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Algorithms for Creating Self-Similar Curves and Surfaces in \( \mathbb{R}^3 \). Preliminary report.

We explore a technique for constructing self-similar planar curves from smooth base curves, originally introduced by Craig Kaplan, which result in a fractal-like structure. We then extend this work to curves and surfaces in \( \mathbb{R}^3 \), discuss their mathematical properties, and visually demonstrate the results of these algorithms on a number of aesthetically pleasing examples. (Received September 25, 2012)