



Alicante, Spain & Virtual event

Urban Challenges and Sustainable Technological Revolution

Special Session Proposal

Local Cultural Context and Its Emoting Variations:

Machine Learning Approaches

Annie Tubadji, Swansea University (a.k.tubadji@swansea.ac.uk)

Talita Greyling, University of Johannesburg

Sasha Talavera, University of Birmingham

Frederic Boy, Swansea University

Abstract

The Capitol Hill attack, the frequent acts of terror in different localities, the social mood towards vaccination or towards the political decisions in crisis such as pandemics or wars. How could we be better prepared to know how the population will behave and what this will bring for socio-economic development and sustainability of places in such cases?

The sustainability of any human development depends on culture – this is now a widely recognized fact in modern economic thought, including in urban economics. Much less is known about the way culture has to be measured and what the dynamic stochastic mechanisms of cultural evolution are like. The cultural context does change, seemingly in a dialectic link with reality, but the direction of causality is difficult to establish, because local culture evolves slowly and time series analysis which are best for causal link testing, require long time periods.

The use of AI, machine learning and data on a very filigree time level for a particular locality can be obtained from electronic footprint of human behaviour. Thus, the challenge of quantifying the urban cultural context and establishing its causal link to the socio-economic reality can be achieved. Put differently, this can be a way to establish and disentangle this causal link between the local culture context and the development of the economy: does the cultural context respond to signals from the economic reality, or does it drive the economic reality and its development?

The current special session showcases and invites further novel AI and machine learning approaches that are employing time-intensive geo-coded data from which causal time series analysis has shown how we can capture the link between social disturbances (rises or falls in the local cultural context affinity to a particular attitude) which are in dialogue with the economic reality of a place. Clearly, since culture matters, understanding how it evolves in itself and how it co-evolves with the socio-economic reality contributes towards better monitoring and analysis of the context for achieving a more sustainable future.

We have lined up a series of papers that present AI-based applications of social listening and search listening, involving respectively sentiment analysis and key-word frequency count approaches for quantifying the local cultural context and capturing its evolution and impact. We distinguish between the strengths and weaknesses of these approaches. The former has higher accuracy and the latter a higher precision as a quantifying approach. Comparing and contrasting the two approaches can help improve their use for understanding the evolution of the cultural context. The selected applications concern the case of antisemitic ebbs and flows in the zeitgeist, the public good propensity, vaccination, ecological preferences, voting and policy perceptions among the population of a place and the impact of these cultural emoting cases on socio-economic reality.

Any further original contributions with examples for using AI/machine learning technology to understand the local cultural context are cordially welcome.

Planned contributors:

- Frederic BOY, Swansea University, the UK, f.a.boy@swansea.ac.uk – presenting paper “*Big Data Frequency Listening - Detecting the Dynamics of Antisemitic Social Sentiments in Response to Socio-Economic Shocks*”, joint work with Annie Tubadji
- Yashi JAIN, Swansea University, the UK, 2043880@swansea.ac.uk – presenting paper: “*Vaccines and Ecology: Predicting Local Culture Attitudes of Social Welfare with Twitter Data*”, joint work with Annie Tubadji, Talita Greyling and Stephanie Roussouw
- Elvira FETAHU, University of Elbasan, Albania, elvira.fetahu@uniel.edu.al – presenting paper: “*Satellite Data for detecting the Cultural Roots of Inequality in Access to Digital Public Services: Comparison between and within nations*”, joint work with Annie Tubadji and Besa Jafferri
- Oleksandr TALAVERA, University of Birmingham, the UK, Oleksandr.talavera@gmail.com – “*Communicating company earnings with vocal emotions*”, joint work with Shuxing Yin and Mao Zhang