**Project Title:** Ranking in Academic Social Networks

**Principle Investigator:** Dr Ali Daud

**Executive Summary:** With the growth of academic social networks ranking of academic objects (authors, papers, and conferences/journals) is important in academic social networks for academic recommendation tasks. This proposal investigates the challenges regarding different flavors of ranking in academic social networks, which are; the problem of ranking based on author’s contribution, inclusion of temporal aspect for ranking, semantic ranking and learning to rank for academic objects. In past several link based (e.g. PageRank) and citation count based (e.g. H-Index) algorithms have been proposed. The citation based methods totally ignore the link structure of the environment, while some link based methods have incorporated few measures like number of publications, number of citations etc as weights, along with the basic link structure. The successful incorporation of all important weights, temporal dimension, semantics and learning can significantly improve the performance of ranking methods. In this project we will conduct a series of experiments to work out improved algorithms. The dataset from CiteSeer and DBLP online publication repositories of computer science literature will be used. They both provide computer science related publications gathered from different famous publishers such as ACM, IEEE, Elsevier, Springer, and Wiley. The data variables will be publication text, authors, citations (in-links and out-links), publication year, journal or conference.

**Focus Areas:** Ranking based onauthor’s contribution, temporal ranking of academic objects, semantic ranking of academic objects, and learning to rank methods for academic objects.

**Project Modules:** There are four modules in this project related to ranking of academic objects.

1. Authors Contribution based Ranking
2. Time Weighted Ranking
3. Semantics based Ranking
4. Learning to Rank

**Scope of the Project:** In this project we are going to address different challenges involved in ranking of academic social networks. It is being investigated by the provisions of the academic challenges of the various flavors of social networks, including the problem of ranking based on the author's contribution and involvement of the time factor while ranking, ranking of semantic objects and learning to rank. We’ll integrate all the important weights, dimension of time to result in significant improvement in the performance. In this project we will conduct a series of experiments to improve the algorithms.

**Research Objectives:**

1. To ensure the maximum credit attribution to the researchers. Users can be interested to find papers and articles written by a particular author
2. Academic promotion and grant funding requires measuring research work of a particular candidate
3. Properly ranked author names are also used in many tasks such as searching homepage and finding the topics as a particular author is interested in single or few topics
4. Time- weighted ranking to produce the results for queries relevant to a particular time as some researchers require time oriented results

**Academic Objectives:**

1. To attract the students towards latest approaches for information retrieval in academic social networks
2. To indulged the student and the faculty members in research and development work
3. To make a batter cooperation between Academia and industry
4. To enhance the capabilities of research and development and team work management Publications on different achievements in this project will enhance the repute of the university, ICT (R&D) Fund, and HEC which will automatically attract the foreign students as well as the well qualified foreign faculty members
5. This project will encourage the applied research rather than theoretical research. MS and PhD students can complete their thesis by becoming a part of this project