

Project:

Efficient Algorithms for the World Wide Web

The World Wide Web consists of at least 4.2 billion pages. It thus forms the largest object studied in computer science. Other research areas that deal with problems of this size, like weather predictions, usually have to deal with numeric challenges. The web, however, poses symbolic problems, like clustering and sampling. The goal of this proposal is to analyze the web, its composition and its structure, for example, by designing algorithms to sample the web uniformly at random and to perform exploratory crawls of subgraphs of the web. Furthermore, we want to study efficient algorithms for serving web traffic and various combinatorial optimization problems arising in online advertisements.

Comments:

This is a very determined researcher who has had an outstanding academic record and invaluable recent industrial experience. This has set her up very well to start an independent academic career in the proposed research area of web analysis and design and optimisation of search algorithms. Academic research in this domain is presently very rare and the applicant has the opportunity to make a very significant impact.

The proposal of optimising the search algorithms through random sampling of web pages and load balancing is a highly original approach and is likely to make significant impact. This is an important and timely research area and she has critically identified the important research areas. Although it was not stated in the proposal, it is likely that these developments could also be applied in the area of biological databases and have an equally strong impact in the areas of bioinformatics.

The EPFL has strengths in algorithms research, network calculus, network theory and IT and is an ideal location and a supportive environment where the applicant has been given a C4 (full Chair) position from Oct 2004

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