FEATURED SPEAKER

ANANTH GRAMA, PH.D

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Ananth Grama is the Samuel Conte Distinguished Professor of Computer Science and Director of the Institute for Physical Artificial Intelligence at Purdue University. He joined Purdue in 1996 as an Assistant Professor and has been there since. He received a PhD in Computer Science from the University of Minnesota (1996), an MS in Computer Engineering from Wayne State University (1990), and a B. Engg. in Computer Science from the Indian Institute of Technology Roorkee (1989). His primary research interests lie in broad areas of parallel and distributed computing, machine learning and artificial intelligence at scale, and applications. Dr. Grama's work has been recognized through a number of awards, including the NSF CAREER award (1998), Purdue University Faculty Scholar (2002), Fellow of the American Association for Advancement of Science (AAAS) (2014), Distinguished Alumnus of the University of Minnesota (2015), and Amazon Research Award (2021).

SPRING 2025

GOODMAN CAMPBELL
BRAIN AND SPINE

SEMINAR FOR NEUROTRAUMA AND DISEASES

PRESENTS

COMPUTATIONAL METHODS FOR ANALYSIS OF FUNCTIONAL BRAIN IMAGES

Date: March 26, 2025 **Time:** 4:00 PM-5:00 PM EDT

Location: DLR 131

ABSTRACT

Rapid advances in neuroimaging have resulted in large repositories of images with high temporal and spatial resolutions. This has motivated complex connectomic analyses aimed at understanding representation and processing of stimuli . Such analyses require novel computational tools that significantly extend the state-of-the-art in machine learning and data science. These studies have far-reaching implications for the fields of precision psychiatry, behavioural analysis, and neurodegeneration, in addition to applications in AR/VR and advanced human interfaces.

In this talk, I will discuss recent work in our group on understanding neuronal response to naturalistic visual stimulus — I present two methods based on archetypal analysis and deep learning to: (a) find interpretable representations of fMRI response, (b) predict objects in visual frames, and (c) reconstruct visual inputs. I will also briefly describe computational methods to characterize individual-level uniqueness of functional connectomes. I will conclude my talk by highlighting the immense significance and challenges posed by problems in the field of neuroimage analyses.

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