

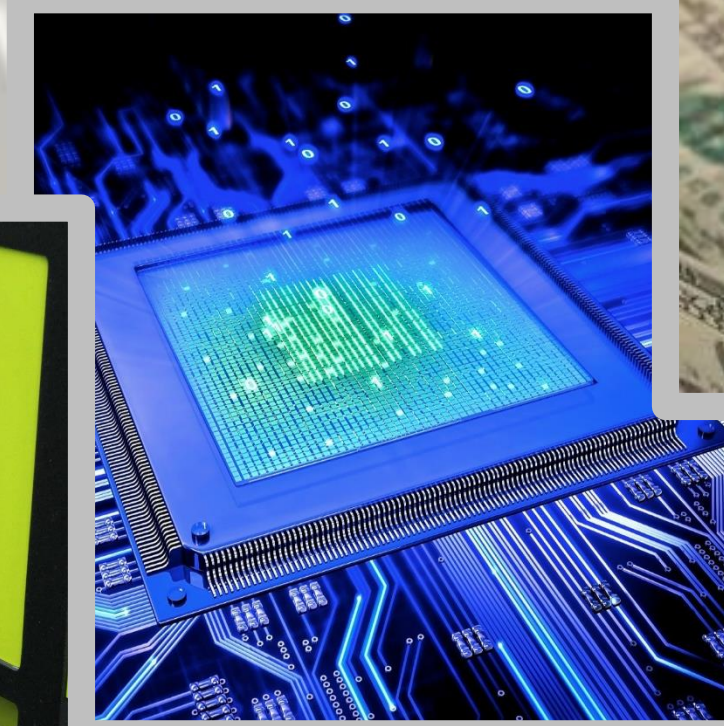
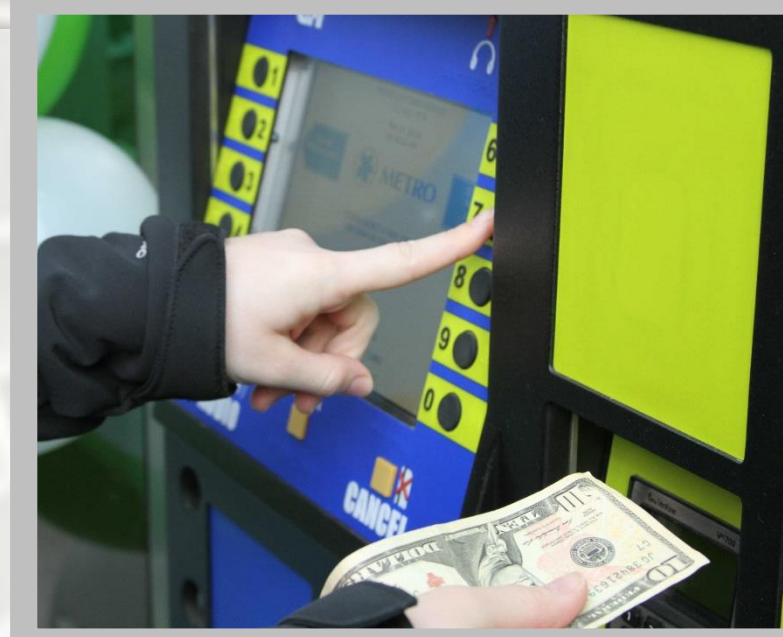
# MATHEMATICS SEMINAR

## Classification with Sparsity and Dictionaries

### How to Tell a Twenty Dollar Bill from a One Dollar Bill

Classification is one of the most fundamental tasks in machine learning. As an example, consider a bill acceptor in a vending machine. When a customer inserts a bill, the acceptor collects certain data about the bill and then uses this to classify the bill by national origin and denomination (or reject it as a fraud).

Quite a number of techniques have been developed for classification. I'll talk about a relatively new idea, based on



some ideas related to the hot new topic of "compressed sensing" and sparse (mostly zero) solutions to linear systems of equations.

At the end of the talk you should be able to distinguish a one dollar bill from a twenty.

If not, I'll refund your admission fee. Are twenties OK?

**Kurt Bryan, Ph.D.**

Rose-Hulman Institute  
of Technology



LIGHT REFRESHMENTS WILL BE PROVIDED

Friday, April 22, 2016  
4:00 pm – 5:00 pm  
Seidler Hall Room 220