

Graph Neural Networks for Social Network Analysis

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The main aim of this project is to see to what extent can novel Graph Machine Learning (i.e. GNNs) tools be helpful in trying to understand and predict outcomes for Social Network Analysis.

Graph Neural Networks (GNNs) have become popular in recent years due to their ability to learn representations over graph-structured data better than traditional machine learning models. In the social sciences, however, their use has been mostly limited to social networks emerging from online platforms. Therefore, this project will be combining GNNs with different types of (physical) social network datasets (cross sectional as well as longitudinal, ego-centric as well as whole network, multidimensional...) to try to understand things like what makes some individuals have a marginal position in a network, what makes two people be more likely to befriend each other or what makes some networks more cohesive than others.

This project is part of WP2 of the GUTS Consortium, an NWO Gravitation project: <https://www.gutsproject.com>. In a team with other GUTS researchers based at the University of Leiden and at the Netherlands Institute for Neuroscience (NIN) in Amsterdam, longitudinal network data will be collected along with neuroimaging (fMRI) data to be combined into a unique dataset that can help us answer how (social) network closeness relates to neurological profiles and viceversa.