Department of Applied and Computational Mathematics and Statistics Colloquium

Jon Arnie Steingrimsson

Department of Biostatistics
Johns Hopkins University

Doubly Robust Survival Trees and Forests

Survival trees use recursive partitioning to separate patients into distinct risk groups when some observations are right-censored. Survival forests average multiple survival trees creating more flexible prediction models. In the absence of censoring, the corresponding algorithms rely heavily on the choice of loss function used in the decision making process. Motivated by semiparametric efficiency theory, we replace the loss function used in the absence of censoring by doubly robust loss functions. We derive properties of these loss functions and show how the doubly robust survival trees and forest algorithms can be implemented using a certain form of response transformation. Furthermore, we discuss practical issues related to the implementation of the algorithms. The performance of the resulting survival trees and forests is evaluated through simulation studies and analyzing data on death from myocardial infraction.

Monday, January 16, 2017
4:15 PM – 5:15 PM
127 Hayes-Healy Center

Colloquium Tea 3:45 PM to 4:15 PM 154 Hurley Hall