

## FREIE UNIVERSITÄT BERLIN Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

# DISPUTATION

**Donnerstag, 19. März 2015, 14.00 Uhr**

**Ort: SR 006, Takustraße 9, 14195 Berlin**

**Disputation über die Doktorarbeit von**

**Frau Shuiying Wang**

**Thema der Dissertation:  
State Lattice-based Motion Planning  
for Autonomous On-Road Driving**

**Thema der Disputation:  
Motion Planning for Autonomous On-Road Driving  
and Sensor Simulation**

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

**Abstract:** According to [1], human error is estimated to be the main factor for 75% of all ground vehicle crashes. Autonomous vehicles without error-prone maneuvers of human drivers are expected to greatly reduce the amount of ground vehicle accidents. Other benefits that autonomous vehicles can bring to us include time and energy efficiency, comfort, productivity increase, etc.

In on-road traffic scenarios, a motion planner capable of generating flexible and robust trajectories within short planning cycle is necessary for autonomous vehicles to perform sophisticated and reliable driving behaviors. The motion planner described in this talk is intended for achieving these goals. The simulation experiments for evaluating the proposed motion planner use simulated laser scanners and radars to increase their realistic level. This talk will also present algorithms for simulating those sensors based on shader programming.

*References:*

[1] Hwei Peng. Ground vehicle active safety systems. In The Fifth annual Conference of the Automotive Research Center.

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