



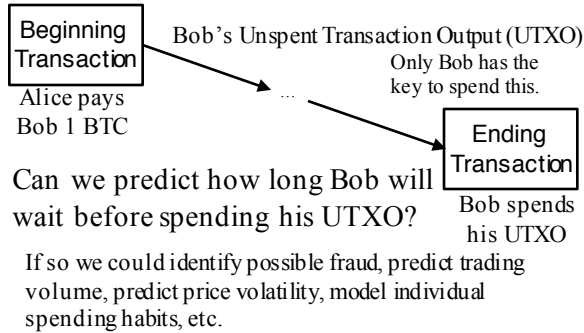
# Bitcoin UTXO Lifespan Prediction

Robert Konrad  
rkkonrad@stanford.edu

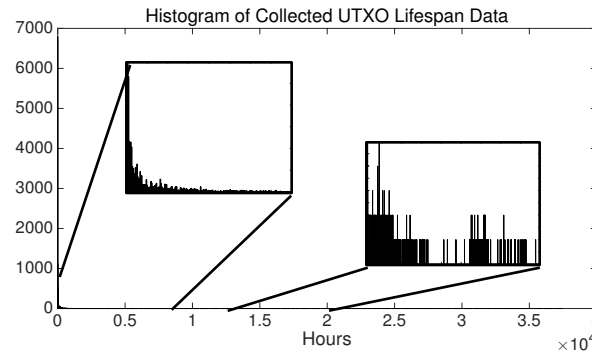
Stephen Pinto  
spinto2@stanford.edu

Stanford | ENGINEERING  
Electrical Engineering

## Motivating



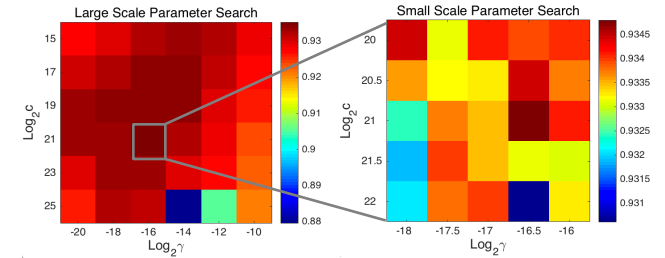
## Labelling



90% of collected lifespans are less than 315 hours but the distribution tails out to 4.5 years.

## Classifying

SVM with radial basis kernel



## Validating

Features

- Weekday of creation
- + Unix time of creation
- + Number of inputs to Begin TXN
- + Number of outputs from Begin TXN
- + Value of TXO in BTC
- + TXN volume on day of creation
- + Polynomial of BTC/USD rate
- + BTC/USD rate on day of creation

Accuracy

- 70.64%
- 92.45%
- 92.64%
- 92.66%
- 92.66%
- 93.62%
- 93.62%
- 93.59%

## Collecting

All Bitcoin transaction history is publicly available and services like CoinDesk and BLOCKCHAIN provide an interface to access data and statistics.

There are hundreds of millions of spent TXOs ready to serve as training and testing data. A `python` script queries BLOCKCHAIN's API at a polite rate to steadily collect info from the effectively infinite spigot.

The Features:

- Weekday of beginning transaction
- Unix time of beginning transaction
- Number of inputs to beginning transaction
- Number of outputs from beginning transaction
- Value of TXO
- Transaction volume on creation date
- BTC to USD exchange rate on creation date
- 2<sup>nd</sup> order polynomial fit parameters of previous week's BTC to USD exchange rate

