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2026 SERIES

Towards Efficient, Safe, and Flexible Adaptation of AI-based Autonomous Agents

DATE & TIME

30 MAR 2026 (MON) 1:30 - 2:30 PM

ONLINE VIA ZOOM

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ABSTRACT

The growing deployment of AI-based autonomous agents in robotics, cybersecurity, digital assistants, and scientific discovery calls for adaptation mechanisms that are efficient, safe, and flexible. As these agents operate in dynamic and uncertain environments, conventional learning methods that rely on extensive retraining or unconstrained online updates are increasingly inadequate. This challenge motivates the development of principled learning and decision-making frameworks that enable autonomous agents to adapt rapidly under limited data and computation while maintaining safety, robustness, and predictable performance. In this talk, I will present my research on the theoretical foundations and algorithmic design of adaptation in AI-based intelligent autonomous agents. My work draws on meta-learning, reinforcement learning, optimization, and generative models to develop methods that support efficient and trustworthy adaptation across a range of high-stakes settings. I will discuss how these ideas can improve autonomous decision-making in complex environments and help bridge rigorous theory with practical deployment. I will conclude by outlining a future research vision on techniques for developing self-adaptation and generalization in autonomous agents, with a particular focus on foundation-model-based agents and embodied AI.

SPEAKER'S BIOGRAPHY

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