Seminar on Combinatorial Computing
October 11, Wednesday, 6:30 p.m.
Room 8404, Graduate Center
365 Fifth Avenue, New York

Depth

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Abstract

Given distinct inputs $a_1, \ldots, a_n \in R$, the real line is divided into $n+1$ intervals, and the depth of $x \in R$ is defined to be

$$d(x) = \min(|\{a_i : a_i \leq x\}|, |\{a_i : a_i \geq x\}|). \tag{1}$$

A median is a point of maximal depth ($\lceil (n+1)/2 \rceil$) and can be computed in time $O(n)$. Several interesting results and open questions - both algorithmic and combinatorial - arise in generalizing the depth notion to R^d, $d > 1$. I will describe some of them, including an interesting question about partitioning sets of hyperplanes.

For further information contact Janos Pach at pach@cims.nyu.edu, or visit our website: http://www.math.nyu.edu/ pach/combinatorics_seminar.html