

Inferring causality from observational data

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MACHINE LEARNING

- ▶ Standard supervised learning focuses on predictions
 - ▶ I'll give you a bunch of data, predict an outcome variable
- ▶ Example from medicine
 - ▶ I'll give you the medical history of a person
 - ▶ Can you tell me the probability of this person getting heart disease in the next two years?
 - ▶ Base your prediction on previous patients

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MY RESEARCH

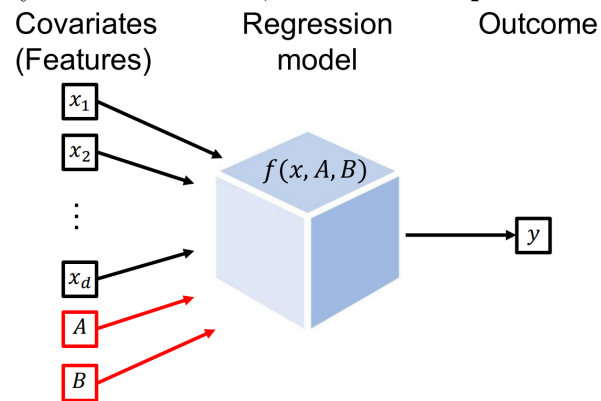
- ▶ I tend to think of myself as an Artificial Intelligence researcher
 - ▶ Reinforcement Learning
 - ▶ Neural Networks
 - ▶ Machine Learning
 - ▶ **Causality**

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CAUSAL INFERENCE FROM OBSERVATIONAL DATA

- ▶ What is the impact of a certain feature to the outcome (i.e. “what-if”)
- ▶ What is the impact of taking a medicine vs heart disease?
- ▶ Use only observational data, **no controlled experiments**



THANK YOU!