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CS 714: Machine Learning

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This introductory course on machine learning will give an overview of many concepts, techniques, and algorithms in machine learning that are now widely applied in scientific data analysis, data mining, trainable recognition systems, adaptive resource allocators, and adaptive controllers. The emphasis will be on understanding the fundamental principles that permit effective learning in these systems, realizing their inherent limitations, and exploring the latest advanced techniques employed in machine learning.

Topics include:
- Classification and linear regression
- Support vector machines
- Ensemble methods, boosting algorithms
- Learning theory: bias-variance, uniform convergence, VC dimension
- Mixtures models, EM algorithm and hidden Markov models
- Structured prediction

Lectures

Time: Tuesday/Thursday 8:00 pm -9:15 pm; Location: Creative Arts A230

Instructor

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Office hours: Tuesday/Thursday 2:00PM-3:30PM

Textbook

Bishop, C.  
Pattern Recognition and Machine Learning  
Hastie, T., Tibshirani, R. and Friedman, J.
*The Elements of Statistical Learning: Data Mining, Inference and Prediction*

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