



Granularity, place and diffusion: Big Data and Machine Learning To Explore Spatial Questions

Big Data and Machine Learning open up new possibilities to understand how economic and social activity and outcomes are distributed spatially over cities, urban and rural areas and regions, and how these features can shape economic processes and policy.

This conference aims to bring together recent research using these approaches for macroeconomists and geospatial researchers.

The conference will be held on 20 June 2023 in virtual format from 14h to 17h30 (Paris time).

14h Opening remarks

14h05 Opening speech -“New insights from Geospatial Machine Learning”
Anthony Ortiz, Senior Applied Research Scientist, Microsoft AI for Good Research Lab

Session 1 – Bringing local granularity to economic analysis

14h30 Assessing shifts in consumption following the energy crisis using credit card data
(Joel Alcedo, Vice President, Mastercard Economics Institute and co-authors, including from the OECD Innovation LAB)

This session will present work in progress findings using a very large dataset of credit card transactions to track consumer spending by product at regional level at high frequency and the impact on spending patterns of the energy crisis.

14h50 Satellites Turn "Concrete": Following Cement Plants and Economic Activity with Satellite Data
(Alexandre d'Aspremont, CNRS, ENS, Kayrros SAS and co-authors, including from the Banque de France)

This paper exploits daily infrared images to construct a satellite-based index which tracks activity in the cement industry across 42 advanced, emerging and developing countries. Given the predominant role of cement in construction, empirical evidence suggests that such satellite data significantly improve the nowcasting of activity in the construction sector compared to other alternative high-frequency indicators.

15h10 Estimating House Prices in Emerging Markets and Developing Economies, A Big Data Approach
(Daniela Behr, World Bank, and co-authors)

This paper presents a systematic approach to collecting, analyzing, and assessing private property prices in emerging markets and developing economies. It uses data scraped from five countries' largest real estate websites where private properties are listed for sale, to obtain price data and property attributes to establish a comprehensive data set that allows for both intra- and inter-country comparison of residential property prices.

15h30 Spatial machine learning: new opportunities for regional analysis
(Katarzyna Kopczewska, University of Warsaw)

This paper is a methodological guide to using machine learning in the spatial context and shows the potential of using this developing methodology, as well as its pitfalls.

15h50 Short break

Session 2 – Understanding how space determines outcomes

16h10 The emergence, growth, and stagnation of cities: France c. 1760-2020
(Laurent Gobillon, PSE, and co-authors)

This paper develops a new methodology to extract information from old maps using a combination of image processing and machine learning tools.

16h30 Who benefits from better access?
(Ana Moreno Monroy, Head of Regional Analysis, OECD)

This will draw together findings from several lines of work at the OECD that link regional and big data to examine the relationship between accessibility of a neighbourhood and economic and social outcomes.

16h50 The New Wave: Technology diffusion in the UK during the 2010s
(Max Nathan, Centre for Advanced Spatial Analysis (CASA), University College London)

This paper draws on scraped data from Burning Glass on demand to track firm-level technological innovation combined with geographic data to track diffusion of new technologies.

17h10 Closing remarks