Analyzing Modern Massive Data Sets

Michael Mahoney
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CURRENT RESEARCH

Utilizing mathematical approaches to analyze large-scale data

Whether measuring stars on the other side of the universe, the fitness and health status of individuals, or the behavior of users on social network or Internet commerce sites, data generation and analysis are the modern version of the microscope or telescope, as they permit us to obtain a remarkably fine way to view the physical, biological, or social world. To deliver on that promise, however, we need not only scalable algorithms to analyze these data, but also novel statistical methods to control inference properties, e.g., false positive behavior, of these scalable algorithms. Developing unified mathematical approaches, general enough to work across domains but specific enough to provide useful qualitative guidance in particular applications, promises to have impact in these and other areas. Dr. Michael Mahoney, Associate Adjunct Professor at University of California, Berkeley and Senior Research Scientist of International Computer Science Institute, focuses on the algorithmic and statistical foundations of modern large-scale data analysis. In addition to a healthy dose of mathematics, from theoretical computer science and statistics to more traditional applied mathematics and numerical analysis, this involves implementations of matrix and graph algorithms, as well as the application and use of these methods to many different areas such as Internet data analysis and social network analysis.

Traditional academic research happens with most professors who are trained in one area and work exclusively in that area. Due to his eclectic interests and broad set of experiences, however, spanning a range of industries as well as multiple diverse academic areas and application domains, Dr. Mahoney performs the truly...

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AFFILIATION

International Computer Science Institute

EDUCATION

- Ph.D. in Physics 2000,Yale University

RESEARCH AREAS

Technology, Computational Sciences / Mathematics, Informational Sciences / Internet, IOT, Devices, Data

FUNDING REQUEST

Your contributions will support the continued research of Dr. Michael Mahoney of UC Berkeley and ICSI as he studies new theoretically-principled and practically-useful ways to analyze mass data. Donations will help cover the $800K/year required for his interdisciplinary teams that involve individuals from across the campus, the country, the globe, and the many fields of applied sciences ranging from Mathematics and Statistics to Computer Science and Information Technology. By donating, you will partner with these teams to explore new application areas and methods.