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פרופסור לואיסין ברז'ה
המעבדה להסתברות
ולמודלים אקראיים
אוניברסיטת פייר ומארי קירי
פריז, צרפת

Colloquium

קולוקוויום

UNIVERSAL ESTIMATORS – MAXIMUM LIKELIHOOD AND BEYOND

Abstract

One major problem in Statistics is (in its simplest form) the following: given n i.i.d. random variables X_1, \dots, X_n with a common **unknown** distribution P and the assumption that P belongs to some given family \mathcal{P} of probabilities, use the X_i to guess $P \in \mathcal{P}$.

In the 20's, Ronald Fisher invented and popularized the Maximum Likelihood method which has been considered for a long time and by many people as some sort of a universal estimator. Its properties have been studied at length but it was also discovered that it suffered from various weaknesses. I shall explain the method and show why it may or may not work, point out some major deficiencies, then explain how to replace it by an alternative solution, based on notions related to metric entropy and robustness, that substantially improves on the Maximum Likelihood, at least from a theoretical point of view.

The colloquium will be held on Monday,
16 May 2016, at 12:15, Holcblat Hall (7),
Shenkar Physics Building,
Tel-Aviv University, Ramat-Aviv

הקולוקוויום יתקיים ביום שני,
16 במאי 2016, בשעה 12:15,
באולם הולצבלט (7) בבניין שנקר לפיזיקה,
אוניברסיטת תל-אביב, רמת-אביב

Statistics Seminar

סמינר בסטטיסטיקה

ρ -ESTIMATION - A ROBUST ALTERNATIVE TO MAXIMUM LIKELIHOOD

Abstract

It is well-known that the maximum likelihood, although widely used in Statistics, suffers from various defects. From a theoretical point of view, strong assumptions are needed to ensure that it performs in a satisfactory way and from a practical one, it is definitely not robust, i.e. quite sensitive to model misspecifications. These problems are mainly connected to the use of the log function, which is not bounded, to define the log-likelihood ratios. Replacing it by a specific bounded function leads to an alternative methods with better properties, including robustness (in the sense of Peter Huber). Moreover, in nice parametric models and when the true distribution does belong to the model, the new estimator is asymptotically equivalent to the maximum likelihood estimator. The interested persons may look at <http://arxiv.org/abs/1403.6057>.

The seminar will be held on
Tuesday, 17 May 2016, at 10:30,
in Room 309, Schreiber Building,
Tel-Aviv University, Ramat-Aviv

הסמינר תתקיים ביום שלישי,
17 במאי 2016, בשעה 10:30,
בחדר מס' 309, בבניין שרייבר,
אוניברסיטת תל-אביב, רמת-אביב

כיבוד קל יוגש לפני הקולוקוויום והסמינר

Light refreshments will be served before the colloquium and the seminar