# Isotonic Distributional Regression: Calibration and Consistency

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**Abstract**

Probabilistic prediction has recently emerged as a highly promising statistical paradigm, driven largely by advancements in generative models within machine learning. Unlike traditional approaches that estimate only the conditional mean or specific quantiles, probabilistic prediction seeks to estimate the full conditional distribution of $Y$ given $X$. Isotonic Distributional Regression (IDR) is a novel method in this domain, particularly well-suited for scenarios where the relationship between $Y$ and $X$ is isotonic. IDR has received significant attention due to its simplicity, robustness, and hyperparameterfree nature. Another strong point of IDR is its compatibility with the data (calibration). In this talk, we introduce IDR, and we highlight the critical role of calibrated predictions. We conclude by presenting a novel result on the consistency of IDR in the context of a misspecified model.

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