Machine Learning Algorithms for Survival Analysis

(Chairs: Michal Abrahamowicz, Dimitris Rizopoulos)

 Machine Learning Procedures in Survival Analysis

 Malka Gorfine (Tel Aviv University, Israel)

The recent popularity of survival neural networks (NNs) is notable. Almost every new advancement in NNs is rapidly adapted for survival analysis. While most existing studies assess performance using the well-known c-index, a high c-index does not necessarily imply a low bias. In other words, the survival estimator derived from the NN might significantly deviate from the actual survival value. Furthermore, an area that remains inadequately addressed is the provision of confidence bands for the survival curve derived from NN analysis. This work contributes in two significant ways: (1) We compare existing survival NN packages, evaluating them in terms of both bias and c-index, demonstrating that Cox-Time often yields the best performance. (2) We introduce various methods for generating confidence bands in any NN-based survival analysis.