

Department of Applied Mathematics and Statistics
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SEMINAR

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March 22, 2007
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

AN (ALMOST) EXPLICIT METRIC IN THE SPACE OF PLANE CURVES

ABSTRACT

The definition and study of spaces of plane shapes has recently met a large amount of interest, and has important applications in object recognition, for the analysis of shape databases, and in medical imaging. The theoretical background involves the construction of infinite-dimensional manifolds of shapes. The Riemannian framework, in particular, is appealing, because it provides shapes spaces with a rich structure which is also useful for applications.

The presentation focuses on a particular Riemannian metric that has very specific properties. This metric has the unexpected property that it can be characterized as an image of a Grassmann manifold by a suitably chosen Riemannian surjection. A consequence of this is the possibility to derive explicit geodesics in this shape space.