

ACO Distinguished Lecture Series 2006

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3:00 p.m. • CCB Lecture Hall 16

New Market Models and Algorithms

Vijay V. Vazirani

Professor, College of Computing at Georgia Tech

ABSTRACT

The notion of a “market” has undergone a paradigm shift with the Internet—totally new and highly successful markets have been defined and launched by companies such as Google, Yahoo, Amazon, MSN and Ebay. Another major change is the availability of massive computational power for running these markets in a centralized or distributed manner.

In view of these new realities, the study of market equilibria, an important, though essentially non-algorithmic, theory within Mathematical Economics, needs to be revived and rejuvenated with new models, ideas, and an inherently algorithmic approach. The last five years has seen a surge of activity, within Algorithmic Game Theory, on obtaining algorithms for market equilibria. Interestingly enough, some of this work has already contributed handsomely to the theory of algorithms as well.

In this two lecture series I will provide a historical perspective on the study of markets as well as give an in-depth feel for the exciting work going on within Algorithmic Game Theory.

BIOGRAPHY

Vijay Vazirani got his Bachelor’s degree in Computer Science from MIT in 1979 and his PhD from the University of California at Berkeley in 1983.

The central theme in his research career has been the design of efficient algorithms. In addition, he has also worked on complexity theory, cryptography, coding theory and game theory. In 2001 he published what is widely regarded as the definitive book on Approximation Algorithms. This book has been translated into Japanese, Polish and French. He is currently involved in editing a comprehensive volume on Algorithmic Game Theory. He is a Fellow of the ACM.