New versions of the PageRank algorithm for weighted graphs and their application

**Doctoral School**: Doctoral School of Computer Science  
**Institute**: University of Szeged  
**Supervisor**: Tibor Csendes

**Topic Description:**  
The main task is to study those versions of the well known PageRank algorithm and its variants that are capable to utilize the weighted graphs. The planned research would describe the limitation of the applicability the quality of the results for applications where quality is to be determined in a sense for systems that are modelled by graphs. The size of the solvable problems is to be determined together with the set of possible counter examples (on which fals results can be obtained), and with the complexity.

The aimed application fields are scientometrics and the qualification of wine testers. Both cases can well be described by directed and/or weighted graphs. The established present qualification techniques are in part disputed and stemming from a subjective procedure. The methodology to be developed will be published also in the scientific periodicals of these application fields.

**Literature:**


Nan Ma, Jiancheng Guan, and Yi Zhao: Bringing PageRank to the citation analysis. Information Processing and Management: an Int. J. 44(2008) 800-810


JX Parreira, D Donato, S Michel, and G Weikum: Efficient and Decentralized PageRank Approximation in a PeertoPeer Web Search Network. Proc. of the 32nd Int. Conf. on Very Large Data Bases, Seul, Korea, 2006, 415-426

**Admissible number of students**: 2  
**Deadline for applications**: 2016-09-30

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