Subdivision schemes-a short review

Nira Dyn

School of Mathematical Sciences, Tel Aviv University, Israel

July 2, 2025

Abstract

In this talk we first present the notion of univariate, linear, stationary and nonstationary subdivision schemes, generating curves in Euclidean spaces. We discuss related notions as convergence, smoothness and basic limit functions of converging schemes. We then present the family of stationary schemes generating spline curves, and explain why stationary schemes cannot generate C^{∞} compactly supported functions. This information allows us to explain a joint result with Albert Cohen, published in 1996. The rest of the talk is dealing with extending the notion of subdividion schemes to metric spaces with an average, a recent joint work with Nir Sharon. An example of such a converging scheme in the metric space of the collection of nonempty compact sets in \mathbb{R}^d , endowed with the Hausdorff metric, concludes the talk.