

Presents the 2012 EECS Spring Seminar Series

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“Computational Insight and the Theory of Evolution”

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ABSTRACT

I shall discuss recent work (much of it joint with biologists Adi Livnat and Marcus Feldman) on some central problems in Evolution that was inspired and informed by computational ideas. Considerations about the performance of genetic algorithms led to a novel theory on the role of sex in Evolution based on the concept of mixability. And a natural random process on Boolean functions can help us understand better Waddington’s genetic assimilation phenomenon, in which an acquired trait becomes genetic.

BIOGRAPHY

Christos Papadimitriou is the C. Lester Hogan professor of Computer Science at the University of California at Berkeley.

Before Berkeley, he taught at Harvard, MIT, and Stanford. His research is on the mathematical theory of algorithms and complexity, and the applications of this theory to various fields such as: optimization, databases, control theory, robotics, artificial intelligence, the internet and the worldwide web, mathematical economics and game theory, and the theory of evolution. His more than 300 papers and books have been cited more than 40,000 times. He is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, and the National Academy of Engineering. He plays keyboards with the Berkeley-based rock band "The Positive Eigenvalues" and has written three novels, of which the second was on the New York Times bestseller list for fifteen weeks.