TRIPODS DISTINGUISHED SEMINAR

Language, Brain, and Computation

How does the brain beget the mind? How do molecules, cells and synapses effect reasoning, intelligence, language? Despite dazzling progress in experimental neuroscience, as well as in cognitive science at the other extreme of scale, we do not seem to be making progress in the overarching question -- the gap is huge and a completely new approach seems to be required. As Richard Axel recently put it: "We don't have a logic for the transformation of neural activity into thought [...]."

What kind of formal system would qualify as this "logic"?

The speaker will introduce the Assembly Calculus, a computational system whose basic data structure is the assembly -- assemblies are large populations of neurons representing concepts, words, thoughts, etc. --, and which is informed by recent progress in understanding how language happens in the brain.

Christos Papadimitriou, Ph.D.

Donovan Family Professor
of Computer Science
Columbia University

Date: Friday, February 19, 2021
Time: 1:00 – 2:00 p.m. US Central Time
Zoom Meeting ID: 998 4499 3279
Passcode: 724615
Faculty host: Bani Mallick, STAT

Biography

Dr. Christos Harilaos Papadimitriou is the Donovan Family Professor of Computer Science at Columbia University. Before joining Columbia in 2017, he was a professor at UC Berkeley for the previous 22 years, and before that he taught at Harvard, MIT, NTU Athens, Stanford, and UCSD. He has written five textbooks and many articles on algorithms and complexity, and their applications to optimization, databases, control, AI, robotics, economics and game theory, the Internet, evolution, and the brain. He holds a PhD from Princeton (1976), and eight honorary doctorates, including from ETH, University of Athens, EPFL, and Univ. de Paris Dauphine. He is a member of the National Academy of Sciences of the US, the American Academy of Arts and Sciences, and the National Academy of Engineering, and he has received the Knuth prize, the Gödel prize, the von Neumann medal, as well as the 2018 Harvey Prize by Technion. In 2015 the president of the Hellenic republic named him commander of the order of the Phoenix. He has also written three novels: "Turing ," "Logicomix" and his latest "Independence."

You can also click this link to join the seminar https://tamu.zoom.us/j/99844993279?pwd=TkJodWFVRURyMmkwakI4SWZGeVJTQT09

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