Networks and Games

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Abstract:

The Internet is the first computational artifact that was not designed by a single entity, but emerged from the complex interaction of many. As a result, it must be approached as a mysterious object, akin to the universe, the brain, the market, and the cell, to be understood by observation and falsifiable theories. The theory of games promises to play an important role in this endeavor, since the entibies involved in the Internet are interacting selfish agents in various and varying degrees of collaboration and competition. This talk will survey recent work in which networks and protocols are considered as equilibria in appropriate games, and phenomena such as the power law distributions of the degrees of the Internet topology are explained in terms of the complex optimization problems faced by each node.

Biography: Christos H. Papadimitriou is the C. Lester Hogan Profesor of Computer Science at UC Berkeley. Before Berkeley he taught at Harvard, MIT, Athens Polytechnic, Stanford, and the University of California, San Diego. He has written four textbooks and many articles on algorithms, complexity, and their applications to optimization, databases, AI, economics, and the Internet. His novel, "Turing (a novel about computation)", was published by MIT Press this fall. He holds a PhD from Princeton, and honorary doctorates from ETH (Zurich) and the University of Macedonia (Thessaloniki). He is a member of the American Academy of Arts and Sciences and of the National Academy of Engineering, and a fellow of the ACM.