

Adversarial Networks and their Capacities in a Multishot Regime

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Adversarial network coding studies the transmission of data over networks affected by adversarial noise. In this setting, the noise is modeled by an omniscient adversary who is restricted to corrupting a proper subset of the network edges. In 2018, Ravagnani and Kschischang established a combinatorial framework for adversarial networks. The study was furthered in 2022 by Beemer, Kilic and Ravagnani, with particular focus on the one-shot capacity: a measure of the maximum number of symbols that can be transmitted in a single use of the network without errors. In this talk, we present a framework for assessing capacity gains achieved by utilizing a network multiple times for communication instead of just once. Additionally, we extend cut-set bounds from the one-shot capacity context to the multishot context.

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