



MATHEMATICS COLLOQUIUM



Manifold Methods for Averaging Subspaces

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4:00 p.m.

Neill Hall 5W

Refreshments available during the presentation

Applications of geometric data analysis often involve producing collections of subspaces, such as illumination spaces for digital imagery. For a given collection of subspaces, a natural task is to find the mean of the collection. A robust suite of algorithms has been developed to generate mean representatives for a collection of subspaces of fixed dimension, or equivalently, a collection of points on a particular Grassmann manifold. These representatives include the flag mean, the normal mean, the projection mean, and the Karcher mean. In this talk, we catalogue the types of means and present comparative heuristics for the suite of mean representatives. We respond to, and at times, challenge, the conclusions of a recent paper outlining various means built via tangent-bundle maps on the Grassmann manifold.

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