The University of Chicago

Department of Statistics

Seminar Series

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"LSD"

MONDAY November 15, 2004 at 4:00 PM
133 Eckhart Hall, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110.

ABSTRACT

The talk will start by explaining certain episodes on a way from the halfspace depth in multivariate location ("the Tukey depth") through depth in general data-analytic situations (models?) toward the psychedelic experience of a new notion of depth in the location-scale model, Location-Scale Depth, and its most tractable version, the Student depth. The latter has a couple of entertaining theoretical and computational properties, stemming from the fact that it is nothing but the bivariate halfspace depth interpreted in the Poincaré plane model of the Lobachevski geometry - in particular, invariance with respect to the Möbius group and favorable time complexities of algorithms. The practical implications involve a new fancy location-scale typical value, the Student median, as well as somewhat extravagant graphical tool for exploring distributional properties of univariate samples, a sort of cousin to the quantile-quantile plot.

However, perhaps more than those particular accomplishments it may be worthy to note potential new views on data and questions that the process raises: the role of invariance (if any) in data analyses, whether there can be such a thing as median in sophisticated situations, and, more generally, whether classical rank-based nonparametrics can be elevated beyond their traditional (essentially) univariate setting.