Dynamic Placement Values and a Generalized C-index for Survival Data

Abstract:
Longitudinal marker measurements are often used to guide medical decisions such as the timing and choice of intervention. A basic scientific goal is to use the available information to accurately predict those subjects who are likely to experience a key clinical event such as cancer onset or death. In this talk we overview a recent approach to displaying the ability of a marker to separate incident cases from appropriate time-dependent controls (Saha-Chaudhuri and Heagerty, 2013). The rank of each case within their associated risk set is the basis for a simple graphical display and for non-parametric estimation of a time-dependent accuracy summary. We show how prognostic accuracy methods can be extended to handle cause-specific endpoints (Saha and Heagerty, 2010) and time-varying markers. Finally, a concordance index (C-index) is directly provided that can be used to compare the overall performance of different candidate markers or candidate models.