Silvia De Sojo Caso

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Affiliations: DTU Social Complexity Lab, Copenhagen Center for Social Data Science, MIT Senseable City Lab
Keywords: Human Mobility, Network Science, Complex Systems, Urban Space, Human Behavior, Inequalities

SCIENTIFIC FOCUS AREAS

My research focuses on understanding behavioural inequalities across genders and diverse groups. I analyze large-scale data sets, including GPS traces from over 1M individuals, smartphone app usage, and online user-generated data. Employing a cross-disciplinary approach, I integrate methodologies such as network analysis, bayesian inference, and matching techniques. In my Ph.D. I explore the gender gaps in human mobility across countries, cities, and socio-economic groups. Using causal inference methods, I examine the influence of household responsibilities, division of labour, and safety perceptions on gender differences in mobility.

EDUCATION

Ph.D. student - Social Complexity Lab, DTU Compute — April 2022 - Present
Thesis: The gender gaps in human mobility — *Copenhagen, Denmark*
Advisors: Laura Alessandretti and Sune Lehmann

Visiting Ph.D. student - Senseable City Lab, MIT — August 2024 - Present
Collaborators: Paolo Santi, Timur Abbiasov, Arianna Salazar-Miranda, Carlo Ratti — *Cambridge, MS, United States*

MSc in Business Analytics - DTU, Danmarks Tekniske Universitet — March 2022
Thesis in collaboration with: Social Complexity Lab — *Copenhagen, Denmark*
Thesis Grade: 12/12

BSc in Industrial Technology Engineering - UPC, Universitat Politècnica de Catalunya — June 2016
Thesis in collaboration with: Analysis of Complex Data for Business Decisions Lab and HP Inc — *Barcelona, Spain*
Thesis Grade: 10/10 with Honors

PROFESSIONAL EXPERIENCE

Business Operations and Finance Analyst - UNDP, United Nations — January 2020 – June 2020
Project force for the development of State Revenue Authority offices in South Sudan — *Copenhagen, Denmark*

Project and Program Manager - HP Sales Ops, HP Inc — July 2017 – July 2019
Define the strategy, lead projects, and coordinate project teams (20+ employees in 4 countries) — *Barcelona, Spain*

Business Planner and Analytics - HP Sales Ops, HP Inc — July 2016 - June 2017
Graduate Program. Driving planning, forecasting, and analytics activities within e-commerce — *Barcelona, Spain*

Lean Six Sigma Project Manager - HP Customer Support, HP Inc — September 2015 – June 2016
Leading a Lean Six Sigma Project within HP Supply Chain — *Barcelona, Spain*

SUPERVISION AND TEACHING

Teaching - Teacher Assistant, DTU — September 2020 - Present
Computational Social Science (BSc), Social Graphs and Interactions (MSc),
Data Science for Mobility (MSc) and Introduction to Business Analytics (MSc)

Supervision - Co-supervising 4 MSc Theses and 1 Special Course, DTU
Ambition and success in physical activity goal setting - María Jiménez Álvarez, Unveiling the lexical and content gender biases in Wikipedia Pages - Alejandra Navarro Castillo, Understanding the gender gaps in Wikipedia collaboration networks - Joana Soler Torramilans, The motherhood penalty in mobility - Mia Jørgensen

SELECTED TALKS

Conferences: Selected as one of 16 among 900 submissions for the "young researchers lightning talk" plenary session at the International Conference in Computational Social Science - IC2S2 Copenhagen (Jul 2023), Contributed Talk at IC2S2 Copenhagen (Jul 2023), Contributed Talk at Conference on Complex Systems - CCS Palma (Oct 2022)

Invited Speaker: Network Science Institute - Northeastern University, Boston (September 2024), Complexity Science Hub - Vienna (Nov 2023), Dublin Cycling Campaign - Inclusive and Accessible Mobility (Oct 2023), NERDS - IT University of Copenhagen (Jul 2022), Analysis of Complex Data for Business Decisions - UPC (May 2016)

Summer Schools and Workshops: ICTP Workshop on Inequality Across Scales, Space, Time and Domains (April 2023), Oxford Summer School in Economic Networks (June 2023), IceLab Camp (Sep 2022), Lipari Summer School (Jul 2022)

GRANTS, SCHOLARSHIPS & AWARDS

International Conference in Computational Social Science - Honorable Mention   July 2023
Honrable mention received after presenting during the Young Researchers Lightning Talk at IC2S2 2023

DTU Compute Ph.D. Bazaar - Best Pitch Award   June 2022
Awarded the jury's best pitch award during DTU Compute Ph.D. Bazaar, competing against ≈25 participants

STIBO FONDEN IT Scholarship - Travel Grant   May 2024
The scholarship covered 50,000 DKK during the PhD external stay at MIT Senseable City Lab

Det Unge Akademi - Danish Research Environment of the Year 2023   July 2023
The Social Complexity Lab won the the award and won DKK 10,000 for an academic social event

Danish Data Science Academy - Travel Grant   September 2022
The grant covered 15,000dkk for travel, accommodation, and conference fee for my attendance at CCS

Danish Data Science Academy - Event Grant   May 2023
The grant covered 35,000dkk for organizing three DataBeers Copenhaguen events

DTU Compute PhD School - Event Grant   Nov 2022
The grant covered 8,000dkk for organizing one DataBeers Copenhaguen event

Oxford Summer School in Economic Networks - Attendance Bursary   February 2023
Selected for a 50% bursary on the tuition fee for my attendance at the summer school

PhD Scholarship funded by the Inge Lehmann project   April 2022
The scholarship covers a 3-year Ph.D. stipend for project "Gender Gaps in Human Mobility"

HP Sales Operations - Leading the Way Award   June 2019
Selected among all employees within the department (≈400) for a monetary reward and leadership recognition

Universitat de Barcelona - Special Mention in Research for Peace Award   June 2011
Award for high school students' research projects to strengthen the culture of peace through research

COMMUNITY & LEADERSHIP

Reviewer for journals   February 2024 - Present
Royal Society Open Science, Nature - Scientific Reports, NPJ Complexity

Lead Organiser of DataBeers CPH - Copenhagen   Aug 2022 - Present
Non-profit community organizing events and talks in the scope of Big Data and Data Science

Elected Member of the Ph.D. Committee - DTU Compute   Jan 2023 - Dec 2023
Acting as the voice of DTU Ph.D. students and influencing the Ph.D. education

IC2S2 Volunteer - DTU Compute   May 2023 - July 2023
Organizing the flagship conference on Computational Social Science (≈700 attendees)

Moderator for social research community - mastodon @datasci.social   Jan 2023 - Present
The mastodon server is dedicated to researchers and practitioners in human-centric data science

Professional Representative - Agency for Quality in the University System   Jan 2018 - May 2018
Member of the committee approving the accreditation of official bachelor's and master's degrees

HP Code Wars Volunteer - HP Inc   March 2015, 2016
Organising the computer programming competition hosting high school students (≈300 attendees)

Skills

Programming Languages: Python, R, Julia

Frameworks: Apache Spark, NumPy, Pandas, Matplotlib, SciPy, scikit-learn, NetworkX, Keras

Official Accreditations: PRINCE2 Foundation (sponsor: United Nations), Lean Six Sigma Green Belt (sponsor: HP)

Languages: Catalan (Native) · Spanish (Native) · English (Fluent) · French (B1) · Danish (A2)