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Some Challenging Problems in Computer Vision

Introduction

- Present
 - Institute for Infocomm Research
- Past
 - B.S./M.S., CMU, 2005
 - Ph.D. Stanford, 2013
- Interests
 - Computer vision
 - Deep Learning
 - Data Compression
 - Image and Video Retrieval

Some hard problems

- Large-scale Video Retrieval
 - Challenge: Performance drops rapidly as database size increases
 - Ideas: CNNs, novel representations
- Image Classification with 10x smaller models
 - Challenge: Models are getting larger and larger
 - Ideas: Compression / Novel architectures
- Image Classification with 10x fewer samples
 - Challenge: Unsupervised deep learning not working well
 - Ideas: Generative Adversarial Networks (promising approach)
- Solving a problem on the DGX-1
 - Ideas: 170 TFLOPS of raw computing power for the 10k ImageNet !