Smart IoT to Internet of Agents: The Convergence of Computing, Communications, and Physical AI

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Wednesday, May 6
10:30 A.M. • MSEE 112

Abstract
The 20th century taught us to process data; the early 21st taught us to connect it. Today we have reached a new turning point: the birth of the Internet of Agents. We are moving beyond just smart devices that sense the world to a proactive ecosystem of embodied intelligences - agents that not only sense the environment, but also anticipate and shape it. In this talk, I will explore world-model-based robot learning as the engine of this transformation. By moving beyond reactive control toward generative foresight, AI agents are able to reason about the future before they inhabit it. Finally, I will introduce CarDreamer, our open-source platform designed to accelerate this journey within the high-stake domain of autonomous driving.

Bio
Junshan Zhang has been a professor in the ECE Department and CS graduate program at University of California Davis since 2021. He received his Ph.D. degree from the School of ECE at Purdue University in Aug. 2000 and was on the faculty of the School of ECEE at Arizona State University from 2000 to 2021. His research interests fall in the general field of information networks and data science, including edge AI, reinforcement learning, world model, robotics, wireless networks. He is a Fellow of National Academy of Inventor (class of 2024) and the IEEE (class of 2012), and a recipient of the ONR Young Investigator Award in 2005 and the NSF CAREER award in 2003. His papers have won a few awards, including the Best Student paper at WiOPT 2018, the Kenneth C. Sevcik Outstanding Student Paper Award of ACM SIGMETRICS/IFIP Performance 2016, the Best Paper Runner-up Award of IEEE INFOCOM 2009 and IEEE INFOCOM 2014. He is currently serving as Editor-in-Chief of IEEE/ACM Transactions on Networking.

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