

THE PARETO RECORD BOUNDARY

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Consider i.i.d. d -dimensional observations with independent coordinates, each with (say) the standard Exponential distribution. Say that the n^{th} observation *sets a (Pareto) record* if it is not dominated by any of the first $n - 1$ observations. If $1 \leq k \leq n$, say that the k^{th} observation is a *current record* at time n if it sets a record and is not dominated by any of the next $n - k$ observations; and say that the n^{th} observation *breaks the record* set by the k^{th} observation if the k^{th} observation is a current record at time $n - 1$ but not at time n .

We will discuss one or more of the following topics: (i) an efficient algorithm for the simulation of Pareto records, and its (partial) analysis; (ii) the location and thickness of the record frontier; (iii) how the Geometric(1/2) distribution arises in connection with the breaking of bivariate records.

This is joint work with Daniel Q. Naiman.