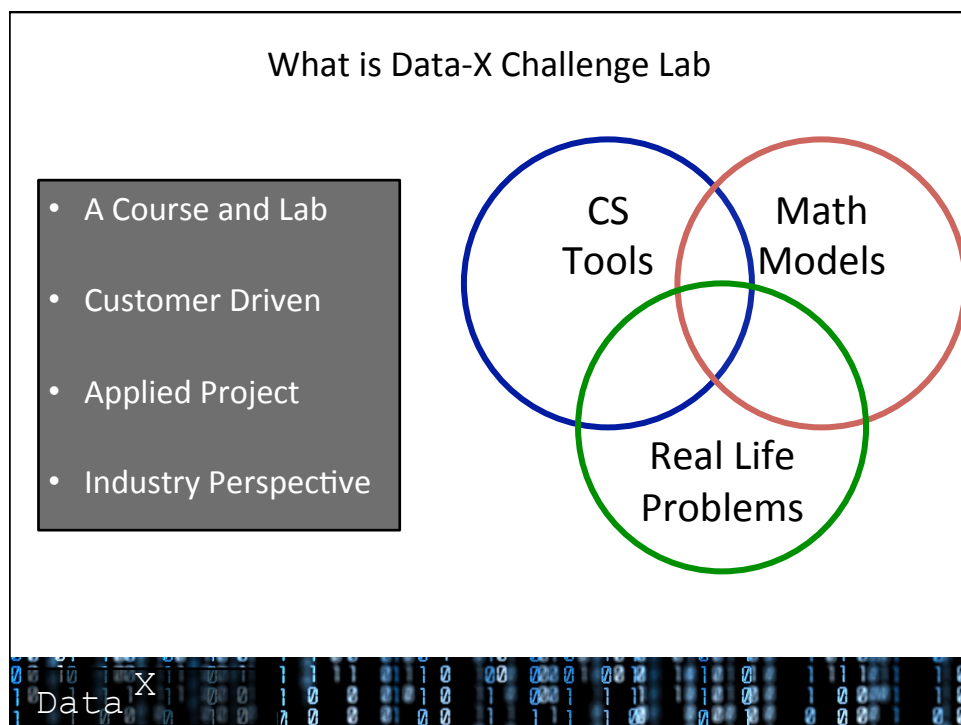


Data X

Data-X : A Course and Lab for Data, Signals, and Systems

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IEOR Emerging Area Professor Award, UC Berkeley



Data and Tools

Working with Data

- Collect
- Combine
- Store
- Use & Compute
- Analyze
- Visualize

Common Tools

- Python, Pandas, Numpy
- CKAN, Socrata, ETL, Tweepy, Twython, FB
- Excel, Google Sheets, openrefine
- SQL, JSON,
- Spark, Hadoop, Map Reduce
- NLP: NLTK, Textblob
- Café, Sci-kitlearn, TensorFlow
- Graph-X, tableau, Neo4J, D3, matplotlib
- Lucene, Solr



Quant Models: Signals, Systems, Networks

Quantitative Tool Box

- Signals: Discrete, Sampling, Spectral Analysis
- LTI Systems: Fourier, Z, FFT, Filters
- Prediction: Linear, Max. Likelihood
- Bayesian Decisions
- ML Classification, K-Means, KNN,
- Deep Learning
- Basic Control Models
- Network Models and Graphs: Shortest path
- Stochastic, Correlations, Markov Processes



Real Life Problems

Application Areas

- Industry 4.0
- Smart Cities
- Data and Health
- Finance and Fintech
- Transportation
- Networks and Communication
- Retail
- Security
- Data for Social Good

Data^X

How Data-X Challenge Lab works:

Insightful Story

Solution

Brainstorm Challenge
and Validate (4)

Propose
Low Tech
Solution (1)

Execute * Iterate
BMoE Reflections
Agile Spring (8)

Demo
or Die
(1)

Quant Model Lectures - Live

CS Tool Industry Lectures – Video Flip

Team: Tech Lead, Product Lead + 2-4 Experts

Data^X

