Title: **Distributed Compression in the Era of Machine Learning**

Many applications from camera arrays to sensor networks require efficient compression and processing of correlated data, which in general is collected in a distributed fashion. While information-theoretic foundations of distributed compression are well investigated, the impact of theory in practice has been somewhat limited. As the field of data compression is undergoing a transformation with the emergence of learning-based techniques, machine learning is becoming an important tool to reap the long-promised benefits of distributed compression. In this talk, we review the recent progress in the broad area of learned distributed compression, focusing on images as well as abstract sources. In particular, we discuss approaches that provide interpretable results operating close to information-theoretic bounds. We also discuss how learned distributed compression can impact multi-hop communications.

Speaker: **Prof. Elza Erkip (IEEE Fellow, New York)**

Bio: Elza Erkip is an Institute Professor in the Electrical and Computer Engineering Department at New York University Tandon School of Engineering. She received the B.S. degree in Electrical and Electronics Engineering from Middle East Technical University, Ankara, Turkey, and the M.S. and Ph.D. degrees in Electrical Engineering from Stanford University, Stanford, CA, USA. Her research interests are in information theory, communication theory, and wireless communications.

Dr. Erkip is a member of the Science Academy of Turkey and is a Fellow of the IEEE. She received the NSF CAREER award in 2001, the IEEE Communications Society WICE Outstanding Achievement Award in 2016, the IEEE Communications Society Communication Theory Technical Committee (CTTC) Technical Achievement Award in 2018, and the IEEE Communications Society Edwin Howard Armstrong Achievement Award in 2021. She was the Padovani Lecturer of the IEEE Information Theory Society in 2022. Her paper awards include the IEEE Communications Society Stephen O. Rice Paper Prize in 2004, the IEEE Communications Society Award for Advances in Communication in 2013 and the IEEE Communications Society Best Tutorial Paper Award in 2019. She was a member of the Board of Governors of the IEEE Information Theory Society 2012-2020, where she was the President in 2018. She was a Distinguished Lecturer of the IEEE Information Theory Society from 2013 to 2014.