

FREIE UNIVERSITÄT BERLIN  
Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

## DISPUTATION

**Mittwoch, 20. Dezember 2017, 16.00 Uhr**

**Ort: SR 006, Takustr. 9, 14195 Berlin**

**Disputation über die Doktorarbeit von**

**Herrn Fernando Wario Vázquez**

**Thema der Dissertation:**

**A Computer Vision Based System for the Automatic Analysis  
of Social Networks in Honey Bee Colonies**

**Thema der Disputation:**

**BeesBook: Automatic long-term tracking  
of individual activity in honey bee colonies**

Die Arbeit wurde unter der Betreuung von **Prof. Dr. R. Rojas** durchgeführt.

Abstract: The collective behavior of the honey bee and its highly efficient foraging ecology have captivated humans for centuries. In recent decades, the analysis of the collective behavior of honey bee colonies has become increasingly quantitative, requiring extensive data sets describing the individual behavior of colony members. These data sets must often be created manually - a time consuming and cumbersome activity. Consequently, behavioral data sets are usually restricted to small subsets of the colony's life, whether this regards to time, space or animal identity which in turn reduces their significance. The BeesBook system is a computer vision-based solution for the automatic tracking of behavioral activity in honey bee colonies. The system comprises recording and storage of high-resolution images, computer vision software for identifying uniquely marked bees and automatic detection and decoding of communication dances. Unlike any other system of its kind, the BeesBook system is able to track: Location, orientation, and identity of every colony member inside the hive, 24 hours a day over several weeks. By automating the data acquisition process, the BeesBook system opens the door to more sophisticated, inclusive and significant studies.

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. R. Rojas