



Computational methods in set estimation

Antonio Cuevas

Universidad Autónoma de Madrid, Madrid, Spain - antonio.cuevas@uam.es

Pamela Llop

Universidad Nacional del Litoral, Santa Fe, Argentina - lloppamela@gmail.com

Beatriz Pateiro-López*

Universidad de Santiago de Compostela, Santiago de Compostela, Spain - beatriz.pateiro@usc.es

In this work we deal with the statistical problem of estimating a modified version of the medial axis, called λ -medial axis, introduced in Chazal and Lieutier (2005). The whole approach relies on a simple plug-in idea using methods of set estimation. The consistency of the proposed estimators under some, not too restrictive, regularity assumptions is derived. We propose two algorithms to compute the exact λ -medial axis of sets whose shape is given by a union of balls (such as the Devroye-Wise estimator) or by the complement of a union of balls (such as the r -convex hull estimator).

Keywords: set estimation; λ -medial axis.