

# Simone Centellegher

RESEARCHER · DATA SCIENTIST

Trento, Italy

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My research interests focus on human behaviour understanding and in particular on the analysis of spending patterns from credit card transactions data, and social interactions and mobility patterns extracted from mobile phone data. Through this data and the use of statistical and machine learning methods, I can explore different facets of human behaviour.

## Experience

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### Fondazione Bruno Kessler (FBK)

Trento, Italy

RESEARCHER AND DATA SCIENTIST IN THE MOBILE AND SOCIAL COMPUTING LAB (MOBS)

Mar. 2019 - current

- Published several papers involving the study of social interactions extracted from phone calls, mobile phone GPS traces, spending patterns from credit card transactions to study different aspects of human behaviour including psychological characteristics, human mobility and spending behaviour.

### Samsung Electronics

Remote

RESEARCH CONSULTANT

Oct. 2019 - Dec. 2019

- Designed a research plan to model and predict human behaviour from large-scale passively-collected data from mobile phone applications.

### Vodafone

London, United Kingdom

RESEARCHER AND DATA SCIENTIST INTERN

May. 2018 - Sep. 2018

- Scaled and built new features to improve ML models using a dataset of customers with mobile phone data and mobile money transactions.

Advisors: [Nuria Oliver](#) · [Giovanna Miritello](#)

### Vodafone

London, United Kingdom

RESEARCHER AND DATA SCIENTIST INTERN

Jun. 2017 - Oct. 2017

- Cleaned, pre-processed and analyzed a dataset that included mobile phone data and mobile money transactions to understand customers' interaction patterns and to unveil relationships between communication and spending patterns. Built and developed models to predict spending behaviour.

Advisors: [Nuria Oliver](#) · [Daniel Villatoro](#)

### MIT Media Lab

Cambridge, Massachusetts, US

VISITING SCHOLAR

Jul. 2016 - Aug. 2016

- Involved in a project related to the exploration of the relationship between income inequality and job automation.

Advisor: [Iyad Rahwan](#)

## Education

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### PhD in Information Engineering and Computer Science (*cum laude*)

Trento, Italy

UNIVERSITY OF TRENTO, FONDAZIONE BRUNO KESSLER (FBK)

Nov. 2015 - Apr. 2019

- *Thesis*: Investigating individual traits, network dynamics and economic behavior using mobile phone data.

Advisor: [Bruno Lepri](#)

### BSc & MSc in Computer Science

Trento, Italy

UNIVERSITY OF TRENTO

Sep. 2008 - Jul. 2015

## Skills

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**Programming** Python · Pandas · Apache (Py)Spark · Java · SQL

**AI** Data Mining · Machine Learning

**Libraries** NumPy · Scikit-learn · xgboost · statsmodels

**Languages** English (C1) · Italian (Native)

## Publications

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### **Living in a pandemic: changes in mobility routines, social activity and adherence to COVID-19 protective measures.**

Scientific reports

LUCCHINI L, CENTELLEGHIER S, PAPPALARDO L, GALLOTTI R, PRIVITERA F, LEPRI B, DE NADAI M.  
doi.org/10.1038/s41598-021-04139-1

2021

### **Inferring psychological traits from spending categories and dynamic consumption patterns**

EPJ Data Science

TOVANICH N, CENTELLEGHIER S, SEGHOUBANI NB, GLADSTONE J, MATZ S, LEPRI B.  
doi.org/10.1140/epjds/s13688-021-00281-y

2021

### **Mobile Money: Understanding and Predicting its Adoption and Use in a Developing Economy**

Proceedings of the ACM on IMMUT

CENTELLEGHIER S, MIRITELLO G, VILLATORO D, PARAMESHWAR D, LEPRI B, OLIVER N.  
doi.org/10.1145/3287035

2018

### **Personality traits and ego-network dynamics**

PloS one

CENTELLEGHIER S, LÓPEZ E, SARAMÄKI J, LEPRI B.  
doi.org/10.1371/journal.pone.0173110

2017

### **The Mobile Territorial Lab: a multilayered and dynamic view on parents' daily lives.**

EPJ Data Science

CENTELLEGHIER S, DE NADAI M, CARAVIELLO M, LEONARDI C, VESCOVI M, RAMADIAN Y, OLIVER N, PIANESI F, PENTLAND A, ANTONELLI F, LEPRI B.  
doi.org/10.1140/epjds/s13688-016-0064-6

2016

### **Etsch: Partition-centric graph processing**

CBDCOM International Conference

GUERRIERI A, MONTRESOR A, CENTELLEGHIER S.  
doi.org/10.1109/UIC-ATC-ScalCom-CBDCOM-IoP-SmartWorld.2016.0115

2016

## Projects

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### **GPS mobility for COVID-19**

Ongoing

FBK

2020

Designed and developed a pipeline with Apache (Py)Spark on Azure cloud machines to process 7.5 TB of raw GPS data of 100M users.

- Users' stop locations computed from raw GPS data
- Nearest Point of interest (OpenStreetMap) associated to each stop location (if present)
- Users' home and work locations detected

### **Industrial Projects**

INTESA SAN PAOLO, INTERNATIONAL GAME TECHNOLOGY, DATAPOPALLIANCE

2016-2020

Involved in industrial projects with several organizations and companies using open and proprietary data.

- Analyzing credit card transaction data to unveil possible relationships with health behavior
- Development of a model to understand the key drivers of the success of a game room from IGT data, census data and OpenStreetMap
- Investigating the risk factors of crime in Colombia

### **Personal blog**

Ongoing

[HTTPS://SCENTELLEGHIER.GITHUB.IO](https://scentelleghier.github.io)

2017

Personal page where I write on my research and on different topics such as machine learning, programming in Pandas and PySpark, and data visualization with Matplotlib (~ 5K monthly unique users).

## Other Activities

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**Reviewer** Scientific Data · EPJ Data Science · PLOS One · Ubicomp