Deep Learning and Finance: Here We Go Again

Tim Savage, CBRE and NYU

Huy Vo, CUNY and NYU

Models from Theory

- Economics: Mincercian wage functions

- Finance: CAPM and Fama-French

- Computer science: Decision theory

Stochastic Modeling

- Economics and finance: Evaluation using regression

- Computer science: Prediction using almost anything

- Economics and computer science have a rich history of collaboration

APIs

- SAS's "proc reg" and Stata's "regress" are APIs.

- Google's Tensorflow and Apache's MXNet are APIs.

- Basic rules still apply: bad data; non IID.

Our Results

- Two workhorse finance models: deep learning performs no better than least squares.

- It has the benefit of being considerably more expensive computationally.

- Give the machines a break!

What's Past Is Prologue

- Economics and computer science at present is where economics and law was in the 1970's.

- Big data has come to commercial real estate. It will be wide and largely proprietary.

Further Reading

- Pedro Domingos

- Brad Efron

- Trevor Hastie

- Judea Pearl

- Herb Simon

- Rob Tibshirani

- Hal Varian