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The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics and Machine Learning

Asymptotic Behavior of Robust Wasserstein Profile Inference (RWPI) Function Analysis --- selecting δ for DRO (Distributionally Robust Optimization) Problems

by

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Abstract

Recently, [1] showed that several machine learning algorithms, such as Lasso, Support Vector Machines, and regularized logistic regression, and many others can be represented exactly as distributionally robust optimization (DRO) problems. The uncertainty is then defined as a neighborhood centered at the empirical distribution. A key element of the study of uncertainty is the Robust Wasserstein Profile function. In [1], the authors study the asymptotic behavior of the RWP function in the case of L^p costs under the true parameter. We consider costs in more generalized forms, namely Bregman distance or in the more general symmetric format of d(x-y) and analyze the asymptotic behavior of the RWPI function in these cases. For the purpose of statistical applications, we then study the RWP function with plug-in estimators. This is a joint work with Yue Hui, Jose Blanchet and Peter Glynn.

[1] Blanchet, J., Kang, Y., & Murthy, K. Robust Wasserstein Profile Inference and Applications to Machine Learning, arXiv:1610.05627, 2016.

Date: **Wednesday, 18 September 2019**

Time: **3:00p.m. - 4:30p.m.**

Venue: **LTJ, Academic Building (near Lift 33), HKUST**

All are welcome!

* This seminar will be video recorded