Quantifying and reducing uncertainties on sets under Gaussian Process priors

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Abstract

Gaussian Process models have been used in a number of problems where an objective function f needs to be studied based on a drastically limited number of evaluations.

A number of approaches have been recently introduced in such set up for the estimation of sets implicitly defined by f, including level sets and also non-dominated sets in the multi-objective case.

Algorithms have been developed for decreasing uncertainties by evaluating f, sequentially or batch-sequentially, at points carefully chosen using dedicated sampling criteria.

In this talk, we will give an overview of recent results and applications, and also state some identified challenges on this emerging research topic.

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