Brief presentation of my research interests

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(Picture information: During my talk on *Algorithms networks and information asymmetries in electoral contexts* at the University of Bucharest open seminar *My vote and big data*, on May, 15, 2019)

Currently, my research agenda revolves around four research interests (see *Table 1*) that can be placed under the social network analysis framework. Additional information is available both below and on my personal webpage (see https://sites.google.com/view/hancean).

1. The science of science

One of my substantial interests, in this area, is focused on the prestige accumulation in the world of science (how and why some researchers increase the visibility of their work, in time, while others fail? in what sense prestige accumulation, e.g. citation distribution, is linked to personal merits and other drivers?). In order to study the accumulation of prestige in the world of science, I employ both personal & whole network analysis as well as exponential random graph modeling. Under scrutiny is the impact of the Matthew effect ("the rich get richer") and some observed homophilies ("birds of a feather flock together"), such as: similar number of citations, research productivity, country wherein researchers are based, etc. I want to test whether the structural characteristics, apart from the compositional ones, are important in the process of resource accumulation. More on this research interest is available on the following webpage (see http://iconic.unibuc.ro/).

2. Migration studies

Currently, more than 20 million European citizens live in a country other than their country of origin. Among them, the Romanian diaspora is one of the most important, being Spain one of the major countries of destination. However, this diaspora has not been spread evenly throughout Spanish geography, but has sometimes been concentrated in specific areas, forming "demographic enclaves" or concentrations of people of the same origin in a specific place. As

a member of the ORBITS project (see http://pagines.uab.cat/orbits/en) research group and the leader of the Romanian research team, I have been taking part to the process of data collection through sampling by link-tracing (a special case of respondent driven sampling). In connection to the Orbits research project, I am heavily interested in analyzing the circulation of remittances and the inter-personal communication activities within the networks of Romanian migrants, by testing, among others, spatial autoregressive probit models.

3. Visualization of large social datasets

Visual encoding (i.e. the translation of data into visual elements) or the visualization of datasets entails great significance for the advancement of modern science, including here the field of social network analysis. Currently, data visualization plays a key role in all the steps of the research process, i.e. data collection, data exploration and analysis, hypothesis testing, and communication of findings to various audiences (e.g. researchers or policy makers). Two of the most important issues concerning the visualization of large network data are linked to replicability and plotting by the properties of datasets. In this area, my research interest is oriented towards the exploration of the available alternatives (e.g. hiveplots, tree or circular visualizations) to the algorithm-oriented displays.

4. Dynamic relationships within organizational structures

People spend large shares of their time within organizational structures (or *organizations*). Their behavior is largely influenced by the configuration of the formal organizational relationships wherein they are embedded. On the other hand, people in organizations are constantly directly and indirectly influencing the formal structures by their micro-level behavior. In this area, I am keenly interested in looking at both positive and negative ties as these unfold and develop under a longitudinal framework. For this purpose, I employ longitudinal social network analysis as well as statistical analysis of dyadic event data. On the other hand, I am also looking at how companies develop and constantly adjust their networks (inter-organizational social capital). The main endogenous latent variables in this context are organizational performance and productivity.

Table 1 **Research agenda**

Research interests	Methodology	Research topics
1. The science of science (Prestige accumulation)	Personal and whole network analysis; Exponential random graph modeling	Matthew effect, Observed homophily
2. Migration studies (Resource flow)	Link-tracing sampling; Spatial autoregressive probit models	Circulation of remittances; Inter-personal communication activities
3. Visualization of large datasets (Replicability and plotting by the properties of the datasets)	Visual encoding large network data by rational layouts	Hiveplots, Trees, Circos
4. Organizational networks (Positive and negative relationships within organizations; Organizational social capital; Networks of companies)	Longitudinal social network analysis (RSiena), Statistical analysis of dyadic event data; Exponential random graph modeling	Organizational performance and productivity