<u>NOFLITE</u>: Learning to Predict Individual Treatment Effect Distributions

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Estimating the effect of a treatment on an individual's outcome of interest is an important problem in a variety of fields, such as healthcare, economics, marketing, or education. Existing work in machine learning has focused on estimating the expected value of the treatment effect. However, we argue that effective decision-making not only requires knowing the treatment effect's expected value, but its entire distribution. Knowing this distribution allows to, amongst others, trade-off different utility functions or make probabilistic statements regarding treatments by quantifying the uncertainty regarding its effect. This information is essential for optimally prescribing treatments. Therefore, we propose a novel neural architecture, NOFLITE, that uses normalizing flows to obtain flexible estimates of the individual treatment effect distribution. Experiments on multiple semi-synthetic data sets demonstrate that NOFLITE performs competitively with the state-of-the-art.