

**Any media contacts should be sent to one of**

|                     |                          |                                                                                  |
|---------------------|--------------------------|----------------------------------------------------------------------------------|
| <b>US Press:</b>    | <b>James Larus:</b>      | <a href="mailto:james.larus@epfl.ch">james.larus@epfl.ch</a>                     |
| <b>EU Press:</b>    | <b>Kenny Paterson:</b>   | <a href="mailto:kenny.paterson@inf.ethz.ch">kenny.paterson@inf.ethz.ch</a>       |
| <b>UK Press:</b>    | <b>Michael Veale:</b>    | <a href="mailto:m.veale@ucl.ac.uk">m.veale@ucl.ac.uk</a>                         |
| <b>RoW:</b>         | <b>Nigel Smart:</b>      | <a href="mailto:nigel.smart@kuleuven.be">nigel.smart@kuleuven.be</a>             |
| <b>Dutch/French</b> | <b>Bart Preneel:</b>     | <a href="mailto:bart.preneel@esat.kuleuven.be">bart.preneel@esat.kuleuven.be</a> |
| <b>German:</b>      | <b>Cas Cremers:</b>      | <a href="mailto:cremers@cispa.saarland">cremers@cispa.saarland</a>               |
| <b>Spanish:</b>     | <b>Carmela Troncoso:</b> | <a href="mailto:carmela.troncoso@epfl.ch">carmela.troncoso@epfl.ch</a>           |
| <b>Italian:</b>     | <b>Dario Fiore:</b>      | <a href="mailto:dario.fiore@imdea.org">dario.fiore@imdea.org</a>                 |

**Joint Statement on Contact Tracing: Date 19th April 2020**

The undersigned represent scientists and researchers from across the globe. The current COVID-19 crisis is unprecedented and we need innovative ways of coming out of the current lockdowns. However, we are concerned that some “solutions” to the crisis may, via mission creep, result in systems which would allow unprecedented surveillance of society at large.

Contact tracing is a well-understood tool to tackle epidemics, and has traditionally been done manually. However, manual contact tracing is time-consuming and is limited to people who can be identified.

In some situations, so-called “contact tracing Apps” on peoples’ smartphones may improve the effectiveness of the manual contact tracing technique. These Apps would allow the persons with whom an infected person had physical interaction to be notified, thus enabling them to go into quarantine. The Apps would work by using Bluetooth or geolocation data present in smartphones. Though the effectiveness of contact tracing Apps is controversial, we need to ensure that those implemented preserve the privacy of their users, thus safeguarding against many other issues, noting that such Apps can otherwise be repurposed to enable unwarranted discrimination and surveillance.

Research has demonstrated that solutions based on sharing geolocation (i.e., GPS) to discover contacts lack sufficient accuracy and also carry privacy risks because the GPS data is sent to a centralized location. For this reason, Bluetooth-based solutions for automated contact tracing are strongly preferred when available.

Some of the Bluetooth-based proposals respect the individual's right to privacy, whilst others would enable (via mission creep) a form of government or private sector surveillance that would catastrophically hamper trust in and acceptance of such an application by society at large. It is crucial that citizens trust the applications in order to produce sufficient uptake to make a difference in tackling the crisis. It is vital that, in coming out of the current crisis, we do not create a tool that enables large scale data collection on the population, either now or at a later time. Thus, solutions which allow reconstructing invasive information about the population should be rejected without further discussion. Such information can include the “social graph” of who someone has physically met over a period of time.

With access to the social graph, a bad actor (state, private sector, or hacker) could spy on citizens' real-world activities. Some countries are seeking to build systems which could enable them to access and process this social graph. On the other hand, highly decentralized systems have no distinct entity that can learn anything about the social graph. In such systems, matching between users who have the disease and those who do not is performed on the non-infected users' phones as anonymously as possible, whilst information about non-infected users is not revealed at all.

To aid the development of contact tracing without a centrally controlled database that holds private information on individuals, Google and Apple are developing infrastructure to enable the required Bluetooth operations in a privacy protective manner. Teams building the privacy protective schemes fully support this effort as it simplifies—and thus speeds up—the ability to develop such Apps. We applaud this initiative and caution against collecting private information on users. Some who seek to build centralized systems are pressuring Google and Apple to open up their systems to enable them to capture more data.

It is worth noting that the European Parliament on April 17th gave their support to the decentralized approach, pointing out by overwhelming majority "that [...] the generated data are not to be stored in centralised databases, which are prone to potential risk of abuse and loss of trust and may endanger uptake throughout the Union" and demanding "that all storage of data be decentralised".

There are a number of proposals for contact tracing methods which respect users' privacy, many of which are being actively investigated for deployment by different countries. We urge all countries to rely only on systems that are subject to public scrutiny and that are privacy preserving **by design** (instead of there being an expectation that they will be managed by a trustworthy party), as a means to ensure that the citizen's data protection rights are upheld

The following principles should be at least adopted going forward:

- Contact tracing Apps must only be used to support public health measures for the containment of COVID-19. The system must not be capable of collecting, processing, or transmitting any more data than what is necessary to achieve this purpose.
- Any considered solution must be fully transparent. The protocols and their implementations, including any sub-components provided by companies, must be available for public analysis. The processed data and if, how, where, and for how long they are stored must be documented unambiguously. Such data collected should be minimal for the given purpose.
- When multiple possible options to implement a certain component or functionality of the app exist, then the most privacy-preserving option must be chosen. Deviations from this principle are only permissible if this is necessary to achieve the purpose of the app more effectively, and must be clearly justified with sunset provisions.
- The use of contact tracing Apps and the systems that support them must be voluntary, used with the explicit consent of the user and the systems must be designed to be able to be switched off, and all data deleted, when the current crisis is over.

## Signed:

### Australia

|                      |                                                           |
|----------------------|-----------------------------------------------------------|
| Prof. Dali Kaafar    | Macquarie University                                      |
| Prof. Vanessa Teague | Thinking Cybersecurity and Australian National University |
| Dr. Yuval Yarom      | The University of Adelaide and Data61                     |

### Austria

|                            |                               |
|----------------------------|-------------------------------|
| Prof. Daniel Gruss         | Graz University of Technology |
| Prof. Stefan Mangard       | Graz University of Technology |
| Prof. Elisabeth Oswald     | University of Klagenfurt      |
| Prof. Christian Rechberger | Graz University of Technology |

### Belgium

|                                 |             |                                                                                   |
|---------------------------------|-------------|-----------------------------------------------------------------------------------|
| Prof. Claudia Diaz              | KU Leuven   |                                                                                   |
| Prof. Mireille Hildebrandt      | VU Brussels |                                                                                   |
| Prof. Wouter Joosen             | KU Leuven   |                                                                                   |
| Prof. Nele Mentens              | KU Leuven   |                                                                                   |
| Prof. Bart De Moor              | KU Leuven   | Fellow IEEE and SIAM                                                              |
| Prof. Yves Moreau               | KU Leuven   | Fellow ISCB                                                                       |
| Prof. Olivier Pereira           | UC Louvain  |                                                                                   |
| Prof. Frank Piessens            | KU Leuven   |                                                                                   |
| Prof. Bart Preneel              | KU Leuven   | Fellow IACR                                                                       |
| Prof. Jean-Jacques Quisquater   | UCLouvain   | Fellow IACR, Member of Belgium Royal Academy                                      |
| Prof. Nigel Smart               | KU Leuven   | Fellow IACR                                                                       |
| Prof. François-Xavier Standaert | UC Louvain  |                                                                                   |
| Prof. Joos Vandewalle           | KU Leuven   | Fellow IEEE, IET, Eurasisp, Member Royal Academy of Belgium and Academia Europaea |
| Prof. Ingrid Verbauwhede        | KU Leuven   | Fellow IEEE and Royal Academy of Belgium                                          |
| Prof. Frederik Vercauteren      | KU Leuven   |                                                                                   |
| Dr. Mathias Vermeulen           | VU Brussels |                                                                                   |

### Brazil

|                      |                                      |
|----------------------|--------------------------------------|
| Prof. Mário S. Alvim | Universidade Federal de Minas Gerais |
|----------------------|--------------------------------------|

### Canada

|                              |                                 |                                        |
|------------------------------|---------------------------------|----------------------------------------|
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| Prof. Marc-Olivier Killijian | Université du Québec à Montréal |                                        |
| Prof. Ali José Mashtizadeh   | University of Waterloo          |                                        |
| Prof. Alfred Menezes         | University of Waterloo          |                                        |
| Prof. Bessma Momani          | University of Waterloo          |                                        |
| Prof. Michele Mosca          | University of Waterloo          |                                        |
| Prof. Paul van Oorschot      | Carleton University             | Fellow ACM, IEEE and Royal Soc. Canada |
| Prof. Douglas Stebila        | University of Waterloo          |                                        |
| Prof. Charles Taylor         | McGill University               |                                        |

### Denmark

|                       |                   |             |
|-----------------------|-------------------|-------------|
| Prof. Ivan Damgård    | Aarhus University | Fellow IACR |
| Prof. Claudio Orlandi | Aarhus University |             |

### Estonia

Dr. Dan Bogdanov

Cybernetica

## **Finland**

Prof. Chris Brzuska

Aalto University

## **France**

Prof. Davide Balzarotti

EURECOM

Prof. Karim Belabas

University of Bordeaux

Dr. Olivier Blazy

University of Limoges

Dr. Jean-François Couchot

University of Franche-Comté

Prof. Aurélien Francillon

EURECOM

Prof. Nadia El Mrabet

HDR Mines Saint-Etienne

Dr. Rémi Géraud-Stewart

CentraleSupélec

Prof. Jean-Gabriel Ganascia

Sorbonne University      Fellow EURAI

Prof. Louis Goubin

University of Versailles St-Quentin-en-Yvelines

Prof. Stefan Haar

INRIA (Mexico Team)

Prof. David Kohel

Aix-Marseille University

Dr. Pascal Lafourcade

University Clermont Auvergne

Dr. Benoît Libert

ENS Lyon and CNRS

Prof. Francois Morain

LIX, Ecole Polytechnique

Prof. David Naccache

ENS Paris

Prof. Melek Önen

EURECOM

Dr. Pascal Paillier

Zama

Prof. Benjamin Nguyen

INSA Centre Val de Loire

Prof. Michaël Quisquater

University of Versailles

Prof. Damien Stehlé

ENS Lyon

Prof. Jacques Stern

ENS Paris

Fellow IACR

Prof. Massimiliano Todisco

EURECOM

## **Germany**

Prof. Michael Backes

CISPA Helmholtz Center for Information Security      Fellow IEEE

Prof. Eric Bodden

Heinz Nixdorf Institute at Paderborn University & Fraunhofer IEM

Prof. Georg Borges

Saarland University

Dr. Sven Bugiel

CISPA Helmholtz Center for Information Security

Prof. Stefan Brunthaler

Universität der Bundeswehr München

Prof. Cas Cremers

CISPA Helmholtz Center for Information Security

Dr. Jean Paul Degabriele

TU Darmstadt

Dr. Alexander Dix

European Academy for Freedom of Information and Data Protection

Prof. Christian Djéffal

TU München

Prof. Hannes Federrath

University of Hamburg      President of German Computer Society

Prof. Bernd Finkbeiner

CISPA Helmholtz Center for Information Security

Dr. Michael Friedewald

Fraunhofer ISI

Prof. Mario Fritz

CISPA Helmholtz Center for Information Security

Prof. Sascha Fahl

Leibniz University Hannover

Prof. Nils Fleischhacker

Ruhr-Universität Bochum

Prof. Dominik Herrmann

University of Bamberg

Prof. Jeanette Hofmann

Wissenschaftszentrum Berlin für Sozialforschung

Prof. Thorsten Holz

Ruhr-Universität Bochum

Prof. Albert Ingold

Johannes Gutenberg Universität Mainz

Dr. Swen Jacobs

CISPA Helmholtz Center for Information Security

Prof. Tibor Jäger

University of Wuppertal

Dr. Ghassan Karame

NEC Laboratories Europe

Dr. Christian Katzenbach

Humboldt Institute for Internet and Society, Berlin

Prof. Eike Kiltz

Ruhr-Universität Bochum

Dr. Dennis-Kenji Kipker

European Academy for Freedom of Information and Data Protection

Prof. Teresa Koloma Beck

Universität der Bundeswehr München

Dr. Katharina Krombholz

CISPA Helmholtz Center for Information Security

Prof. Jörn Lamla

Universität Kassel

|                          |                                                             |                                           |
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| Prof. Paul Nolte         | Freie Universität Berlin                                    |                                           |
| Prof. Christof Paar      | Max Planck Inst. CyberSec. and Privacy Fellow IACR and IEEE |                                           |
| Dr. Sebastian Pape       | Goethe University Frankfurt                                 |                                           |
| Dr. Giancarlo Pellegrino | CISPA Helmholtz Center for Information Security             |                                           |
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| Dr. Ben Stock            | CISPA Helmholtz Center for Information Security             |                                           |
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| Dr. Nils Ole Tippenhauer | CISPA Helmholtz Center for Information Security             |                                           |
| Prof. Jilles Vreeken     | CISPA Helmholtz Center for Information Security             |                                           |
| Prof. Andreas Zeller     | CISPA Helmholtz Center for Information Security             | Fellow ACM                                |

#### India

|                            |                              |             |
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| Prof. Subhamoy Maitra      | Indian Statistical Institute |             |
| Dr. Mridul Nandi           | Indian Statistical Institute |             |
| Prof. Manoj Prabhakaran    | IIT Bombay                   |             |
| Dr. Somitra Kr. Sanadhya   | IIT Ropar                    |             |
| Prof. Sandeep Kumar Shukla | IIT Kanpur                   | Fellow IEEE |

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|                         |                                         |
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| Prof. Benny Pinkas   | Bar-Ilan University |

#### Japan

|                      |                   |
|----------------------|-------------------|
| Prof. Tetsu Iwata    | Nagoya University |
| Prof. Kazuo Sakiyama | UEC Tokyo         |

#### Luxembourg

|                      |                          |
|----------------------|--------------------------|
| Prof. Peter Y A Ryan | University of Luxembourg |
|----------------------|--------------------------|

**Portugal**

Dr. Manuel Barbosa                      University of Porto (FCUP) and INESC TEC

**Mexico**

Dr. Cuauhtemoc Mancillas-López      CINVESTAV-IPN  
Dr. Brisbane Ovilla-Martínez          CINVESTAV-IPN  
Dr. Francisco Rodríguez-Henríquez      CINVESTAV-IPN

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Prof. Joan Daemen                      Radboud University  
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Prof. Peter Schwabe                      Radboud University  
Dr. Benne de Weger                      Eindhoven University of Technology  
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**Slovenia**

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Prof. Manuel Carro                      IMDEA Software Institute and Technical University of Madrid  
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| Prof. Carmela Troncoso   | EPFL               |                           |

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|                        |                                 |
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| Prof. Alan Woodward       | University of Surrey                  | Fellow BCS and InstP |
| Dr. Vassiles Zikas        | University of Edinburgh               |                      |

**United States of America**

|                           |                                      |
|---------------------------|--------------------------------------|
| Prof. Alessandro Acquisti | Carnegie Mellon University           |
| Dr. Johanna Amann         | ICSI                                 |
| Prof. Adam Bates          | Uni. of Illinois at Urbana-Champaign |

|                             |                                                             |
|-----------------------------|-------------------------------------------------------------|
| Prof. Lujo Bauer            | Carnegie Mellon University                                  |
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| Prof. Matt Blaze            | Georgetown University                                       |
| Prof. Vincent Bindschaedler | University of Florida                                       |
| Prof. Dan Boneh             | Stanford University Fellow ACM, IACR, US Nat. Acad. of Eng. |
| Prof. Kevin Butler          | University of Florida                                       |
| Dr. Jon Callas              | ACLU                                                        |
| Prof. L. Jean Camp          | Indiana University Fellow AAAS, IEEE                        |
| Prof. Ran Canetti           | Boston University Fellow IACR                               |
| Deirdre Connolly            | Zcash Foundation                                            |
| Prof. Nicolas Christin      | Carnegie Mellon Uni.                                        |
| Prof. Lorrie Cranor         | Carnegie Mellon Uni. Fellow ACM and IEEE                    |
| Prof. Anupam Das            | North Carolina State Uni.                                   |
| Prof. Srinivas Devadas      | MIT Fellow ACM and IEEE                                     |
| Prof. Sven Dietrich         | City University of New York                                 |
| Prof. Marten van Dijk       | University of Connecticut and CWI                           |
| Prof. Jintai Ding           | University of Cincinnati                                    |
| Roger Dingledine            | The Tor Project                                             |
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| Prof. Giulia Fanti          | Carnegie Mellon University                                  |
| Prof. Dean Foster           | Uni. of Pennsylvania Fellow IMS and Game Theory Society     |
| Prof. Michael Franz         | UC Irvine Fellow AAAS, ACM, IEEE, and IFIP                  |
| Prof. Britta Hale           | Naval Postgraduate School                                   |
| Dr. Mike Hamburg            | Rambus                                                      |
| Dr. Helena Handschuh        | Rambus Fellow                                               |
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| Prof. Sham Kakade           | University of Washington                                    |
| Prof. Aniket Kate           | Purdue University                                           |
| Prof. Jonathan Katz         | George Mason Uni. Fellow IACR                               |
| Dr. Hugo Krawczyk           | Algorand Foundation Fellow IACR                             |
| Dr. Kristin E. Lauter       | Microsoft Research                                          |
| Prof. Susan Landau          | Tufts University Fellow ACM and AAAS                        |
| Prof. Tadayoshi Kohno       | University of Washington                                    |
| Mr. John Langford           | Microsoft Research President of ICML                        |
| Dr. Timothy Libert          | Carnegie Mellon University                                  |
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| Prof. Michelle Mazurek      | University of Maryland, College Park                        |
| Prof. Patrick McDaniel      | Pennsylvania State Uni.                                     |
| Prof. Prateek Mittal        | Princeton University                                        |
| Prof. Rafail Ostrovsky      | UCLA Fellow IACR, IEEE, Member Academia Europea             |
| Prof. Aanjan Ranganathan    | Northeastern University                                     |
| Prof. Bradley Reaves        | North Carolina State Uni.                                   |
| Prof. Franziska Roesner     | University of Washington                                    |
| Prof. Phil Rogaway          | UC Davis Fellow IACR                                        |
| Mr. Gregory Rose            | Deckard Technologies, Inc.                                  |
| Prof. Norman Sadeh          | Carnegie Mellon University                                  |
| Prof. Alessandra Scafuro    | North Carolina State Uni.                                   |
| Prof. Patrick Schaumont     | Worcester Polytechnic Institute                             |
| Prof. Micah Sherr           | Georgetown University                                       |
| Prof. Thomas Shrimpton      | University of Florida                                       |

|                       |                                                                 |
|-----------------------|-----------------------------------------------------------------|
| Prof. Dawn Song       | Fellow ACM, IEEE                                                |
| Prof. Philip B. Stark | UC Berkeley    Fellow ASA, Inst. Phys. and Royal Astronomy Soc. |
| Prof. Stefano Tessaro | University of Washington                                        |
| Prof. Patrick Traynor | University of Florida                                           |
| Prof. Lyle Ungar      | University of Pennsylvania                                      |
| Henry de Valence      | Zcash Foundation                                                |
| Prof. Mayank Varia    | Boston University                                               |
| Prof. XiaoFeng Wang   | Indiana University    Fellow IEEE                               |
| Mr John Wilkinson     | MIT                                                             |
| Prof. Byron Williams  | University of Florida                                           |
| Prof. Laurie Williams | N. Carolina State Uni.    Fellow IEEE                           |
| Prof. Matthew Wright  | Rochester Institute of Technology                               |
| Prof. Dongyan Xu      | Purdue University                                               |
| Prof. Xiangyu Zhang   | Purdue University                                               |

## Appendix:

Privacy-preserving decentralized methods of the type referred to in this document include:

**DP-3T:** <https://github.com/DP-3T>

**TCN Coalition:** <https://tcn-coalition.org/>

**PACT (MIT):** <https://pact.mit.edu/>

**PACT (UW):** <https://covidsafe.cs.washington.edu/>

All these teams are committed to working together to make their systems interoperate. They aim to provide different decentralized privacy preserving methods which can be adapted by countries depending on their local situation. By working together they can ensure that using contact tracing in the effort to defeat COVID-19 can be done in a way that protects privacy.