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as part of the course

**Big Data & Data Science**

on the subject

**Predicting Music Genres based on Spotify Song Data using a Gradient  
Boosting Algorithm**

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# 1 Einleitung

Dies soll eine  $\text{\LaTeX}$ -Vorlage für den persönlichen Gebrauch werden. Sie hat weder einen Anspruch auf Richtigkeit, noch auf Vollständigkeit. Die Quellen liegen auf Github zur allgemeinen Verwendung. Verbesserungen sind jederzeit willkommen.

## 1.1 Problem Definition

## 1.2 Goal

## 1.3 Structure

## **2 Fundamentals**

### **2.1 Basic Concepts of Big Data**

#### **2.1.1 Supervised Learning**

#### **2.1.2 Unsupervised Learning**

#### **2.1.3 Reinforcement Learning**

#### **2.1.4 Machine Learning Algorithms**

### **2.2 Gradient Boosting**

### **2.3 Cross Industry Standard Process for Data Mining**

### **2.4 Application Programming Interfaces**

### **2.5 Basic Concepts of Music Theory**



## **3 Implementation**

### **3.1 Data Collection**

### **3.2 Data Understanding**

### **3.3 Data Preparation**

### **3.4 Modeling**

### **3.5 Evaluation**

## **4 Fazit**

## Appendix

### Appendix 1: Beispielanhang

Dieser Abschnitt dient nur dazu zu demonstrieren, wie ein Anhang aufgebaut sein kann.







#### Appendix 1.1: Weitere Gliederungsebene

Auch eine zweite Gliederungsebene ist möglich.

### Appendix 2: Bilder

Auch mit Bildern. Diese tauchen nicht im Abbildungsverzeichnis auf.

**Figure 1: Beispielbild**

Name	Änderungsdatum	Typ	Größe
 abbildungen	29.08.2013 01:25	Dateiordner	
 kapitel	29.08.2013 00:55	Dateiordner	
 literatur	31.08.2013 18:17	Dateiordner	
 skripte	01.09.2013 00:10	Dateiordner	
 compile.bat	31.08.2013 20:11	Windows-Batchda...	1 KB
 thesis_main.tex	01.09.2013 00:25	LaTeX Document	5 KB

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Düsseldorf, 11.1.2022

(Location, Date)

A handwritten signature in black ink, consisting of a large, stylized 'H' followed by a series of loops and a final flourish.

(handwritten signature)