Mathematics / Applied Mathematics / Computer Science
Planning Group Members: Tomoyuki Higuchi and Alois Knoll

Machine Learning and Prediction

Speaker:

Bernhard Schoelkopf, Max Planck Institute for Biological Cybernetics, Tuebingen

Kernel methods and applications

In the 90s, a new type of algorithm for learning from observations was designed, based on results from statistical learning theory: the Support Vector Machine (SVM). This gave rise to the development of a new class of theoretically elegant learning machines which use a central concept of SVMs --- kernels --- for a number of different learning tasks. Kernel machines now provide a modular and simple to use framework that can be adapted to different tasks and domains by the choice of the kernel function and the base algorithm, and they have been shown to perform very well in a wide range of problems. The talk will describe the basic ideas as well as some applications (e.g., from computer vision and computer graphics).

Further reading:
Schoelkopf, B. and A.J. Smola: Learning with Kernels. MIT Press, Cambridge, MA (2002)
http://www.kyb.mpg.de/publication.html?user=bs&select_year=all