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Uplink Throughput Prediction in Cellular Mobile Networks

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Abstract : The current and future cellular mobile communication networks generate enormous amounts of data. Networks have become extremely complex with extensive space of parameters, features and counters. These networks are unmanageable with legacy methods and an enhanced design and optimization approach is necessary that is increasingly reliant on machine learning. This paper proposes that machine learning as a viable approach for uplink throughput prediction. LTE radio metric, such as Reference Signal Received Power (RSRP), Reference Signal Received Quality (RSRQ), and Signal to Noise Ratio (SNR) are used to train models to estimate expected uplink throughput. The prediction accuracy with high determination coefficient of 91.2% is obtained from measurements collected with a simple smartphone application.

Keywords : drive test, LTE, machine learning, uplink throughput prediction
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