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# Consistent Distribution Regression via Mean Embedding\*

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## Abstract

In a standard regression model we need to predict a real-valued response based on a vector input. Recently, there has been a significant interest in extending the prediction problem from finite-dimensional Euclidean input spaces to other domains such as distributions. In my talk I am going to present a general, consistent and at the same time computationally very simple approach to solve the corresponding distribution regression task for the case when we have only samples from the distributions using mean embeddings. I also demonstrate the efficiency of our method on (i) entropy and skewness estimation of distributions, and (ii) on aerosol prediction based on satellite images.

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<sup>†</sup>Joint work with Arthur Gretton (Gatsby Computational Neuroscience Unit, University College London), Barnabás Póczos (Machine Learning Department, Carnegie Mellon University), Bharath K. Sriperumbudur (Department of Pure Mathematics and Mathematical Statistics, University of Cambridge); the ordering of the second through fourth authors is alphabetical.