



DEPARTMENT OF INFORMATICS

TECHNISCHE UNIVERSITÄT MÜNCHEN

Master's Thesis in Informatics

# **Neural Network Hyperparameter Optimization with Sparse Grids**

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## **Parameteroptimierung von neuronalen Netzen mit dünnen Gittern**

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Submission Date:	



I confirm that this master's thesis in informatics is my own work and I have documented all sources and material used.

Munich,

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# Abstract

# **Zusammenfassung**

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# 1 Introduction



## **2 Theoretical Background**

### **2.1 Sparse Grids**

#### **2.1.1 Numerical Approximation of Functions**

- Function representation on full grid
- Multiple dimensions

#### **2.1.2 Adaptive Sparse Grids**

- Different types of sparse grids
- Function representation on sparse grid
- multiple dimensions

### **2.2 Hyperparameter Optimization**

- Definition Hyperparameters
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#### **2.2.1 Random Search**

#### **2.2.2 Bayesian Optimization**

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## 3 Implementation

## 4 Results

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