

# A U S H A N G

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## FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

# D I S P U T A T I O N

**Montag, 26. November 2018, 16:15**

**Ort: Seminarraum 032**

(Fachbereich Mathematik und Informatik, Arnimallee 6, 14195 Berlin)

**Disputation über die Doktorarbeit von**

**Frau Evgenia Youett**

Thema der Dissertation:

**Adaptive Multilevel Monte Carlo Methods for Random Elliptic Problems**

Thema der Disputation:

**Artificial neural networks: a mathematical perspective**

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

Abstract:

Artificial neural networks have become one of the most powerful tools used in machine learning which applications include image classification, speech recognition, solution of PDEs etc. A neural network can be viewed as a class of functions with a specific compositional structure, parameterized by a set of parameters. If one assumes that the process in a particular application can be described by a mathematical function, a member of the class obtained by varying the parameters can serve as an approximation to this function. In this talk we review classical results on approximation properties of feedforward neural networks going back to the 1990s together with novel results on approximation with sparsely connected deep neural networks.

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. Kornhuber