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Fractal Geometry via Containment, and the Exact Convex Hull of C-Type IFS Fractals

There are various directions of research currently under the label "Fractal Geometry", some well-established and others in development. Striving to adhere to the idea of Geometry in the classical sense, we present a philosophical approach which has been scatteredly emerging, meanwhile bridging the theoretical and the computer graphics literature, namely "Fractal Geometry via self-similar containment". We will discuss various computational methods and theoretical results that hinge on containing sets, such as bounding circles/spheres and the convex hull, essentially arguing that "Fractal Geometry" is in fact primarily about "containment", or the determination of containing sets. Thus we reason that finding the exact convex hull of an IFS fractal must be our focal quest, as the foundation for further geometrical investigations. In particular, we present a novel method for finding the exact convex hull of a C-type IFS fractal.