



INSNA Sunbelt 2025

June 23, 2025 to Sunday, June 29, 2025
Paris, France



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Contribution Details

Submission Type / Conference Track: In-Person Workshop

Analysis of weighted networks

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[Vladimir Batagelj](#) ✓

Submitted by: **Prof. Vladimir Batagelj** (IMFM, Ljubljana, SI), ID: 1094

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Abstract

The structure of the network $N=(V, L, W, P)$ is determined by the graph $G=(V, L)$, where V is the set of nodes and L is the set of links. In addition, additional data about links (weights from W) and nodes (properties from P) are often known. The network N is weighted if its set of weights is nonempty. The weights can be either measured (such as trade networks - BACI/CEPII https://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37) or computed (for example a projection of a two-mode network).

The workshop will cover the following topics:

- examples and sources of weighted networks,
- transformations of weighted networks (dealing with large ranges of values of weight, making nodes comparable, Balassa index),
- visualization of weighted networks (graph drawing, monotonic recoding, matrix representation, ordering of nodes),
- clustering and blockmodeling.
- important nodes - hubs and authorities,
- skeletons - important parts of the network: cuts, k-neighbors, Pathfinder, cores, trusses, backbone, islands,
- temporal weighted networks.

Most of the topics are discussed in the book Batagelj, Doreian, Ferligoj, Kejžar (2014) Understanding Large Temporal Networks and Spatial Networks.

The workshop is based on the programming system R <https://cran.r-project.org/>. The network data and additional R code will be available on GitHub <https://github.com/bavla/Nets/tree/master/ws>.

Remarks / Messages

Remark/Message from the Authors:

6 h workshop. The number of attendees is not limited.

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