Laura Alessandretti
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Scientific Focus Areas

My work focuses on the study Human Behaviour using large-scale data, and methods borrowed form Network Science, Complex Systems and Computer Science. My research led to discoveries on fundamental aspects of Human Mobility, such as the trade-off between exploration and exploitation in visiting patterns, the interplay between social and mobility behaviors, and the effects of cognitive constraints on movements. I work on topics of societal interest, including gender-gaps in mobility, and the spread of epidemics. A second line of my research focuses on the emergent properties of socio-technical systems, in particular digital markets.

Employment

Technical University of Denmark, DTU Compute — København, Denmark
Tenure Track Assistant Professor in Modelling Human Dynamics — *Apr 2020 - Present*

Copenhagen Center for Social Data Science — København, Denmark
Postdoc, Modelling human behaviour using complex systems and data science. — *2018 - 2020*

Technical University of Denmark, DTU Compute — København, Denmark
Postdoc, Modelling human behaviour using complex systems and data science. — *Mar-Dec 2018*

Information Sciences Institute, University of Southern California — Marina del Rey, California
Data Science Researcher, Developing spatial stochastic block models for Call Detail Records. — *Jun-aug 2016*

Advisory and Secondary Employments

European Commission — Online
External expert, assisting in the evaluation of grant applications on data and computing technology — *July 2022*

Statistics Denmark — København, Denmark
Guest Scientist, Analyzing telecommunication data for the official Danish COVID-19 response — *Apr 2020 - Present*

UNICEF Office of Innovation — Remote
Researcher, Assisting the data science team to respond to the COVID-19 outbreak — *Mar-Sep 2020*

Sony Mobile Communications — Lund, Sweden
Researcher, Processing large-scale (+20TB) mobility and app usage data in a distributed environment. — *2018-2019*

Education

City, University of London · London, UK (2015 – 2018) *PhD in Applied Mathematics*
École Normale Supérieure de Lyon · Lyon, France (2012 – 2014) *MSc in Physics of Complex Systems*
Università degli Studi di Torino · Torino, Italy (2009 – 2012) *BSc in Physics*

Awards and Grants

Inge Lehmann Grant · Danish Independent Research Fund · 2022-2025 · $\sim$ 2.8 million DKK
Awardee of the Tietgenprisen · Danish Society for Education and Business · November 2021 · 250,000 DKK
Awardee of the Best Italian Researcher in Denmark in the Social Sciences · Italian Embassy June 2022 ·

Academic Service

Reviewer for journals including: · Nature · Nature Communications · Nature Computational Science · Science Advances · Physical Review Letters · Nature Human Behaviour · Nature Communications

Conference PC Member for international conferences including: · SocInfo · Complenet · IC2S2 · NetSci-X · Netsci · ICWSM · KDD · Complex Networks· Conference on Complex Systems · ICCS

Elected member: · Secretary of the Young researchers of the Complex Systems Society (2016-2018); Member of the Complex Systems Society council (from 2020).

Management and Leadership

General Chair for the IC2S2 conference. København, Denmark
Organizing the flagship conference on Computational Social Science (∼ 400 attendees). *2022-2023*

Mobility data leader for the NordicMathCovid project København, Denmark
The project gathers Nordic researchers on pandemic preparedness using mathematical modelling. *Mar 2022 - Present*

Lead organizer of the Workshop in Ethics, Just and Secure AI København, Denmark
The workshop is organized at the Opening of the Danish AI Pioneer Center *Mar 2022*

Lead organizer of DataBeers Copenhagen København, Denmark
Coordinator of a team organizing science outreach events with about 100 attendees. *2019*

Supervision and Teaching

Teaching · Computational Social Science (Course Co-Leader, BSc, DTU, from 2021); Social Graphs and Interactions (TA, MSc, DTU, 2018); Programming and Computational Mathematics (TA, BSc, City University of London, 2017)

Supervision · 2 PhD students; over 20 MSc and BSc students

Selected Talks

Invited speaker at: · German Physical Society spring meeting (Invited, Regensburg, Sep 2022); International Focus Workshop on Physics and Collective Dynamics of Future Mobility (Invited, Online, Mar 2022); Complenet 2021 (Plenary, Online, May 2021); The Institute for Analytical Sociology (Invited Seminar, Online, April 2021); Volkswagen Data:Lab Munich (Invited seminar, Online, May 2021); SONY Computer Science Lab (Invited Seminar, Online, November 2020); Conference on Complex Systems 2019 Satellite: Analysing networks from spatio-temporal data (Keynote, Singapore, Oct 2019); MacArthur Workshop on Urban Modelling and Complexity Science (Keynote, London, Jul 2019); International Workshop on Networks and Urban Systems (Keynote, Greenwhich, Jul 2019)

International relations

Key collaborators include: · Andrea Baronchelli (City, University of London) · Luca Aiello (IT University of Copenhagen) · Mauro Martino (IBM) · Anestis Papanikolaou (Data:Lab Munich) · Federico Battiston (Central European University) · Vedran Sekara (IT University of Copenhagen)

Languages

Italian (native) · English (fluent) · French (fluent) · Spanish (intermediate) · Danish (beginner)

Selected Publications

Alessandretti, L., Aslak, U., and Lehmann, S. (2020). *The scales of human mobility.* **Nature**, 587(7834), 402-407.

Edsberg Møllgaard, P., Lehmann, S., and Alessandretti, L. (2022) *Understanding components of mobility during the COVID-19 pandemic.* **Philosophical Transactions of the Royal Society A**, 380.2214, 20210118.

Alessandretti, L., Sapiezynski, P., Sekara, V., Lehmann, S., and Baronchelli, A. (2018). *Evidence for a conserved quantity in human mobility.* **Nature human behaviour**, 2(7), 485-491.

Sekara, V., Alessandretti, L., Mones, E., and Jonsson, H. (2021). *Temporal and cultural limits of privacy in smartphone app usage.* **Scientific reports**, 11(1), 1-9.

Alessandretti, L., Sapiezynski, P., Lehmann, S., and Baronchelli, A. (2017). Multi-scale spatio-temporal analysis of human mobility. **PloS one**, 12(2), e0171686.