

The SUMO Speaker Series for Undergraduates

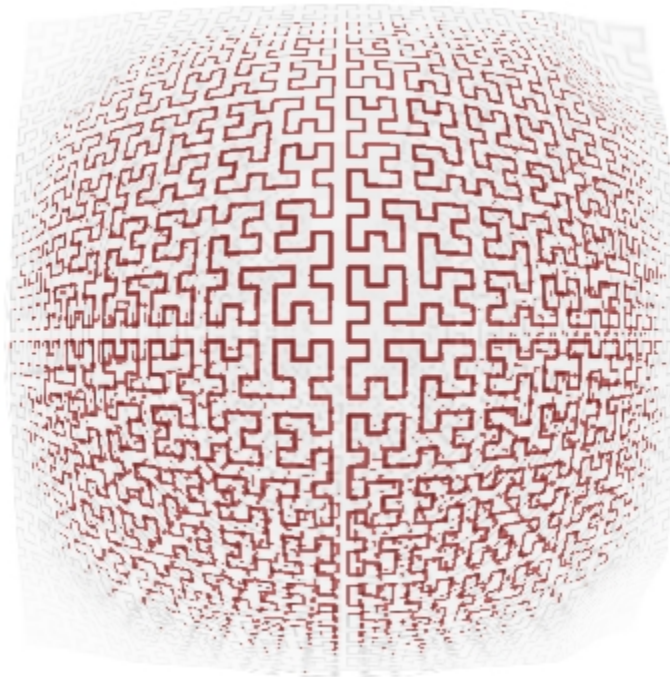
Thursday, May 14

4:15-5:05, Room 380C

(Food Provided)

Hilbert Space Filling Curves and Geometric Data Storage

Joseph Victor, MemSQL



Abstract

Spatial data is ubiquitous, and becoming more so each year. With so many GPS enabled devices generating an endless firehose of points, it becomes very important to store data in ways which allow for efficient insertion and lookup, with applications from detecting traffic jams to targeting voters in local elections. Enter the Hilbert Curve, a bijection $H : [0, 1] \rightarrow [0, 1] \times [0, 1]$ mapping rational intervals to unions of squares. By sorting on the value of H^{-1} , one can build a data structure supporting fast insertion and lookup of points, paths and polygons.

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