

Bachelor Project

The Swiss Scientific Social Network

Duration: 4 months

Mentors at USI: Prof. Olaf Schenk (USI), Fabio Verbosio

Working place: Lugano, Switzerland

Prerequisites

The requirements are knowledge of MATLAB plus the basics of the BSc courses [Introduction to Computational Science](#) and [Numerical Computing](#). During the BSc project, you will be working together with the researchers at the ICS and will have the chance to get familiar with the most important libraries used in numerical linear algebra.

The goal of this BSc project is to analyze the social network of the scientific authors belonging to Swiss institutions and to apply the PR algorithm. The first step will be retrieving the information necessary for the construction of the social network based on the relation of coauthorship. After that, it will be the time to model the requested data structures and the implementation and application of the PR algorithm. The results will provide an interesting picture of the different research scenarios in Switzerland and how they interact with each other.



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A social network consists of a set of objects (entities or individuals) connected to each other by social (dyadic) relations. The most common example nowadays is the one given by the social media users on the web. The best way to model social networks is using graphs: such datasets represent the entities as nodes and the relations as edges connecting two different nodes. One very similar structure is the one found in the World Wide Web (WWW), where the web pages represent the nodes of a giant graph having billions of nodes and countless edges—representing the hyperlinks within pages. More than twenty years ago, the PageRank (PR) algorithm was developed in order to rank the different web pages and optimize the search of particular pages (the developers of PR are the founders of Google). PR works purely on the structure of the graph representing the WWW, so its applicability is independent of the nature of the graph itself.

Contact information and application

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