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Random forest and transfer learning based methods for causality.

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Conditional Average Treatment Effect (CATE) is widely studied in medical contexts. It is one tool used to analyze causality. In the banking sector, the interest for causality methods increases. As an example, one may be interested in estimating the average effect of a financial crisis on credit risk, conditionally to macroeconomic as well as internal indicators. On one other hand, transfer learning is used to adapt a model trained on one task for a second related task. Typically, large data is available for the first task, much less for the second one, and a model trained on the large data may be adapted for the second one, avoiding re-training the model from scratch.

We propose a new random forest design, oriented on CATE estimation called HTERF - Heterogenous Treatment Effect based Random Forest. Then we explore causal transfer learning methods and more precisely, we provide a new transfer methodology to adapt HTERF and causal neural networks on a new data.

Type of presentation

Talk

Classification

Both methodology and application

Keywords

random forests; Conditional Average Treatment Effect; transfer learning

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