Poisson intensity registration by goodness-of-fit testing

Arnak Dalalyan, Université Paris Est et Ecole des Ponts ParisTech
(joint work with Olivier Collier)

Abstract

We consider the problem of curve registration in the case where two Poisson processes having these curves as intensities are observed. Our approach is based on nonparametric goodness-of-fit tests. We propose a generalized likelihood ratio test and prove that it is consistent and satisfies the Wilk phenomenon. The analysis is based on the well known root-transform allowing to bridge the Poisson model with the Gaussian regression. We will also present some numerical results highlighting our theoretical findings.