



QMC Opening Workshop August 28-September 1, 2017

Lecture: *QMC and Thinning for Empirical Datasets*

Speaker: Mike Giles

Abstract:

In this talk we consider the question of how to use QMC with an empirical dataset, such as a set of points generated by MCMC. Using ideas from partitioning for parallel computing, we apply recursive bisection to reorder the points, and then interleave the bits of the QMC coordinates to select the appropriate point from the dataset. Numerical tests show that in the case of known distributions this is almost as effective as applying QMC directly to the original distribution.

The same recursive bisection can also be used to thin the dataset, by recursively bisecting down to many small subsets of points, and then randomly selecting one point from each subset. This makes it possible to reduce the size of the dataset greatly without significantly increasing the overall error.

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