Clasificadores Probabilísticos en Aprendizaje Automático
Profesor: Daniel Ramos Castro

Nota: El curso será dictado en Español pero el material de lectura y slides pueden estar en Inglés

Summary
Probabilistic classifiers are defined as the ones to output not only a decision via a class-label, but also a probability distribution over the classes. This type of classifiers has attracted interest in areas where not only good accuracy is necessary, but also a reliable calculation of the probability of the classes, including computer vision, natural language processing, forensic science, medical decision support or language recognition. In this course, we will explore probabilistic classifiers in depth. We will review fundamental topics about these type of classifiers (probability and decision theory, calibration, etc.). Moreover, we will present algorithms to achieve good probabilities with classifiers, either in an intrinsic way (i.e., the classifier directly computes good probabilities) or extrinsically (i.e., the classifier outputs are transformed into good probabilities). All the topics will be addressed with different application examples in some of the aforementioned fields.

Brief Index
- Probabilistic classifiers
- Calibration measurement
- Bayesian inference
- Intrinsic calibration
- Extrinsic calibration
- Bayesian neural networks.

Required Background
Computer scientists or engineers on areas related to Information and Communication Technologies. Some mathematical background is needed, at the level of a 4-year university degree on an affine topic. In particular, basic notions on probability theory and calculus are required, and basic notions on pattern recognition and machine learning are recommended. Some basic programming skills are also required, in languages such as Python and Matlab(TM).