CENTER FOR OPTIMIZATION AND STATISTICAL LEARNING OSL

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Optimization and IEMS

- Optimization is one of the traditional strengths of IEMS
- It plays a key role in the development of intelligent systems
- Example: training statistical models in machine learning
- Nocedal collaboration with Google 2009-2015.

OSL

- Founded in 2015. Director: Dave Morton
- Joint venture with EECS
- Build on the strengths and reputation of IEMS (ranked top 5)
- Broad membership from IEMS and parts of EECS
- Develop algorithms for data science applications
- Focus on high dimensional predictors and large data sets

Organization and goals

- Three basic components
  - Optimization
  - Statistics
  - Applications

- Optimization (models, methods, software)
- Statistical Learning (models, methods, software)
- Applications in intelligent systems

Applications in Intelligent Systems

- Recommendation systems
- communication network analysis
- smart grid design & operation
- healthcare systems engineering

- speech recognition
- web search engines
- music/audio retrieval and processing
- image and video processing
- security