

Machine Learning Seminar הפקולטה להנדסת חשמל והפקולטה למתמטיקה

Sun, 13 December, 11:30 – 12:30

Where Electrical Engineering Building , ROOM 1061
[map](#)

Calendar eeseminars@gmail.com

Description Haim Cohen *
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Technion

"Multi-task Learning with a Shared Annotator"

We introduce a new multi-task framework, in which K online learners are sharing a single annotator with limited bandwidth. On each round, each of the K learners receives an input, and makes a prediction about the label of that input. Then, a shared (stochastic) mechanism decides which of the K inputs will be annotated. The learner that receives the feedback (label) may update its prediction rule, and we proceed to the next round.

We develop online algorithms for multi-task binary classification that learns in this setting, and bound its performances in the worst-case setting. The algorithms apply an exploration-exploitation approach in order to allocate the limited feedback in the way that reduces the total number of errors. Additionally, we show that our algorithm can be used to solve two bandits problems: contextual bandits, and dueling bandits with context, both allowed to decouple exploration and exploitation. Empirical study with OCR data, vowel prediction (VJ project) and NLP -sentiment analysis data shows that our algorithm outperforms algorithms that use uniform allocation, and essentially makes more (accuracy) for the same work of the annotator.

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