



Fakultät für Ingenieurwissenschaften und Informatik

Informatik-Fachvortrag

Donnerstag, den 5. November 2009, 16 Uhr c.t.
Universität Ulm, Oberer Eselsberg
Helmholtzstr. 18, Raum 220

Herr Prof. Dr. Horst Bunke

Institute of Computer Science and Applied Mathematics, Universität Bern

spricht zum Thema

Classification and Clustering of Graphs based on Dissimilarity Space Embedding

Recently, an emerging trend of representing objects by graphs can be observed. As a matter of fact, graphs offer a versatile alternative to feature vectors in many subfields of intelligent information processing, including pattern recognition, machine learning, and data mining. However, the domain of graphs contains almost no mathematical structure, and consequently, there is a lack of suitable methods for graph classification, clustering and related tasks.

In this talk, we propose a general approach to transforming graphs into n -dimensional real vector spaces by means of graph dissimilarity. As a matter of fact, this approach makes all algorithmic tools originally developed for feature vectors instantly available to graphs. In particular, it leads to a novel family of graph kernels. Moreover, the embedding procedure allows one to generate, in a straightforward way, combined systems for classification and clustering that involve multiple experts. With various experimental results we demonstrate the robustness and flexibility of this new approach and show that it outperforms standard graph classification and clustering methods on several graph data sets of diverse nature.

Es laden ein die Dozenten der Fakultät für Ingenieurwissenschaften und Informatik.

Ulm, den 22.10.2009

gez. Prof. Dr. G. Palm