Nonparametric predictive inference in reliability

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Abstract

We introduce a recently developed statistical approach, called nonparametric predictive inference (NPI), to reliability. Bounds for the survival function for a future observation are presented. We illustrate how NPI can deal with right-censored data, and discuss aspects of competing risks. We present possible applications of NPI for Bernoulli data, and we briefly outline applications of NPI for replacement decisions. The emphasis is on introduction and illustration of NPI in reliability contexts, detailed mathematical justifications are presented elsewhere.

Key words: Censored data; competing risks; interval probability; nonparametric inference; prediction; survival function; replacement decisions.

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