Bilkent EEE Distinguished Seminar Series

Bilkent University - Department of Electrical and Electronics Engineering

6G: The Era of the Edge

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February 18, 2022 – 18:00-19:00 (on Zoom)
https://bit.ly/BilEEESem220131

Next generation wireless connectivity is on track to be realized by the end of this decade, prompted by a 6G vision that has started to emerge recently. A distinguishing feature of 6G will be its reliance on the network edge, significantly more so than any of its predecessors. The edge thus emerges as an integral component of network design and operations, relying on the devices not only for communication and sensing but also for computing and learning. This design overhaul brings in an unprecedented opportunity for insights that continue to emerge from fundamental research in communications, computing and learning to be integrated to the design of next generation networks, closing the gap between theory and practice by several decades. In this talk, we will provide examples of such design insights emerging from our contributions, including those that arise from utilizing cache memories at the edge, employing foundational security metrics at the edge, and facilitating distributed learning by the edge, for design metrics including throughput and energy sustainability.

Bio: Aylin Yener is the Roy and Lois Chope Chair Professor at The Ohio State University and a Professor in the Departments of Electrical and Computer Engineering, Computer Science and Engineering, and Integrated Systems Engineering. Previously, Dr. Yener was a Distinguished Professor and a Dean's Fellow at Penn State and held visiting professor appointments at Stanford, and Telecom Paris Tech. Her core expertise areas are in wireless communications, information theory and learning, with interests ranging from optimization/algorithmic design for wireless and wireless AI, to information security, energy conscious communications, and edge computing/learning. She received the 2020 IEEE Communications Society Communication Theory Technical Achievement Award, 2019 IEEE Communications Society Best Tutorial Paper Award, 2018 IEEE Communications Society Women in Communications Engineering (WICE) Outstanding Achievement Award, 2014 IEEE Communication Society Marconi Paper Award, 2010 IEEE International Conference on Communications Best Paper award, and several other research and technical awards. She has been a distinguished lecturer for the IEEE Communications, Vehicular Technology and Information Theory Societies. She is a fellow of the IEEE.

An active volunteer of the IEEE, Dr. Yener served as the President of the IEEE Information Theory Society in 2020. She has been on the board of governors of the IEEE Information Theory Society, as the society treasurer, elected member (twice), second vice president, vice president, president, junior past president, and presently as the senior past president. In 2008, she co-founded the North American School of Information Theory which grew to be the largest outreach activity of the society that runs annually in university campuses in North America. She is on the senior editorial board of the IEEE Journal on Selected Areas in Communications, and of the IEEE Journal on Selected Areas in Information Theory. She serves as an area editor for Security and Privacy for the IEEE Transactions on Information Theory. She also presently serves on the nominations and appointments committee of the Technical Activities Board (TAB) of the IEEE, and previously served on the IEEE fellow committee.

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