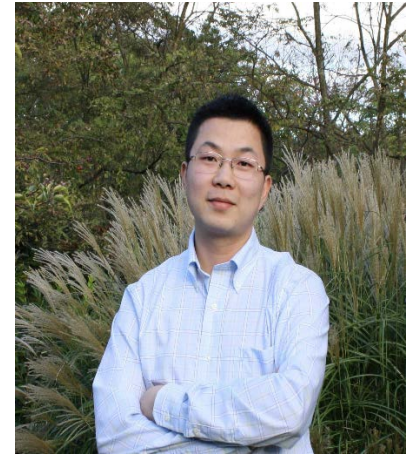


A Conformal-Based Two-Sample Conditional Distribution Test

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We consider the problem of testing the equality of the conditional distribution of a response variable given a set of covariates between two populations. Such a testing problem is related to transfer learning and causal inference. We develop a nonparametric procedure by combining recent advances in conformal prediction with some new ingredients such as a novel choice of conformity score and data-driven choices of weight and score functions. To our knowledge, this is the first successful attempt of using conformal prediction for testing statistical hypotheses beyond exchangeability. The final test statistic reveals a natural connection between conformal inference and the classical rank-sum test. Our method is suitable for modern machine learning scenarios where the data has high dimensionality and the sample size is large, and can be effectively combined with existing classification algorithms to find good weight and score functions. The performance of the proposed method is demonstrated in synthetic and real data examples.

Thursday October 27, 2022, 3:30-4:30 PM Eastern

133 Rosenau Hall

Virtual using link and info below.

Link: <https://unc.zoom.us/j/92602267820?pwd=YW1wN1pjdUNVd1A4TTI2OStmVHBjQT09>

Meeting ID: 926 0226 7820 Passcode: 533114