

sAMPLE COMpression

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We present a proper labelled sample compression scheme of size d for concept classes corresponding to the topes of a complex of oriented matroid of VC-dimension d . This extends ideas and results of Moran and Warmuth for amplex set systems, and improves on previous results for oriented matroids and complexes of uniform oriented matroids by Chepoi, Philibert and myself. The question whether such a scheme of size $O(d)$ exists for arbitrary concept classes of VC-dim d is probably the most important open problem in computational learning theory.

I will try to give a gentle introduction to all the participating objects, before outlining an idea of the constructions. On the way we will see nice connections between computational geometry, metric graph theory, and computational learning theory.

Joint work with Victor Chepoi and Manon Philibert.