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AGCO Seminar

***Speaker**:* Bernardo Subercaseaux, Carnegie Mellon U. Pensilvania, USA.

***Title*:** Augmenting Online Algorithms with ε-Accurate Predictions.

Abstract: The growing body of work in learning-augmented online algorithms studies how online algorithms can be improved when given access to ML predictions about the future. Motivated by ML models that give a confidence parameter for their predictions, we study online algorithms with predictions that are ϵ-accurate: namely, each prediction is correct with probability (at least) ϵ, but can be arbitrarily inaccurate with the remaining probability. We show that even with predictions that are accurate with a small probability and arbitrarily inaccurate otherwise, we can dramatically outperform worst-case bounds for a range of classical online problems including caching, online set cover, and online facility location. Our main results are an $O(\log(1/\varepsilon))$-competitive algorithm for caching, and a simple $O(1/\varepsilon)$-competitive algorithm for a large family of covering problems, including set cover and facility location, with ϵ-accurate predictions.

***When*:** July 20, **15:00 hrs.**

***Where*:** Sala de Seminario John Von Neuman, CMM, Beauchef 851, Torre Norte.