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SONIC SPEAKER SERIES: Moses Boudourides

The Temporal Hypergraph of The Andy Warhol's Diaries

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Location: Frances Searle Building 1-483, 2240 Campus Dr., Northwestern University, Evanston Campus

Livestream: **https://bluejeans.com/303471568**

For more event information, please email Carmen Chan (carmen.chan@northwestern.edu)
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Abstract

In Pat Hackett's volume "The Andy Warhol Diaries," we were able to identify automatically 2278 names of persons (celebrities, artists etc.), who happen to be mentioned in 2024 diaries during a period of 12 years, from November 24, 1976, to February 17, 1987. This was done using the standard Natural Languages Processing technique of POS tagging for the detection of 2-grams or 3-grams corresponding to persons' names (first-last name, possibly including a middle name or a composite surname). Thus, each diary written in a particular day corresponds to a set of persons, who co-occur in the textual contents of the diary.

From the point of view of the theory of hypergraphs, the collection of diaries generates a (simple) undirected hypergraph G=(V,E), where each element of the set X, called vertex, is a person and each element of the set E, called hyperedge, is a set of (distinct) persons. In other words, each hyperedge is interpreted as a diary at a certain date involving a set of persons who happen to co-occur in that diary (persons counted as singletons even if they can be mentioned more than once in the same diary).

Apparently, under this co-occurrence relation, The Andy Warhol's Diaries give rise to a temporal (longitudinal) hypergraph, in which every hyperedge (diary) has a distinct time stamp (date).

Equivalently, from the network-analytic view, a single diary at a certain date corresponds to a clique of persons co-occurring in this diary. Moreover, by aggregating diaries written in a certain time period, one obtains a weighted undirected graph of persons, in which two persons are adjacent as far as there exists at least one date in this period, during which these persons co-occur in the corresponding diary (the number of such dates/diaries being the adjacency weight). Furthermore, in the usual way, one can define egocentric subgraphs during a certain period of dates. Notice that now k (larger than 2) egocentric subgraphs may define a multi-layer substructure in the hypergraph of diaries in that period of dates. Here, we are going to give an account of a number of different temporal-hypergraph-analytic computations on The Andy Warhol Diaries.

Moses Boudourides Ph.D. is Visiting Professor of Mathematics at NYU Abu Dhabi (https://nyuad.nyu.edu/en/academics/divisions/science/faculty/moses-boudourides.html). He is also in the Faculty of Northwestern University School of Professional Studies Data Science Program (https://sps.northwestern.edu/masters/data-science/faculty.php) and Affiliated Faculty at the Science of Networks in Communities (SONIC) at Northwestern University (http://sonic.northwestern.edu/people/affiliated-faculty/moses-boudourides/).

His research work is on social network analysis, computational social science and digital humanities. In particular, his work in digital humanities is focused on networks of literary text and data analysis of scientometric datasets with emphasis on the temporal assortativity of various attributes in co-authorship and co-publication networks (as authors' gender, publication keywords and journals' Open Access type).

Early in 2019, he was awarded a Robert K. Merton Visiting Research Fellowship from the Institute for Analytical Sociology (IAS) at Linköping University in Sweden.