

## **A Measure of Explained Variation of Survival Models**

Janez Stare<sup>1</sup> and Maja Pohar Perme<sup>1</sup>

<sup>1</sup> Department of Biomedical Informatics, Faculty of Medicine, University of Ljubljana, Slovenia

We have recently presented a new measure of prognostic value of survival models, which is based on the conditional ranks of the failing subjects. We show here that our index has an interpretation of a measure of explained variation. Here variation is understood, following Nagelkerke, as any measure of the degree to which the (conditional) distribution is not degenerate. We further show some new results concerning the variance of the estimator and its unbiasedness under censoring. Another desirable property is the measure's linear dependency on the sum of the ranks, making the improvements in the fit easy to understand.

The measure is easily calculated and can be used with any survival model. In fact, it is naturally adapted for comparison of different models.