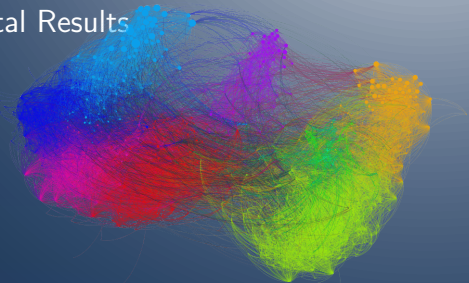# Graphs in Machine Learning

Online SSL Applications

Face Recognition and Experimental Results

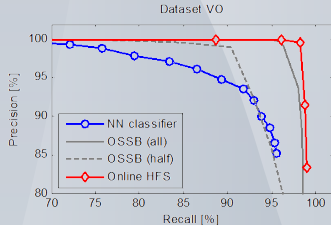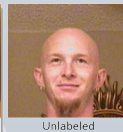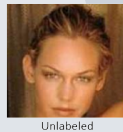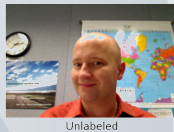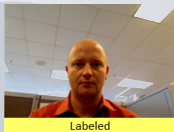Michal Valko

Inria & ENS Paris-Saclay, MVA

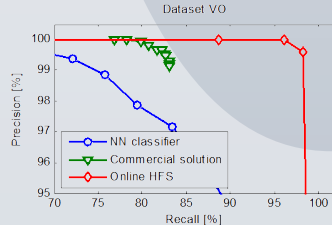Partially based on material by: Branislav Kveton,
Mikhail Belkin, Jerry Zhu

SSL with Graphs: Some experimental results

- One person moves among various indoor locations
- 4 labeled examples of a person in the cubicle

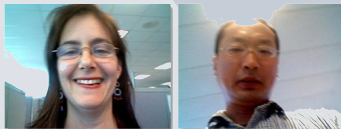Labeled · Unlabeled · Unlabeled · Unlabeled · Unlabeled

Online HFS outperforms OSSB (even when the weak learners are chosen using future data)

Online HFS yields better results than a commercial solution at 20% of the computational cost
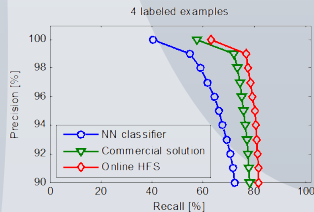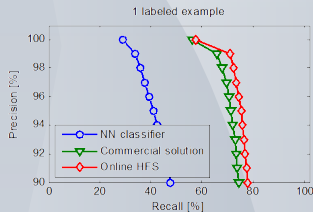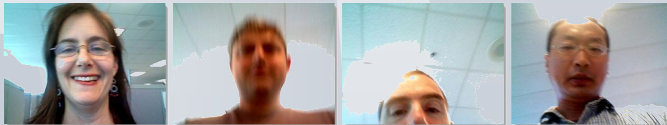
SSL with Graphs: Some experimental results

- **Logging in** with faces instead of password
- Able to **learn** and improve

SSL with Graphs: Some experimental results

- 16 people log twice into a tablet PC at 10 locations

Online HFS yields better results than a commercial solution at 20% of the computational cost

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https://misovalko.github.io/mva-ml-graphs.html