

STATISTICS COLLOQUIUM

FRIDAY, APRIL 12, 2013

TALK: 4:15 PM — SCIENCE CENTER RM. 705

RECEPTION: 3:50 PM — SCIENCE CENTER, 7TH FLOOR

“Classification Using Censored Functional Data”

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ABSTRACT

We consider classification of functional data. This problem has received a lot of attention in the literature in the case where the curves are all observed on the same interval. A difficulty in applications is that the functional curves can be supported on quite different intervals, in which case standard methods of analysis cannot be used. We are interested in constructing classifiers for curves of this type. More precisely, we consider classification of functions supported on a compact interval, in cases where the training sample consists of functions observed on other intervals, which may differ among the training curves.

We propose several methods, depending on whether or not the observable intervals overlap by a significant amount. In the case where these intervals differ a lot, our procedure involves extending the curves outside the interval where they were observed. We suggest a new nonparametric approach for doing this.

We also introduce flexible ways of combining potential differences in shapes of the curves from different populations, and potential differences between the endpoints of the intervals where the curves from each population are observed.

We suggest a fully data-driven approach, and illustrate the performance of our classifier on some real and simulated data. If time permits, we shall talk about some asymptotic properties.