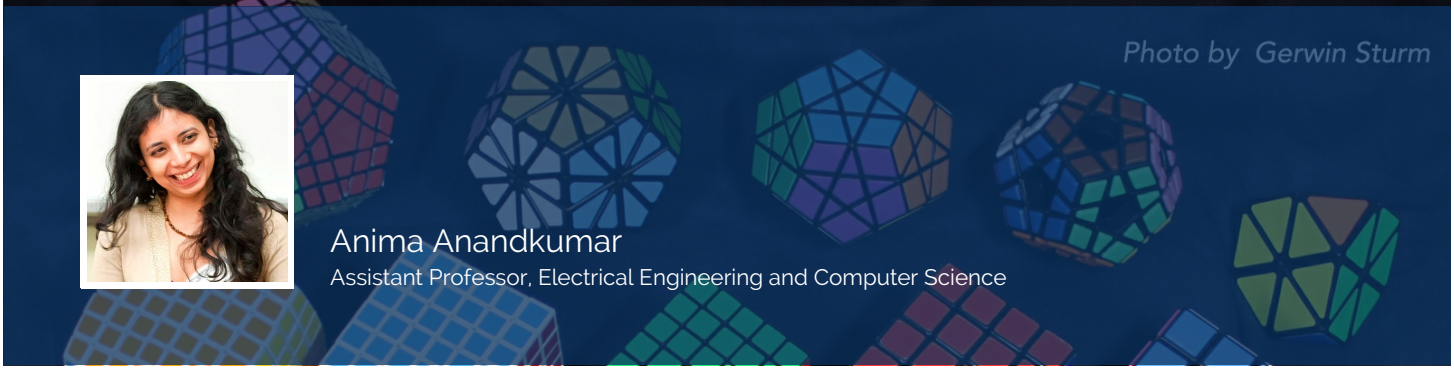
Machine Learning Exploits Big Data



Anima Anandkumar
Assistant Professor, Electrical Engineering and Computer Science

CURRENT RESEARCH

Automated sorting of complex information becomes a reality

We are experiencing a data boom in diverse domains and the available data has grown exponentially in the last twenty years. In fact, at present, there is so much data available that it is nearly impossible to sift through it all without the added assistance of technology. In the past, categorizing information was reliant upon human labor, now however, advances in machine learning technology are making automated sorting of complex information a reality. Dr. Anima Anandkumar, of the University of California, Irvine, combines theoretical and applied machine learning research, to develop methods which are applicable in social networks, computational biology, and document analysis. In doing so, she and her team are able to find useful information in large-scale data, which can literally be "a needle in the haystack."

Much of Dr. Anandkumar's work relies upon identifying relationships among variables or unknowns based on the observed data. These relationships can be represented via graphs and can also involve hidden variables, which are not directly observed. In other words, she and her interdisciplinary team, of graduate students, biologists, neurologists, and sociologists, use sophisticated algorithms to sift through large data sets in order to make subtle inferences about how to categorize the information within them. These novel algorithms, which are scalable to huge datasets having billions of variables, produce highly accurate estimates with strong relevance to a number of applications including computer vision, natural language processing, social network analysis, and computational biology.

Current research includes:

- Theoretical Research: Dr. Anandkumar's theoretical...

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AFFILIATION

University of California, Irvine

EDUCATION

- Ph.D., in Electrical and Computer Engineering, 2009 , Cornell University
- B. Tech, in Electrical Engineering, 2004 , Indian Institute of Technology Madras, India

AWARDS

- AFOSR Young Investigator Award (YIP), 2015
- Alfred P. Sloan Research Fellowship, 2014
- Microsoft Faculty Fellowship, 2013
- NSF CAREER Award, 2013
- Best Thesis Award, 2009 by ACM SIGMETRICS Society

RESEARCH AREAS

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

FUNDING REQUEST

Your contributions will support the continued research of Dr. Anima Anandkumar, of the University of California, Irvine, as she makes fundamental contributions to the theory and practice of large-scale machine learning. Donations will fund the necessary $200K required for personnel and equipment. In choosing to donate, you will play a role in developing applications that span the domains of social networks, computational biology, and document analysis to address how we can sift through the growing rate of data available to us.