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Wireless Networks of the Future: Enabling Scalable Monitoring, Control, and Autonomy

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Wednesday, March 6, 2024
10:30 AM • MSEE 112

Abstract
Wireless networks of the future are envisioned to support massive scale sensing/monitoring and networked control/autonomy. These use cases can fundamentally transform how we plan and design urban and agricultural environments; and how large swarms of robots compute, coordinate, and interact. In this talk, I will discuss how optimizing information freshness leads to highly scalable and performant wireless networks that can monitor and control a large number of devices in real-time, enabling such applications. I will discuss both theoretical contributions and practical system implementations that outperform existing wireless solutions, demonstrating the benefits of our approach.

Bio
Vishrant Tripathi obtained his PhD from the EECS department at MIT, working with Prof. Eytan Modiano at the Lab for Information and Decision Systems (LIDS). He is currently working on building efficient data center networks at Google. His research interests lie in the optimization of resources in resource constrained networked systems. The main applications of his work are in multi-agent robotics, federated learning, edge computing, cloud infrastructure, and monitoring for IoT. More recently, he has also been working on software defined networking and next-generation wireless networks. In 2022, he won the Best Paper Runner Up Award at ACM MobiHoc.

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