CoCo Seminar Series
Spring 2023

[Extra CoCo Seminar]
Characterizing Segregation in Complex Social Systems Exploiting Data-Driven Approaches

Dr. Salvatore Vilella
Postdoctoral Researcher in Computer Science
University of Turin, Italy

Wednesday May 10, 2023   12:00-1:00pm EDT
Hybrid (EB-T1 & Zoom; meeting link available on
http://coco.binghamton.edu/)

Segregation is a phenomenon studied in many domains of Complexity Sciences and, as such, its scope and definition are extremely wide and with nuanced contours. It can be very broadly defined as the tendency for entities within a system to cluster based on certain characteristics, and it is ubiquitous in a variety of fields, including social networks, urban areas, and ecosystems. In this talk, I will focus on the challenges of characterising segregation in complex systems starting from empirical data, rather than relying solely on theoretical frameworks, and on the importance of considering as many layers of information as possible while doing so. Identifying and quantifying segregation patterns from data can be challenging, as they may not always be immediately apparent and can manifest in different ways across multiple dimensions. I will discuss the importance of characterising segregation under multiple aspects, including spatial, temporal, and demographic dimensions, in order to gain a comprehensive understanding of the phenomenon. These same aspects should be explored at different levels of granularity, in order to keep into account local effects and local segregation patterns that, for example, can be crucial for policymaking to promote a better integration. I will explore the use of data-driven methods, such as network analysis, machine learning, Natural Language Processing and spatial analytics, to identify and characterise segregation patterns in complex systems. I will showcase the application of these methods across very diverse domains, ranging from the analysis of a polarized online debate on social media to the consumption of different media outlets in an urban environment, highlighting the importance of considering multiple dimensions when characterising this phenomenon.

Salvatore Vilella is a postdoctoral researcher in Computer Science at the Department of Computer Science of the University of Turin, Italy, where he obtained his PhD in Computer Science with a thesis on segregation phenomena in social networks and complex systems. His research interests include Network Analysis, Complex Systems, Machine Learning and Data Science, with a current focus on the identification of anomalies within large-scale real-world graphs.

For more information, contact Hiroki Sayama (sayama@binghamton.edu).   http://coco.binghamton.edu/