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Mathematische Institute der WWU – Kolloquium Wilhelm Killing

Variational Time Discretization of Geodesic Calculus in Shape Space

Prof. Dr. Martin Rumpf (Universität Bonn)

16.05.2013, 16:30 Uhr, Hörsaal M 5

The talk will introduce a time discrete geometric calculus on the space of shapes with applications in geometry processing and computer vision. The discretization is based on a suitable local approximation of the squared distance, which can be efficiently computed. The approach covers shape morphing and the robust distance evaluation between shapes based on the computation of discrete geodesic paths, shape extrapolation via a discrete exponential map, and natural transfer of geometric details along shape paths using discrete parallel transport. Furthermore, it can be used for the statistical analysis of time indexed shape data in terms of discrete geodesic regression. The talk will describe how concepts from Riemannian manifold theory are combined with application dependent models of physical dissipation. Furthermore, a rigorous consistency and convergence analysis will be outlined. Applications will be presented in the shape space of viscous fluidic objects and the space of viscous thin shells.

Tee wird ab 16:00 Uhr im Sitzungszimmer SR 0 des Mathematischen Instituts serviert.

Fachbereich 10
Mathematik und Informatik
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