

Resource Allocation for Ultra-Reliable and Low-Latency Communication (URLLC) System

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Speaker:

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Abstract:

This research considers an industrial automation scenario where a central controller communicates with multiple machines by transmitting data in short blocklengths. This communication is subject to reliability and latency constraints, which can be referred to as ultra-reliable and low-latency communication (URLLC). With the objective of minimizing the worst-case decoding-error probability for all the machines (min-max decoding-error probability), we consider joint power allocation and transmission blocklength optimization under the subject of transmit power and latency constraints. To solve this challenging problem, we propose a novel path-following algorithm. Simulation results clearly demonstrate the merits of the proposed algorithm.

Bio:

Ali A. Nasir is an Assistant Professor in the Department of Electrical Engineering, King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, KSA. Previously, he held the position of Assistant Professor in the School of Electrical Engineering and Computer Science (SEECs) at National University of Sciences & Technology (NUST), Pakistan, from 2015-2016. He received his Ph.D. in telecommunications engineering from the Australian National University (ANU), Australia in 2013 and worked there as a Research Fellow from 2012-2015. His research interests are in the area of signal processing in wireless communication systems.