Instituto de Ingeniería Matemática y Computacional

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE

SOME RESULTS ON DIFFERENTIALLY PRIVATE HYPOTHESIS TESTING

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Abstract

A vast amount of individuals' data is collected, stored and accessed every day. These data are valuable for scientific and medical research, for decision making, etc. However, use or release of these data may be restricted by concerns for the privacy of the individuals contributing them.

Differential Privacy has been conceived to offer ways to answer statistical queries about sensitive data while providing strong provable privacy guarantees ensuring that the presence or absence of a single individual in the data has a negligible statistical effect on the query's result.

In this talk I will first introduce some fundamental ideas behind differential privacy and I will then focus on some results on its use in the setting of hypothesis testing. Specifically, I will present a few differentially private version of classical hypothesis tests based on the chi-squared distribution and on gaussian estimation. All these tests have asymptotic guarantees similar to the traditional tests but they offer different trade-offs in terms of the privacy-accuracy trade-off they provide and in terms of the attacker model they support.

SEMINARIO

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