HAMED HATAMI, McGill University
Littlestone dimension and online learnability of partial matrices

Answering an open problem of Alon, Hanneke, Holzman, and Moran (FOCS'21), we show that there are partial Boolean matrices with finite Littlestone dimensions, but any completion of them to a full matrix has an infinite Littlestone dimension.

This result shows that the online learnability of a partial concept class is not always inherited from the learnability of some "extension" of it to a total concept class.

The proof uses the breakthrough result of Goos and its subsequent improvements that led to almost optimal super-polynomial bounds on the "biclique partition number versus chromatic number" problem of Alon, Saks, and Seymour.

The talk is based on a joint work with Ben Cheung, Pooya Hatami, and Kaave Hosseini.