



COMPLEXITY  
SCIENCE  
HUB  
VIENNA

# CSH WORKSHOP AGENDA

## USING MOBILE TELEPHONY DATA FOR SOCIETAL INSIGHT

December 10–11, 2019

COMPLEXITY SCIENCE HUB VIENNA  
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## **Abstract**

The sensor in the form of a smartphone carried by the majority of citizens has the potential to deliver insights into various aspects of society in an unprecedented way. The data can be analysed directly to characterise society, or used to accurately parametrise agent-based models. Insights can be obtained in the areas of health science, social science, disaster management and mobility, amongst others. However, the use of this data usually elicits extreme scepticism on the part of the companies owning the data and the end users of the smartphones, which usually leads to less than optimal usage of this data in countries with strict privacy regulations.

The main question to be answered by this workshop is: How can data gathered from mobile telephony be used to obtain the deepest insights into the functioning of society, while being gathered in such a way that its use is acceptable or even welcomed by members of society? The workshop will identify key application areas, technical measures to guarantee privacy and security of the data, as well as measures to increase the acceptance of the use of this data to both members of society and policy makers.

## **Workshop organizer:**

Allan Hanbury, TU Wien & CSH Faculty

## **List of participants:**

Rossano Schifanella, University of Turin  
Laetitia Gauvin, ISI Foundation  
Leo Ferres, Universidad del Desarrollo, Telefónica R&D (Chile)  
Bertil Chapuis, University of Lausanne  
Allan Hanbury, TU Wien/CSH  
Peter Klimek, MUW/CSH  
Stefan Thurner, MUW/CSH  
Katja Mayer, University of Vienna  
David Garcia, CSH  
Lukas Schlögl, University of Vienna  
Heiko Lehmann, T-Labs  
Andrea Gadotti, Imperial College London  
Anita Graser, AIT  
Fabian Wagner, IIASA  
Rania Wazir, Vienna Data Science Group

# AGENDA

## December 10, 2019

- 09:00 Coffee and registration
- 09:30 Welcome and information about the CSH
  - Stefan Thurner, CSH Vienna
- 09:45 Introduction round
- 10:15 Introduction to the topic
  - Allan Hanbury, TU Wien & CSH Faculty
- 10:45 Coffee Break

## Social Media – part of the pulse of society

- 11:00 Computational Social Science: Understanding human behavior in the digital society
  - David Garcia, CSH Vienna
- 11:30 From cute cat photos to political slogans: tracking the pulse of social media
  - Rania Wazir, Vienna Data Science Group
- 12:00 Lunch Break

## Insights from Mobile Phone Data into Mobility

- 13:15 Understanding urban mobility from a gendered perspective through mobile phone data
  - Laetitia Gauvin, ISI Foundation
- 13:45 The geography of mobile apps usage and its relation to daily commuting
  - Rossano Schifanella, University of Turin
- 14:15 Coffee Break

## **Insights from Mobile Phone Data beyond Mobility**

- 14:30 Extracting functional land use from human activity patterns in cellular data  
– Anita Graser, AIT
- 15:00 Mobile Phone Datasets for Social Good  
– Leo Ferres, Universidad del Desarrollo, Telefónica R&D (Chile)
- 15:30 Finding Patient Zero  
– Heiko Lehmann, Universidad del Desarrollo, Telefónica R&D (Chile)
- 16:00 Coffee Break

## **Challenges: Scale and Privacy**

- 16:15 Fingerprinting Dense Trajectory Datasets  
– Bertil Chapuis, University of Lausanne
- 16:45 The limits of anonymization and challenges in privacy-preserving data analysis  
– Andrea Gadotti, Imperial College London
- 17:15 Brainstorming for Day 2 discussion topics
- 18:15 Dinner

**December 11, 2019**

09:00	Break-out sessions
10:15	Coffee Break
10:30	Break-out sessions
11:45	Lunch
13:00	Break-out sessions
14:15	Coffee Break
14:30	Report back and next steps

## ABOUT THE COMPLEXITY SCIENCE HUB VIENNA

The objective of CSH is to host, educate, and inspire complex systems scientists who are dedicated to collect, handle, aggregate, and make sense of big data in ways that are directly valuable for science and society. Focus areas include smart cities, innovation dynamics, medical, social, ecological, and economic systems. CSH is a joint initiative of AIT Austrian Institute of Technology, Danube University Krems, Graz University of Technology, the International Institute for Applied Systems Analysis (IIASA), Medical University of Vienna, TU Wien, Vienna University of Economics & Business, Institute of Molecular Biology (IMBA), University of Veterinary Medicine, Vienna, and WKO.

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