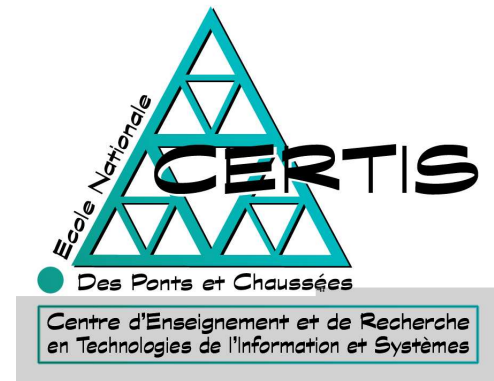
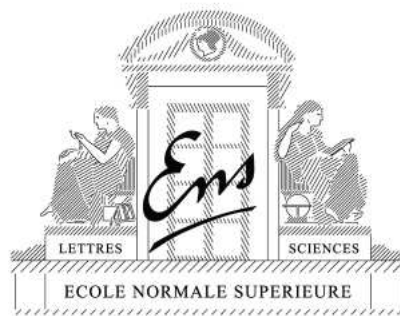


Supervised learning for computer vision:

Theory and algorithms - Introduction

Francis Bach¹ & Jean-Yves Audibert^{2,1}

1. *INRIA - Ecole Normale Supérieure*
2. *ENPC*



ECCV Tutorial - Marseille, 2008

Supervised learning for computer vision: Theory and algorithms

Everything you wanted to know about machine learning
(but were afraid to ask)

Supervised learning for computer vision: Theory and algorithms

Everything you wanted to know about machine learning
(but were afraid to ask)

- Goal of the tutorial:
 - Provide unified view of supervised learning
 - Machine learning perspective!
- Intended audience: light **and** heavy users of these techniques
- Many references to further reading
- Please ask questions!

Course Outline

1. Theory

- Probabilistic model and universal consistency
- Local averaging methods
- Empirical risk minimization

2. Algorithms

- Losses for particular machine learning tasks
- Regularization by Hilbert norms (kernel methods)
 - Algorithms
 - Kernel design
- Regularization by sparsity-inducing norms
 - ℓ_1 -norm regularization
 - Multiple kernel learning