Conference (IMC) 2016
- ◇ ACM MobiSys workshop on Mobile Data (MobiData) 2016
- ◇ ESSoS workshop on Innovations in Mobile Privacy and Security (IMPS) 2016
- ◇ ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM) 2015
- ◇ EAI/ACM Mobiquitous 2014, 2015
- ◇ ACM Mobisys 2015
- ◇ ACM UbiComp 2014
- ◇ IEEE International Symposium on Policies for Distributed Systems and Networks 2012
- ◇ Privacy Enhancing Technologies (PET) 2010, 2009, 2008, 2007, 2006  
Proceedings published by Springer
- ◇ Distributed Applications and Interoperable Systems (DAIS) 2010, 2009, 2008  
Proceedings published by Springer
- ◇ PLACES 2010, 2009 [PC co-chair], 2008  
Workshop at ETAPS 2010, 2009 and IFIP DisCoTec 2008
- ◇ ACM Mobile and Ubiquitous Multimedia (MUM) 2012, 2010, 2009
- ◇ International Conference on Geosensor Networks (GSN) 2009, 2006  
Proceedings published by Springer
- ◇ Workshop on Privacy-Aware Location-based Mobile Services (PALMS) 2009, 2008, 2007  
IEEE International Conference on Mobile Data Management (MDM)
- ◇ Pervasive 2009  
Proceedings published by Springer
- ◇ Workshop on Privacy in the Electronic Society (WPES) 2008  
At ACM Conference on Computer and Communications Security (CCS) 2008
- ◇ Internet of Things 2008  
Proceedings published by Springer
- ◇ International Workshop on Pervasive Systems (PerSys) 2007  
Proceedings published by Springer
- ◇ Workshop on UbiComp Privacy 2007  
At UbiComp 2007. Proceedings published by Springer
- ◇ Workshop on *From Theory to Practice in Wireless Sensor Networks* 2007  
At IEEE Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)
- ◇ IEEE Workshop on Trust, Security and Privacy for UbiComp (TSPUC) 2007
- ◇ IEEE Workshop on Pervasive Computing and Comms Security (PerSec) 2006
- ◇ International Conference on High Performance Computing and Comms (HPCC) 2006
- ◇ ACM Workshop on Wireless Security 2006 (held at ACM MobiCom) 2006
- ◇ International Conference on Ubiquitous Convergence Technology (ICUCT) 2006  
Proceedings published by Springer

Peer-reviewed  
publications

- 71 Daniel Hugenroth and Alastair R. Beresford. Powering Privacy: On the Energy Demand and Feasibility of Anonymity Networks on Smartphones. Proceedings of the 32nd Usenix Security Symposium (Usenix Security), pp 5431–5448, 2023. Usenix Association.
- 70 Luis A. Saavedra and Alastair R. Beresford. ACDC: Anonymous Crowdsourcing Using Digital Cash. Proceedings of the 21st Conference on Cryptology and Network Security (CANS 2022) pp 314–325, 2022. Springer.
- 69 Ricardo Mendes, Mariana Cunha, Joao P Vilela and Alastair R. Beresford. Enhancing User Privacy in Mobile Devices Through Prediction of Privacy Preferences. Proceedings of the European Symposium on Research in Computer Security (ESORICS 2022) pp 153–172, 2022. Springer.
- 68 Ricardo Mendes, Andre Brandao, Joao P Vilela and Alastair R. Beresford. Effect of User Expectation on Mobile App Privacy: A Field Study. Proceedings of the IEEE International Conference on Pervasive Computing and Communications (PerCom 2022) pp 207–214, 2022. IEEE.
- 67 Mansoor Ahmed-Rengers, Diana A. Vasile, Daniel Hugenroth, Alastair R. Beresford and Ross Anderson. CoverDrop: Blowing the Whistle Through A News App. Proceedings of Privacy Enhancing Technologies (PoPETS) pp 47–67, 2022. De Gruyter. *Winner of the Andreas Pfitzmann Best Student Paper Award at PETS 2022.*
- 66 Matthew Weidner, Daniel Hugenroth, Martin Kleppmann and Alastair R. Beresford. Key agreement for decentralized secure group messaging with strong security guarantees. Proceedings of the 2021 ACM SIGSAC Conference on Computer and Communications Security (CCS 2021) pp 2024–2045, 2021. ACM.
- 65 Daniel Hugenroth, Martin Kleppmann and Alastair R. Beresford. Rollercoaster: An Efficient Group-Multicast Scheme for Mix Networks. Proceedings of the 30th Usenix Security Symposium (Usenix Security) pp 3433–3450, 2021. Usenix Association.
- 64 Jiexin Zhang, Alastair R. Beresford and Ian Sheret. Factory Calibration Fingerprinting of Sensors. IEEE Transactions on Information, Forensics and Security 16, pp 1626–1639, 2020. IEEE.
- 63 Mike Dodson, Alastair R. Beresford and Daniel R. Thomas. When will my PLC support Mirai? The security economics of large-scale attacks against Internet-connected ICS devices. Proceedings of the APWG Symposium on Electronic Crime Research (eCrime), 2020. IEEE.
- 62 Mike Dodson, Alastair R. Beresford, Jessica Clarke, A Richardson and Robert N. M. Watson. CHERI Macaroons: Efficient, host-based access control for cyber-physical systems. Proceedings of the IEEE European Symposium on Security and Privacy Workshops (EuroS&PW), p688–693, 2020. IEEE.
- 61 Mike Dodson, Alastair R. Beresford and Mikael Vingaard. Using Global Honeypot Networks to Detect Targeted ICS Attacks. Proceedings of the 12th International Conference on Cyber Conflict (CyCon) 1300, pp 275–291, 2020.
- 60 Andrea Franceschini, James Sharkey and Alastair R. Beresford. Inequality: multi-modal equation entry on the web. Proceedings of the 6th Conference on Learning@Scale, pp 1–10, 2019. ACM.
- 59 Jovan Powar and Alastair R. Beresford. A data sharing platform for earables research. Proceedings of the 1st International Workshop on Earable Computing (EarComp), pp 30–35, 2019. ACM.



- 58 Jiexin Zhang, Alastair R. Beresford and Stephan A. Kollmann. LibID: reliable identification of obfuscated third-party Android libraries. In the Proceedings of the 28th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), pp 55–65, 2019. ACM.
- 57 Jiexin Zhang, Alastair R. Beresford and Ian Sheret. SensorID: Sensor Calibration Fingerprinting for Smartphones. In the Proceedings of IEEE Symposium on Security and Privacy (Oakland), pp 638–655, 2019. *Winner of the Best Academic Paper prize in the department in 2020, as judged by the Computer Lab Ring (the official department alumni association)*
- 56 Stephan A. Kollmann, Martin Kleppmann and Alastair R. Beresford. Snapdoc: Authenticated snapshots with history privacy in peer-to-peer collaborative editing. Proceedings on Privacy Enhancing Technologies (PoPETS), 2019(3):210–232, 2019. De Gruyter.
- 55 Diana A. Vasile, Martin Kleppmann, Daniel R. Thomas, and Alastair R. Beresford. Ghost trace on the wire? Using key evidence for informed decisions. In the Proceedings of the 27th International Workshop on Security Protocols, April 2019. Springer.
- 54 Martin Kleppmann, Victor B. F. Gomes, Dominic P. Mulligan, and Alastair R. Beresford. Interleaving anomalies in collaborative text editors. In the Proceedings of the 6th ACM Workshop on Principles and Practice of Consistency for Distributed Data (PaPoC), pp 1–7, March 2019. ACM.
- 53 Martin Kleppmann, Alastair R. Beresford and Boerge Svingen. Online Event Processing: Achieving Consistency Where Distributed Transactions Have Failed. Communications of the ACM, 62(5):43–49, 2019. ACM.
- 52 Martin Kleppmann, Stephan A. Kollmann, Diana A. Vasile and Alastair R. Beresford. From Secure Messaging to Secure Collaboration. In the Proceedings of the 25th International Workshop on Security Protocols, 2018. Springer.
- 51 Dionysis Manousakas, Cecilia Mascolo, Alastair R. Beresford, Dennis Chan, and Nikhil Sharma. Quantifying Privacy Loss of Human Mobility Graph Topology. In the Proceedings on Privacy Enhancing Technology (PoPETs), 2018(3):5–21, 2018. De Gruyter.
- 50 Daniel R. Thomas, Sergio Pastrana, Alice Hutchings, Richard Clayton and Alastair R. Beresford. Ethical issues in research using datasets of illicit origin. In the Proceedings of the Internet Measurement Conference (IMC), pp 445–462, 2017. ACM.
- 49 Victor B.F. Gomes, Martin Kleppmann, Dominic P. Mulligan and Alastair R. Beresford. Verifying strong eventual consistency in distributed systems. Proceedings of the ACM on Programming Languages, 1(OOPSLA), Article 109, 28 pages, 2017. ACM.
- 48 Vincent F. Taylor, Alastair R. Beresford and Ivan Martinovic. There are Many Apps for That: Quantifying the Availability of Privacy-Preserving Apps. In the Proceedings of the Conference on Security and Privacy in Wireless and Mobile Networks (WiSec), pp 247–252, 2017. ACM.
- 47 Kelly Widdicks, Oliver Bates, Mike Hazas, Adrian Friday and Alastair R. Beresford. Demand Around the Clock: Time Use and Data Demand of Mobile Devices in Everyday Life. In the Proceedings of the International Conference on Computer-Human Interaction (CHI), pp 5361–5372, 2017. ACM.
- 46 Daniel R. Thomas, Richard Clayton and Alastair R. Beresford. 1000 days of UDP amplification DDoS attacks. Proceedings of the APWG Symposium on Electronic Crime Research (eCrime), pp 79–84, 2017. IEEE
- 45 Stephan A. Kollmann and Alastair R. Beresford. The Cost of Push Notifications for Smartphones using Tor Hidden Services. Proceedings of the Workshop on Innovations in Mobile Privacy and Security (IMPS), pp 76–85, 2017. IEEE.

- 44 Martin Kleppmann and Alastair R. Beresford. A Conflict-Free Replicated JSON Datatype. *Transactions on Parallel and Distributed Systems (TPDS)*, 28(10):2733-2746, 2017. IEEE.
- 43 Franck Gechter, Alastair R. Beresford, and Andrew Rice. Reconstruction of Battery Level Curves Based on User Data Collected from a Smartphone. *Proceedings of the International Conference on Artificial Intelligence: Methodology, Systems, and Applications*, pp 289–298, 2016. Springer.
- 42 Stephen Cummins, Alastair R. Beresford, Ian Davies and Andrew Rice. Supporting Scalable Data Sharing in Online Education. *Proceedings of the 3rd Annual ACM Conference on Learning at Scale (Learning@Scale)*, pp 97–100, 2016. ACM Press.
- 41 Stephen Cummins, Ian Davies, Alistair Stead, Alastair R. Beresford, Lisa Jardine-Wright and Andrew Rice. Investigating the Use of Hints in Online Problem Solving. *Proceedings of the 3rd Annual ACM Conference on Learning at Scale (Learning@Scale)*, pp 105–108, 2016. ACM Press.
- 40 Stephen Cummins, Alastair R. Beresford and Andrew Rice. Investigating Engagement with In-Video Quiz Questions in a Programming Course. *IEEE Transactions on Learning Technologies* 9(1):57–66, 2016. IEEE Press.
- 39 Daniel R. Thomas, Alastair R. Beresford and Andrew Rice. Security Metrics for the Android Ecosystem. *Proceedings of the 5th Annual ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM)*, pp 87–98, 2015. ACM Press.
- 38 Denzil Ferreira, Vassilis Kostakos, Alastair R. Beresford, Janne Lindqvist and Anind K. Dey. Securacy: An Empirical Investigation of Android Applications' Network Usage, Privacy and Security. *Proceedings of the 8th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec)*, 11:1-11 2015. ACM Press.
- 37 Stephen Cummins, Ian Davies, Andrew Rice and Alastair R. Beresford. Equality: A tool for free-form equation editing. *Proceedings of the 15th IEEE International Conference on Advanced Learning Technologies (ICALT)*, pp 270–274, 2015. IEEE Press.
- 36 Daniel R. Thomas and Alastair R. Beresford, Thomas Coudray, Tom Sutcliffe and Adrian Taylor. The Lifetime of Android API vulnerabilities: case study on the JavaScript-to-Java interface. *Security Protocols XXIII, LNCS 9379:126–138*, 2015. Springer.
- 35 Daniel R. Thomas and Alastair R. Beresford. Better authentication: password revolution by evolution. *Security Protocols XXII, LNCS 8809:130–145*, 2014. Springer.
- 34 Daniel T. Wagner, Andrew Rice and Alastair R. Beresford. Device Analyzer: Understanding smartphone usage. *Proceedings of the 10th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous)*, Tokyo, Japan, 2013. Published in a book, *Mobile and Ubiquitous Systems: Computing, Networking and Services*, pp 195–208, 2014. Springer. ISBN 978-3-319-11568-9. *Winner of the Best Academic Paper prize in the department in 2015, as judged by the Computer Lab Ring (the official department alumni association)*
- 33 Daniel T. Wagner, Andrew Rice and Alastair R. Beresford. Device Analyzer: Large-scale mobile data collection. *ACM SIGMETRICS Performance Evaluation Review* 41(4):53–56, 2014. ACM Press.
- 32 Sören Preibusch, Dorothea Kübler and Alastair R. Beresford. Price versus privacy: an experiment into the competitive advantage of collecting less personal information, *Electronic Commerce Research*, 13(4):423–455, 2013. Springer.

- 31 Sören Preibusch, Kat Krol and Alastair R. Beresford. The privacy economics of voluntary over-disclosure in Web forms. Proceedings of the 11th Workshop on the Economics of Information Security (WEIS), 2012. Post-proceedings published in a book, *The Economics of Information Security and Privacy*, pp 183–209, 2013. Springer. ISBN 978-3-642-39497-3.
- 30 Alastair R. Beresford, Dorothea Kübler, Sören Preibusch. Unwillingness to Pay for Privacy: A Field Experiment, *Economics Letters* 117(1):25–27, 2012. Elsevier.
- 29 Alastair R. Beresford, Andrew Rice, Nicholas Skehin and Ripduman Sohan. MockDroid: trading privacy for application functionality on smartphones. Proceedings of the 11th Workshop on Mobile Computing Systems and Applications (HotMobile), pp 49–54, 2011. ACM Press.
- 28 Jean Bacon, Andrei Iu. Bejan, Alastair R. Beresford, David Evans, Richard J. Gibbens and Ken Moody. Using Real-Time Road Traffic Data to Evaluate Congestion. *Dependable and Historic Computing*, LNCS 6875:93–117, 2011. ISSN 0302-9743.
- 27 Andrei Bejan, Richard Gibbens, David Evans, Alastair Beresford, Jean Bacon and Adrian Friday. Statistical Modelling and Analysis of Sparse Bus Probe Data in Urban Areas. Proceedings of the 13th IEEE Conference on Intelligent Transportation Systems, pp 1256–1263, 2010. IEEE Press.
- 26 Simon Hay, Stamatina Th. Rassaia and Alastair Beresford. Estimating personal energy expenditure with location data. In Proceedings of the IEEE Workshop on Pervasive Healthcare (PerHealth), pp 304–309, 2010. IEEE Press.
- 25 Sören Preibusch and Alastair R. Beresford. Establishing Distributed Hidden Friendship Relations. *Security Protocols XVII*. LNCS 7028:321–334, 2009. Springer.
- 24 Robin North, Jeremy Cohen, Steven Wilkins, Mark Richards, Neil Hoose, John Polak, Margaret Bell, Phil Blythe, Bayan Sharif, Jeff Neasham, Visalakshmi Suresh, Fabio Galatioto, Graeme Hill, Iq Mead, Rod Jones, Alastair Beresford, Haibo Chen, Karl Ropkins, Paul Goodman, Colin Oates, James Tate, Narasimha Ballijepalli. Field deployments of the MESSAGE system for environmental monitoring. *Traffic Engineering and Control* 50(11):484–488, 2009.
- 23 Jeremy Cohen, Robin North, Steven Wilkins, John Darlington, Yike Guo, Neil Hoose, Yajie Ma, John Polak, Visalakshmi Suresh, Paul Watson, Margaret Bell, Phil Blythe, Jeff Neasham, Mark Calleja, Mark Hayes, Alastair Beresford, Rod Jones, Iq Mead. Creating the MESSAGE infrastructure. *Traffic Engineering and Control* 50(11):480–483, 2009.
- 22 Andy Hopper, Andrew Rice and Alastair Beresford. Computing for the future of the planet. Published in a book by the Royal Academic of Engineering, *Engineering Change: Towards a sustainable future in the developing world*, pp 73–79, 2008. ISBN 1-903496-41-1.
- 21 Jonathan J. Davies, Alastair R. Beresford and Alan Mycroft. Language-based optimisation of sensor-driven distributed computing applications. Proceedings of Fundamental Approaches to Software Engineering (FASE), LNCS 4961:407–422, 2008. Springer.
- 20 Jean Bacon, Alastair R. Beresford, David Evans, David Ingram, Niki Trigoni, Alexandre Guitton and Antonios Skordylis. TIME: An open platform for capturing, processing and delivering transport-related data. Proceedings of IEEE Consumer Communications and Networking Conference, pp 687–691, 2008. IEEE Press.
- 19 Jonathan J. Davies and Alastair R. Beresford. Scalable Inter-Vehicular Applications. Proceedings of the Second International Workshop on Pervasive Systems (PerSys), LNCS 4806: 876–885, 2007. Springer-Verlag.

- 18 David Evans, Alastair R. Beresford, Trevor Burbridge and Andrea Soppera. Context-derived Pseudonyms for Protection of Privacy in Transport Middleware Applications. Proceedings of the IEEE Workshop on Pervasive Transport (PerTrans), pp 395–400, 2007. IEEE Press.
- 17 Joonwoong Kim, Alastair R. Beresford and Frank Stajano. Towards a Security Policy for Ubiquitous Healthcare Systems. Proceedings of the First International Conference on Ubiquitous Convergence Technology (ICUCT), LNCS 4412:263–272, 2007. Springer.
- 16 David N. Cottingham, Alastair R. Beresford and Robert K. Harle. Observations on the Practical Implementation of National-Scale Road User Charging. *Transport Reviews* 27(4):499–523, 2007. Taylor & Francis.
- 15 Jonathan J. Davies, Alastair R. Beresford and Andy Hopper. Scalable, Distributed, Real-time Map Generation. *IEEE Pervasive Computing* 5(4):47–54, 2006. IEEE Press.
- 14 Andrew C. Rice, Robert K. Harle and Alastair R. Beresford. Analysing fundamental properties of marker-based vision system designs. *Personal and Mobile Computing*, 2(4):453–471, 2006. Elsevier.
- 13 Alastair Beresford and David Scott. Data Privacy. Entry in *Wiley Encyclopedia of Computer Science and Engineering* (Benjamin Wah, ed.), John Wiley & Sons, Inc, 2008.
- 12 Alastair R. Beresford. Privacy issues in geographic information technologies. Published in a book by Springer, *Frontiers of Geographic Information Technology*, pp 257–277, 2006. ISBN 3-540-25685-7.
- 11 Richard Sharp, James Scott and Alastair R. Beresford. Secure mobile computing via public terminals. Proceedings of the Fourth International Conference on Pervasive Computing (Pervasive), LNCS 3968:238–253, 2006. Springer.
- 10 Alastair R. Beresford, Jonathan J. Davies and Robert K. Harle. Privacy-Sensitive Congestion Charging. Proceedings of the Fourteenth International Workshop on Security Protocols, LNCS 5087:97–104, 2006. Springer.
- 9 Andrew C. Rice and Alastair R. Beresford. Dependability and accountability for context-aware middleware systems. Proceedings of the IEEE Workshop on Middleware Support for Pervasive Computing (PerWare), pp 378–382, 2006. IEEE Press.
- 8 Andrew C. Rice, Alastair R. Beresford and Robert K. Harle. Cantag: an open source software toolkit for designing and deploying marker-based vision systems. Proceedings of the Fourth IEEE International Conference on Pervasive Computing and Communications (PerCom), pp 12–21, 2006. IEEE Press.
- 7 Sarah Mount, Elena Gaura, Robert M. Newman, Alastair R. Beresford, Sam R. Dolan and Michael Allen. Trove: a physical game running on an ad-hoc wireless sensor network. Proceedings of the Joint Conference on Smart Objects and Ambient Intelligence, pp 235–239, 2005. ACM Press.
- 6 Kieran Mansley, Alastair R. Beresford and David Scott. The carrot approach: encouraging the use of location systems. Proceedings of the Sixth International Conference on Ubiquitous Computing (UbiComp), LNCS 3205:366–383, 2004. Springer.
- 5 Alastair R. Beresford and Frank Stajano. Mix Zones: User privacy in location-aware services. Proceedings of the IEEE Workshop on Pervasive Computing and Communication Security (PerSec), pp 127–131, 2004. IEEE Press.

- 4 David Scott, Alastair Beresford and Alan Mycroft. Spatial Security Policies for Mobile Agents in a Sentient Computing Environment. Proceedings of Fundamental Approaches to Software Engineering (FASE), LNCS 2621:102–117, 2003. Springer. *This paper was awarded the Best Software Science Paper prize at ETAPS 2003.*
- 3 David Scott, Alastair Beresford and Alan Mycroft. Spatial Policies for Sentient Mobile Applications. Proceedings of the IEEE Fourth International Workshop on Policies for Distributed Systems and Networks (IEEE Policy), pp 147–157, 2003. IEEE Press.
- 2 Alastair R. Beresford and Frank Stajano. Location Privacy in Pervasive Computing. IEEE Pervasive Computing, 2(1):46-55, 2003.
- 1 R. M. Dennis, A. R. Beresford and K. M. Brown. Virtual University Research Initiative on Mobility. BT Technology Journal, 19(1):12-18, 2001.

Other reports, papers and editorships

- R12 Alastair R. Beresford. Whack-A-Mole Security: Incentivising the Production, Delivery and Installation of Security Updates. Proceedings of the International Workshop on Innovations in Mobile Privacy and Security (IMPS), 2016. CEUR Proceedings. ISSN 1613-0073. *Invited paper to summarize content of invited talk.*
- R11 Daniel T. Wagner, Daniel R. Thomas, Alastair R. Beresford and Andrew Rice. Device analyzer: a privacy-aware platform to support research on the Android ecosystem. Proceedings of the 8th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec), 11:1–2, 2015. ACM Press.
- R10 Alastair R. Beresford and Simon Gay (*Editors*) Proceedings of the Second International Workshop on Programming Language Approaches to Concurrency and Communication-cEntric Software. Electronic Proceedings of Theoretical Computer Science 17, February 2010. ISSN 2075-2180.
- R9 Andrew Rice, Paula Buttery, Idris A. Rai and Alastair Beresford. Language learning on a next-generation service platform for Africa. W3C Workshop on an African Perspective on the Role of Mobile Technologies in Fostering Social and Economic Development, Maputo, Mozambique, 2009.
- R8 Sören Preibusch and Alastair R. Beresford. Privacy-Preserving Friendship Relations for Mobile Social Networking. W3C Workshop on the Future of Social Networking, Barcelona, Spain, 2009.
- R7 David Evans, Jean Bacon, Alastair R. Beresford, Richard Gibbens and David Ingram. Time for change. Intertraffic World. 1(1):52–56, 2009.
- R6 Alastair R. Beresford and Jean Bacon. TIME for Better Transport. *Short work in progress report*. IEEE Pervasive Computing 5(4):63, 2006. IEEE Press.
- R5 David Evans and Alastair R. Beresford. Psuedonymous context-aware transport applications. Proceedings of the UK-Ubinet Workshop, 2006.
- R4 Robert Harle and Alastair Beresford. Keeping Big Brother off the road. IEE Review. 51(10):34–37, October 2005. ISSN 0953-5683.
- R3 Alastair R. Beresford. Location privacy in ubiquitous computing (Ph.D. dissertation), University of Cambridge Computer Laboratory Technical Report UCAM-CL-TR-612, 2005.
- R2 Alastair R. Beresford and Andrew C. Rice. Towards automated computation sharing for ubiquitous computing. British Council Workshop on Proactive Computing, Nizhni Novgorod, Russia. 2005.

- R1 Alastair Beresford, Csaba Kiss Kallo, Ursula Kretschmer, Friedemann Mattern and Martin Muehlenbrock. The First Summer School on Ubiquitous and Pervasive Computing. IEEE Pervasive Computing, 2(1):84-88, 2003.

Selected academic talks

- T16 *Smartphone Security and Privacy*. Invited seminar speaker, University of Nottingham, 2019.
- T15 *Data-Driven Approaches to Android Security Analysis*. Invited speaker at the Android Security Research Day, Google (California), 2018.
- T14 *Software Architecture*. Invited keynote speaker, 10th MANA Symposium, Tsukuba, Japan, 2017.
- T13 *Smartphone Vulnerabilities*. Invited seminar speaker, Harvard University, 2016.
- T12 *Smartphone Vulnerabilities*. Invited keynote speaker at Innovations in Mobile Privacy and Security (IMPS), a workshop at the International Symposium on Engineering Secure Software Systems, London, 2016.
- T9-T11 *Smartphone Vulnerabilities*. Invited seminar speaker at Columbia University, Rutgers University and New York University (NYU), 2015.
- T8 *Smartphone Vulnerabilities*. Invited seminar speaker with webcast to all employees worldwide, Microsoft Research, Seattle, 2014.
- T7 *Smartphone Vulnerabilities*. Invited seminar speaker, Royal Holloway, London, 2014.
- T6 *MockDroid: trading privacy for application functionality on smartphones*. Invited seminar speaker, Department of Computing, Imperial College, 2011.
- T5 *Using sensors to improve public and private transport*. Invited talk at the British Council's Conference on Green ICT and Sensors in Gothenburg, 2010.
- T4 *Pollution monitoring in the streets of Cambridge*. Invited talk at the Cambridge Transport Event organised by the former Chief Scientific Adviser to the Department for Transport, Christ's College, Cambridge. This was a joint talk with Professor Rod Jones.
- T3 *TIME for better privacy*. Keynote talk at the Workshop on Privacy-Aware Location-based Mobile Services (PALMS) 2007; IEEE International Conference on Mobile Data Management (MDM'07).
- T2 *Privacy issues in geographic information technologies*. Invited talk at the Association of American Geographers Annual Meeting, 2006.
- T1 *Location privacy: technical issues and approaches*. Invited talk at BT Laboratories, Martlesham Heath, Suffolk, 2004.