The theme: 'Comparison of parametric and semi-parametric survival models with models that use jackknife and bootstrap methods'

Diploma work: 97 p., 48 fig., 10 tabl., 2 appendixes, 10 references.

The object of the study – parameter estimation of survival models.

The subject of the study – application of resampling methods for the improvement of parameter estimation in survival analysis models.

The purpose of the study – resampling methods: bootstrap and jackknife, survival models: accelerated failure time model and Cox proportional hazards regression model.

The relevance of the study – ordinary survival analysis models often give inaccurate and biased estimates because of small sample size, which is often present in clinical researches. Regression models are prohibited because of censoring. Using resampling methods, one can get accurate and unbiased estimates and therefore improve the quality of many researches, including medical.

The results of the study – simulation based on two datasets and analysis of estimated were conducted. It was revealed that on small samples (100-150 elements) the usage of bootstrap and jackknife methods is reasonable as they give more accurate estimates and they can help to estimate and remove bias.

Further improvements of the study – the study of parametric models with other distributions, application of these methods to the data of new clinical researches.

SURVIVAL ANALYSIS, ACCELERATED FAILURE TIME MODELS, PROPORTIONAL HAZARDS MODEL, JACKKNIFE, BOOTSTRAP