abstract

COMPUTER SCIENCE/DISCRETE MATH I
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

Internal conflict is considered to be a fundamental psychological phenomenon, and many behaviors in both humans and animals have been attributed to it. However, from a biological standpoint, internal conflict is counterintuitive, in that it appears maladaptive relative to a seamless decision-making process that could have possibly evolved. This raises the following theoretical question: is it possible for a well-designed computational system to manifest internal conflict? We provide a new mathematical framework within which this question can phrased in precise terms, including a game-theoretic definition of conflict, and a method by which internal conflict can be inferred. We show that, in a restricted circuit model, the boundedly-optimal circuit (subject to a computational complexity limitation) can be composed of conflicting agents. The result may have implications for our understanding of the brain.

Joint work with Nicholas Pippenger