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Physics Department

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The 2024 Physics Nobel Prize on Artificial Neural Networks

Jonathan Ventura, PhD

Associate Professor
Computer Science & Software Engineering
Cal Poly State University

Thursday, November 21, 2024
11:10 am - 12:00 Noon
Building 33, Room 286
Pizza will be served!

Abstract: The 2024 Nobel Prize in Physics was awarded to John Hopfield and Geoffrey Hinton for their foundational work on artificial neural networks. Hopfield and Hinton investigated neural networks as a model for understanding human learning. They argued that, by developing biologically plausible learning algorithms based on the behavior of neurons in the brain, they could create reasonable hypotheses for how human learning occurs. This field of inquiry, called machine learning, has led to stunning breakthroughs in computer science and many other scientific and commercial domains. In this talk we will provide an overview of Hopfield and Hinton's Nobel-prize winning work, its connections to biology and physics, and how it led to the modern era of success in machine learning and the current explosion of interest in artificial intelligence.

Bio: Jonathan Ventura is an associate professor in the Department of Computer Science & Software Engineering at Cal Poly. His research interests include computer vision and machine learning. He earned his Ph.D. in Computer Science from UC Santa Barbara in 2012 and afterwards was a postdoctoral researcher at Graz University of Technology in Austria and then an assistant professor at University of Colorado, Colorado Springs before joining Cal Poly. His work has been supported by the National Science Foundation and the National Institutes of Health, including an NSF CRII award and an NSF CAREER award.