

**BIOMEDICAL DATA SCIENCE
PRESENTS:
BIODS 260C
4/20/23 1:30PM-2:50PM
MSOB X303 (SEE ZOOM DETAILS BELOW)**

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Title:

Targeted Learning and Causal Inference for Integrating Real World Evidence into the Drug Approval Process and Safety Analysis

Abstract:

Targeted Learning represents a general multi-step roadmap for accurately translating the real world into a formal statistical estimation problem, and a corresponding template for construction of optimal machine learning based estimators of any desired target causal estimand combined with formal statistical inference. It is flexible by being able to incorporate high dimensional and diverse data sources. To optimize finite sample performance, it can be tailored towards the precise experiment and statistical estimation problem in question, while being theoretically grounded, optimal, and benchmarked. We provide a motivation, explanation, and overview of targeted learning; the key role of super-learning, the Highly Adaptive Lasso; and discuss SAP construction based on targeted learning. Specifically, we discuss recent theoretical advances on the Higher order Spline Highly Adaptive Lasso. We also discuss a Sentinel and FDA RWE demonstration project of targeted learning.

Zoom link: [https://stanford.zoom.us/j/94324405118?
pwd=WnR3Y1dqK3plYWRENORNVjRINnhEUT09&from=addon](https://stanford.zoom.us/j/94324405118?pwd=WnR3Y1dqK3plYWRENORNVjRINnhEUT09&from=addon)
Meeting ID: 943 2440 5118
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