

A U S H A N G

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

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D I S P U T A T I O N

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[WebEx](#)

Disputation über die Doktorarbeit von

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Thema der Dissertation:

Dynamical Aspects of the Evolution of Segmental Duplications in the Human Genome

Thema der Disputation:

The Support Vector Machines (SVMs) and the kernel method

Die Arbeit wurde unter der Betreuung von **Prof. Dr. M. Vingron** durchgeführt.

Abstract: The support vector machine (SVM) is a widespread method applied for classification tasks. There are several characteristics of the method which deserve a special interest. One of them is a good interpretability of the SVM, especially, when we consider it geometrically. Also some generalizations can be added to the method in order to make it applicable to a broader set of tasks, including multiclass classification problems, regression, and the identification of non-linear decision boundaries. In case of SVM, the use of the so-called "kernel trick" made support vector machines applicable for various classification tasks where classes are non-linearly separable in the original feature space. Finally, to understand the SVM one has to study concepts from linear algebra and optimization theory which have broad applications in other fields of mathematics.

I will focus on the mathematics behind the method, its interpretation and parameters optimization. I will also discuss ways how SVM can be applied to multiclass classification tasks, how kernelization can be implemented into SVMs and advantages it brings.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. M. Vingron