# Estimation of Hazard Function Under Shape Restrictions

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## Abstract

The problem of estimation of hazard function has received considerable attention in the statistical literature. In particular, assumptions of increasing, decreasing, bathtub-shaped and convex hazard function are common in literature, but practical solutions are not well developed. In this talk we introduce a new nonparametric method for estimation of hazard functions under shape restrictions to handle the above problem. We adopt a nonparametric approach in assuming that the density and hazard rate have no specific parametric form with the assumption that the shape of the underlying hazard rate is known (either decreasing, increasing, concave, convex or bathtub-shaped). We also show how the estimation procedures can be used when dealing with right censored data. We evaluate the performance of the estimator via simulation studies and illustrate it on some real data set.