

# ACMS Statistics Seminar

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**Tues, April 4, 2017**  
**154 Hurley Hall**  
**4:00 – 5:00 PM**



## **A Statistical Approach to Geometry-Based Flow Visualization**

Visual understanding of three-dimensional fluid flows plays an important role in many scientific, engineering, and medical disciplines. The most popular way to visualize a flow field is to depict the paths, i.e., streamlines for steady flows or pathlines for unsteady flows, that fluid elements will follow at any point in time. As the size and complexity of flow data continue to grow, this geometry-based method simply does not scale due to the inherent occlusion and clutter presented in the visualization. In this talk, I will first give a brief introduction to flow visualization and then present two of our recent works that apply statistical techniques to effective geometry-based flow visualization. The first is a vocabulary approach that extracts shape invariant features from streamlines for exploratory flow analysis and visualization, and the second is a unified framework that solves the problems of streamline selection and viewpoint selection using a dual information channel.

The Department of Applied and Computational  
Mathematics and Statistics

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