
ANUP RAO, University of Washington

Towards Coding for Maximum Errors in Interactive Communication

We show that it is possible to encode any communication protocol between two parties so that the protocol succeeds even if a $(1/4 - \epsilon)$ fraction of all symbols transmitted by the parties are corrupted adversarially, at a cost of increasing the communication in the protocol by a constant factor (the constant depends on ϵ). This encoding uses a constant sized alphabet. This improves on an earlier result of Schulman, who showed how to recover when the fraction of errors is bounded by $1/240$. We also show how to simulate an arbitrary protocol with a protocol using the binary alphabet, a constant factor increase in communication and tolerating a $1/8 - \epsilon$ fraction of errors.

Joint work with Mark Braverman.