



Technische Universität München



**Fachgebiet  
Kontinuumsmechanik**

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Boltzmannstraße 15  
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## Bachelor's Thesis

### **Bayesian Learning of Models for Classification**

The goal in classification is to assign a given input  $\mathbf{x}$  to one of  $K$  discrete states (classes). The input space is thereby divided into *decision regions* whose boundaries are called *decision boundaries*.

At the chair Kontinuumsmechanik, we develop a code for a Bayesian treatment of the Reduced Basis Methodology for Parametrized Partial Differential Equations. One component of this object-oriented software is a module for classification tasks. In this work, the existing code will be enhanced by further Classification methods and the implementation will be validated against available example solutions.

The scope of this thesis is to:

- get familiar with the methods of Bayesian Classification
- extend an existing MATLAB code with a new module for classification
- run and analyse own examples

#### **Literature**

*Bishop, Christopher M.:* Pattern Recognition and Machine Learning (Information Science and Statistics). 1 : Springer, 2007.

#### **Requirements:**

- Basic Probability
- Basic knowledge of Machine Learning Techniques
- Basic Programming skills (MATLAB)
- Strong interest in Bayesian Machine Learning Techniques

Betreuer und Kontakt:

Language:

German or English

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Begin:

variabel