Colloquium in Mathematical Engineering

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Arc Splines in Computational Geometry

THURSDAY, JANUARY 30, 15:30 - 16:30; DMA Aula Seminari Primo Livello

Abstract: Circular arcs are well known as highly useful geometric primitives for geometry processing and computational geometry, since they combine geometric flexibility and high approximation power with the simplicity of performing geometric computations. More precisely, circular arc spline curves are known to possess cubic approximation power, while the computation of intersections requires solely square roots, and bisector curves are quadratic implicit curves (conic sections). Among numerous other applications, these facts are exploited by an highly efficient algorithm for the computation of medial axes and trimmed offsets of planar free-form shapes. We will briefly review the existing results and then proceed to the analysis of arc fibrations of planar arc spline domains.

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