

Toward (Truly) Resilient Networking and Learning in Cyber-Physical Systems



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Abstract

Cyber-physical systems integrate autonomous agents that perceive, communicate, reason and act through sensing, communication, decision, and actuation in a single control loop. For example, today, last-mile drones reduce traffic congestion, broaden access to goods and ensure public safety without risking human lives. The value of these systems hinges on resilience -- the ability to maintain task performance under uncertainty, adversaries, and changing operating conditions. Provable guarantees and proactive hardening, together with efficient use of physical resources (e.g., spectrum, compute, memory) are essential for public trust, industrial adoption, and reliable operation. Ultimately, meeting this bar will require rethinking computer networking and artificial intelligence. In this seminar, we will cover our recent advances on ensuring resilient learning and networking in the context of cyber-physical systems. We will conclude the seminar with discussions on ongoing research efforts and possible research directions.

Bio

Francesco Restuccia is an Assistant Professor in the Department of Electrical and Computer Engineering at Northeastern University. Dr. Restuccia's main research focus is addressing the fundamental challenges related to edge-assisted data-driven resilient mobile systems. Restuccia's research is funded by several grants from the National Science Foundation and the Department of Defense. Dr. Restuccia has received the DARPA Young Faculty Award, ONR Young Investigator Award, the AFOSR Young Investigator Award, the ACM SIGMOBILE Research Highlights Award, the Mario Gerla Award for Young Investigators in Computer Science, as well as Best Paper Award at IEEE INFOCOM (twice) and IEEE WOWMOM. Dr. Restuccia has been granted 12 US patents and has been cited 6000+ times with an h-index of 40. He regularly serves as a TPC member and reviewer for several top-tier ACM and IEEE conferences and has served in the editorial board of Computer Networks, IEEE Transactions on Cognitive Communications and Networking and IEEE Transactions on Mobile Computing. He is a Senior Member of IEEE and ACM.

Host

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Zoom: <https://purdue-edu.zoom.us/j/93950597009> ~ Meeting ID: 939 5059 7009



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