

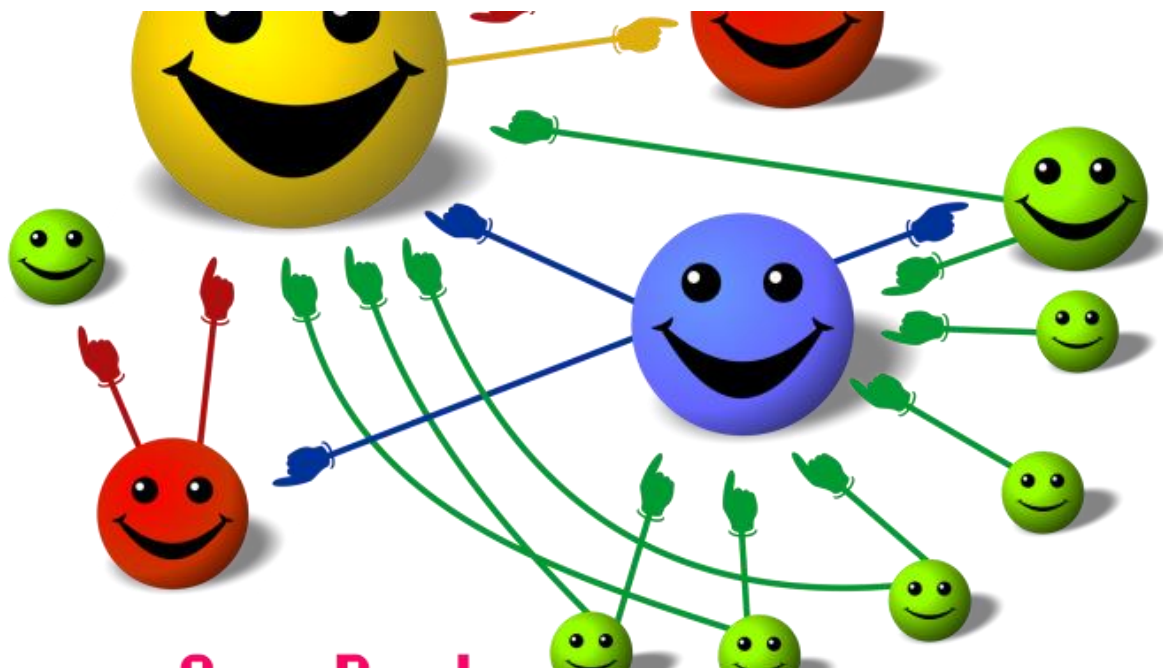
# Distributed methods for computing the PageRank

*Bachelor / Master thesis*

**Supervisor:** Prof Themistoklis Charalambous

## **Description:**

PageRank is an algorithm used by google to assess the importance of a page by using the links in order to improve the quality of search results. In this project, the student will have to make a literature review on the existing methods for computing the PageRank, implement and compare the current state-of-the-art algorithms, and identify any limiting assumptions. If the time permits, the student will work towards proposing his/her own algorithm that can compete or even outperform the current state-of-the-art.



**Keywords:** Google PageRank, distributed coordination, distributed computing.

## **Deliverables:**

- A thesis in which the current state-of-the-art is briefly described, some methods are implemented and compared, and possibly a new approach is proposed.

**Work type:** 40% literature review, 30% simulations, 30% theoretical analysis

**Tools:** MATLAB

## **References:**

- [1] A. Suzuki and H. Ishii, "PageRank Computation via Web Aggregation in Distributed Randomized Algorithms," 2019 IEEE 58th Conference on Decision and Control (CDC), Nice, France, 2019, pp. 1856-1861.
- [2] Y. He and H. -T. Wai, "Provably Fast Asynchronous And Distributed Algorithms For Pagerank Centrality Computation," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Toronto, ON, Canada, 2021, pp. 5050-5054.