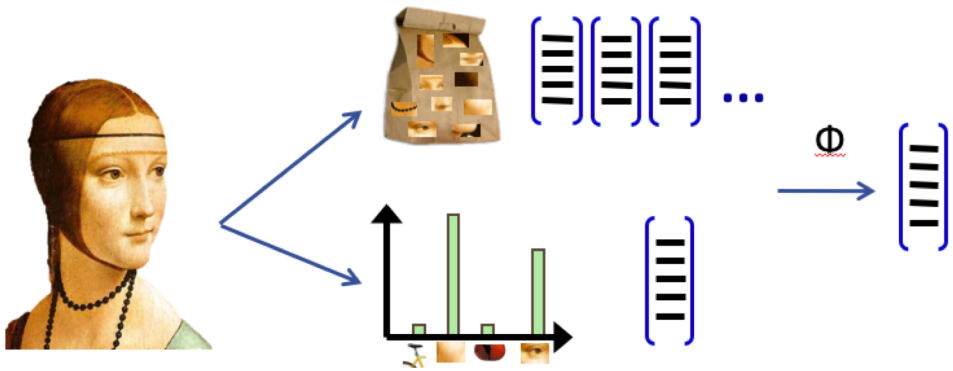
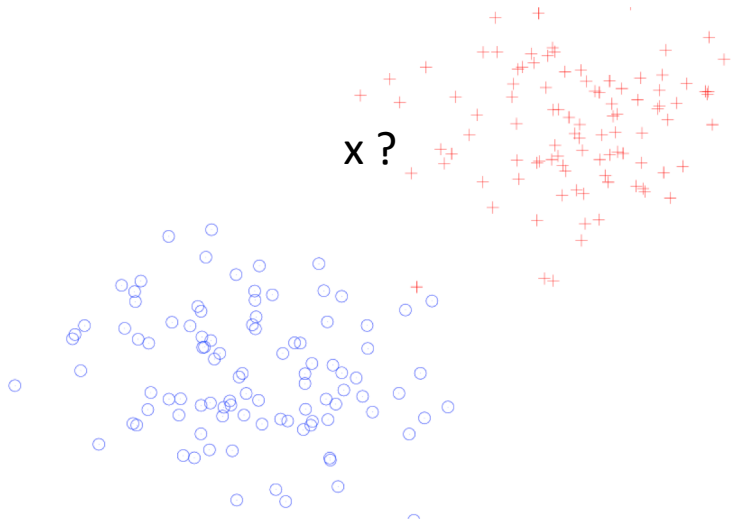
Classification- Visual Recognition

1. Introduction
2. Supervised learning
3. Perceptrons
4. SVM classifiers
5. Datasets and evaluation

Classification pipeline

Image => vector => class ?





Supervised learning

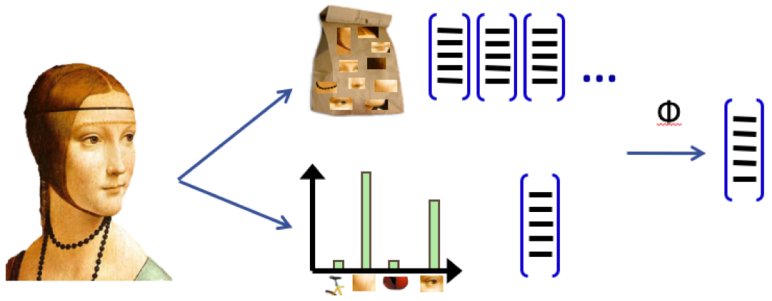
Loss functions
Optimization framework: ERM principle
Constraints for optimization
Gradient descent formal algo
Generalization
Regularization

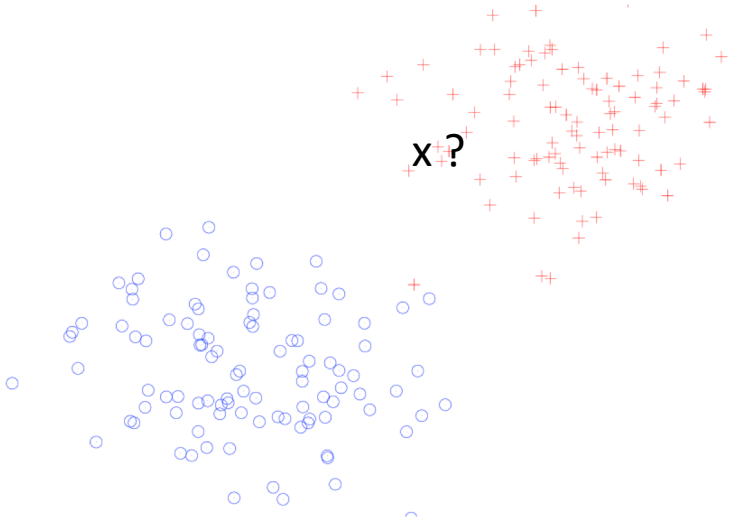
=> all done in course

Classification pipeline

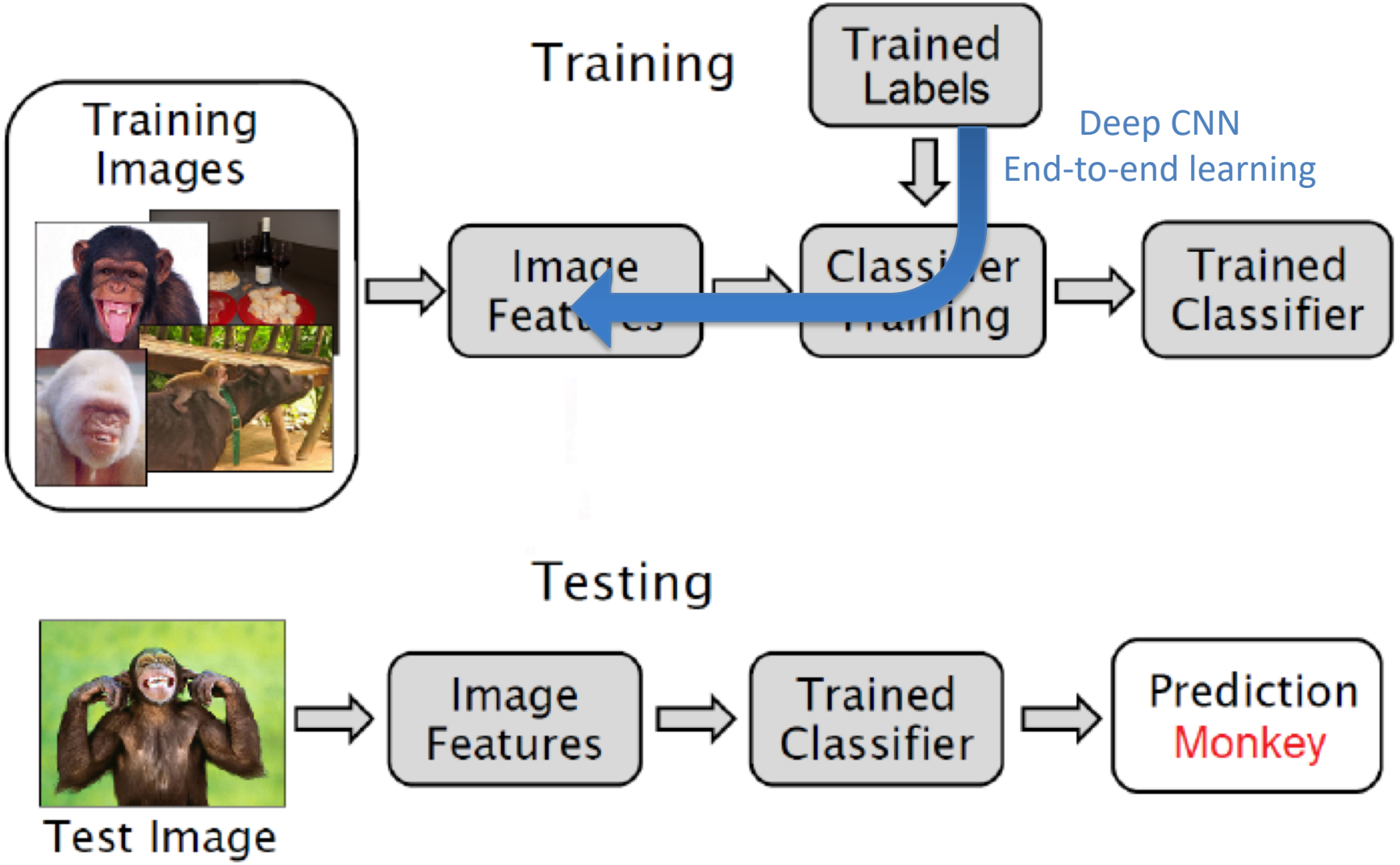
To summarize:

- Theory: Risk minimization, Regularization, Generalization
- Supervised Learning, Learning from examples: ERM
  - To be explained: training/validation/test sets
- Algos:
  - k Nearest Neighbors
  - **(linear/kernel-based) SVM classifiers**
  - Learning binary / Multiclass classifiers
  - **Neural Nets, Deep architectures**





Basic Classification pipeline



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