

AI SEMINAR SERIES

Learning to See the Physical World



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WEDNESDAY

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1-2 P.M. PACIFIC

Zoom

tinyurl.com/5wn8zczw

Calendar link

tinyurl.com/y3kahh9s

ABSTRACT

Human intelligence is beyond pattern recognition. From a single image, we're able to explain what we see, reconstruct the scene in 3D, predict what's going to happen, and plan our actions accordingly. In this talk, I will present our recent work on physical scene understanding---building versatile, data-efficient, and generalizable machines that learn to see, reason about, and interact with the physical world. The core idea is to exploit the generic, causal structure behind the world, including knowledge from computer graphics, physics, and language, in the form of approximate simulation engines, and to integrate them with deep learning. Here, deep learning plays two major roles: first, it learns to invert simulation engines for efficient inference; second, it learns to augment simulation engines for constructing powerful forward models. I'll focus on a few topics to demonstrate this idea: building scene representation for both object geometry and physics; learning expressive dynamics models for planning and control; perception and reasoning beyond vision.

SPEAKER BIOGRAPHY

Jiajun Wu is an Assistant Professor of Computer Science at Stanford University, working on computer vision, machine learning, and computational cognitive science. Before joining Stanford, he was a Visiting Faculty Researcher at Google Research. He received his PhD at Massachusetts Institute of Technology. Wu's research has been recognized through the ACM Doctoral Dissertation Award Honorable Mention, the AAAI/ACM SIGAI Doctoral Dissertation Award, the 2020 Samsung AI Researcher of the Year, the IROS Best Paper Award on Cognitive Robotics, and faculty research awards and graduate fellowships from Samsung, Amazon, Facebook, Nvidia, and Adobe.

Accommodations for disabilities may be made by contacting patravaj@oregonstate.edu.



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