

From Information Inequalities to Computational Lower Bounds in Learning

Other Conference Item**Author(s):**

Abbé, Emmanuel

Publication date:

2020-02-26

Permanent link:

<https://doi.org/10.3929/ethz-b-000402711>

Rights / license:

[In Copyright - Non-Commercial Use Permitted](#)

From Information Inequalities to Computational Lower Bounds in Learning

Emmanuel Abbé
EPFL, Switzerland
Email: emmanuel.abbé@epfl.ch

Abstract

This talk shows how computational lower bounds in learning, which allow to show failure at learning certain function classes due to computational constraints, can be derived using information-theoretic arguments and inequalities. In particular, it is shown that GD-based deep learning cannot learn with polynomial parameters certain function classes that can be learned efficiently with other non-GD based algorithms.

Joint work with C. Sandon (MIT).