New tools for surface analysis

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Abstract

In this talk we explore new tools for shape analysis. We consider surfaces and how local analysis of the angular oscillations and polynomial radial behavior around surface points leads to accurate normal estimation and new integral invariants. A direct application of these integral invariants is geometric detail exaggeration. In a second part we tackle the problem of finding relevant principal directions related to high order differential properties, we link those with the eigendecomposition of symmetric tensors and show that they can be efficiently computed using the previous angular/radial polynomial decomposition.

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