Massachusetts Institute of Technology
6.888: Wireless Communications Systems
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September 23, 2013

Mini-Assignment 3: Interference Alignment

(Due : Thursday, Sept 26, 2013 @ 3pm)

True or False:

___1. Consider a 2x2 MIMO link (i.e. a client with 2 antennas and an AP with 2 antennas). The client transmits two packets from each of its 2 antennas. The AP can decode each packet by projecting on a direction orthogonal to the channel vector of the other packet. This will reduce the SNR of each packet unless the channel vectors of the two packets are orthogonal.

___2. An N-antenna receiver can decode M packets transmitted from M different antennas only if $M \leq N$ and the M antennas are on the same transmitter.

___3. In the paper Interference Alignment and Cancellation, the APs (access points) must be connected via Ethernet to the network backbone.

___4. In the paper Interference Alignment and Cancellation, the carrier frequency offset will cause signals that are aligned at the beginning of a packet will lose alignment by the end of the packet.