Your Master plan: Applied AI for Digital Production Management

Applied AI for Digital Production Management, M.Eng.

PROGRAMME CONTENTS

- Machine Learning & Deep Learning
- Machine Vision
- Advanced Statistical Method & Optimization
- Digital Tools for Production
- Digital Production Systems

- Advanced Intelligent Systems
- Quality and Sustainability
- Cross Culture Development for Engineers
- Big Data - NLP
- Two Course Project
- Two Case Study Project

COURSE OF STUDY

- Duration: **3 semesters**
- Start: **winter semester & summer semester**
- Teaching language: **English**
- Location: **Campus Cham, Cham**
- **Applied & interactive teaching style**
- **Personal support, small groups and close ties with professors**

ENTRY REQUIREMENTS

- Bachelor degree in the fields of **industrial engineering, mechatronics, mechanical engineering, production technology, electrical engineering, electronics engineering, computer engineering** or a degree that is equivalent to such a university degree.

- Admission test (**online or on-site**)

- **Language requirements:**
  - **B2 English certificate** (if English is not your first language)
  - **A2 German** (if German is not your first language)

Is this programme suitable for you?

Yes, if…

….you want to develop your expertise in **machine and deep learning, machine vision, statistical methods and optimization, advanced intelligent system, production intelligent system ….**

…you want to study in a **practical way.**

…you are motivated to shape the **digital transformation** of **industrial production** through innovation and technology.

…you have a Bachelor's degree in **Industrial Engineering, Production Technology, Mechatronics, Mechanical, Electrical and Electronics, Computer, technical physics** or related fields.

…you are open to **work hands-on** in **international** groups.

…you enjoy **solving technical production problems using digital methods** via case studies and hands-on projects. And openness to gain new skill sets by interacting with interdisciplinary teams.

…you are interested in pursuing a career in **development, production planning, quality management or technology management in manufacturing** or high-tech companies.
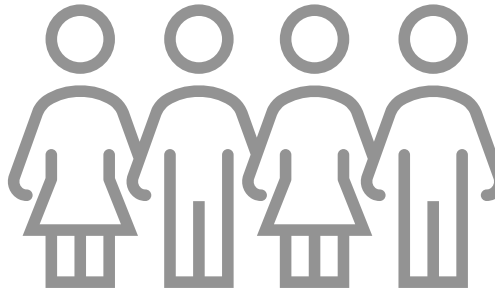
Program Highlights

- The study programm places a great emphasis on **practical application**. Through **numerous case study projects and course projects with industrial experts,** students can transform the gained theoretical concepts to real-world solutions (23 ECTS).

- The **cross culture development for engineer course supports** students to gain insights about the **german culture, different interacting prespectives, working in team, problem solving. Visiting industrial companies is the main attraction to expand your horizon**.

- German lesson support you with language skills to kick-start your prospective **future career in Germany as well as day to day needs**.

- Small study groups provide you with **personal support** und **intensive teaching**.

Campus Cham Highlights

- The programme is hosted at **Campus Cham** in the charming **town of Cham** located in the beautiful **Bavarian Forest**.

- Find out more: **www.th-deg.de/campus-cham-studies**

Highligts: IT-Labor

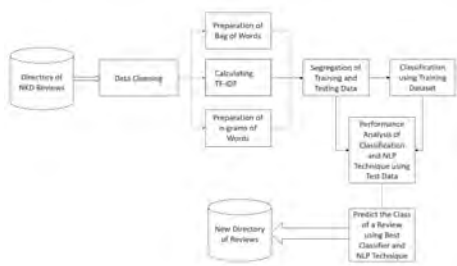*Anwendung moderner Softwarelösungen in Forschung und Lehre*:*

- ERP & MES (SAP, MPDV, Tulip)

- IoT-basierte Anwendungen (Motion Mining, MQTT Broker, Node-RED)

- Simulation in Produktion & Logistik (Anylogic, NVIDIA Omniverse)

- Datenmanagement & Business Analytics (PowerBI, Knime)

- Moderne Datenanalysen & datenbasierte Automatisierung (ARIS Process Management, ARIS Process Mining, UIPath)

- Anwendung digitaler Technologien in miniaturisierter Modellfabrik

*) Weitere Anwendungen in anderen Laboren (z.B. AutoCAD, Ansys, …)

Case Study/Course Study :
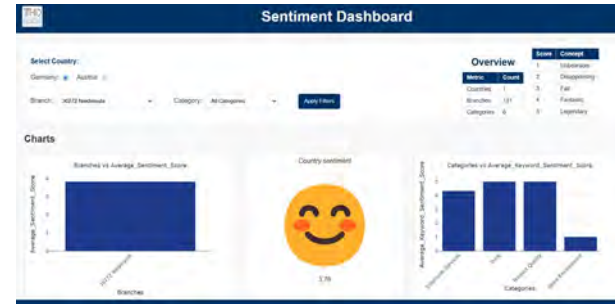# Google review analysis using NLP and LLaMa Framework

Keywords – **Python, natural languange processing (NLP) , web scraping, LLaMA, sentiment analysis, and GUI**

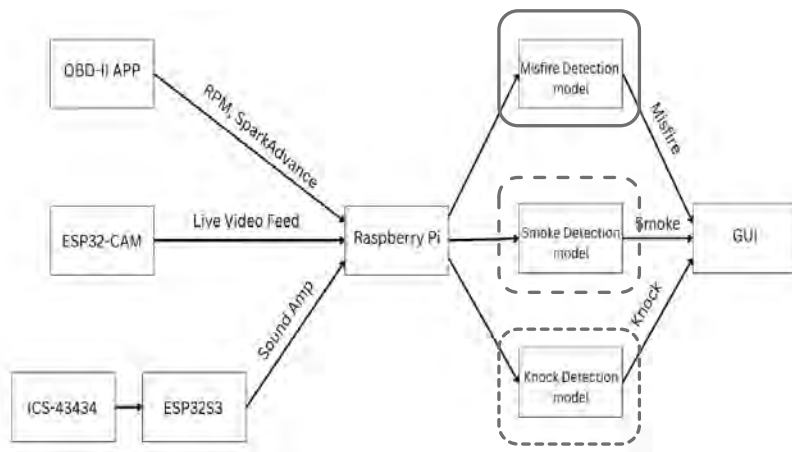Methodology
Flow Chart

Web Scraping Data
using NLP

Sentiment Dashboard
Result based on LLaMa
framework

Sentiment Dashboard
Result based on
LLaMa framework

Master Thesis: mit Fachbereich
TinyML based Real-time Engine Health Monitoring

System Architecture of Engine Health monitoring system
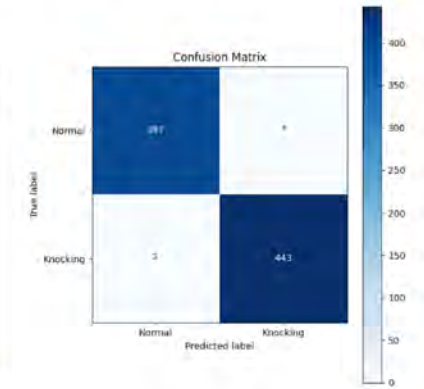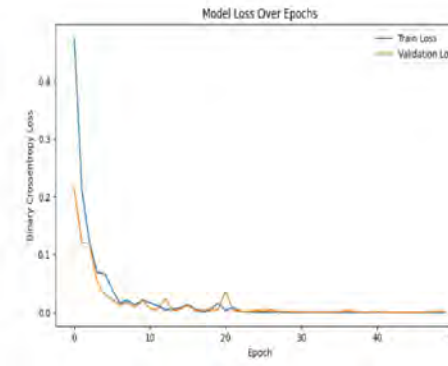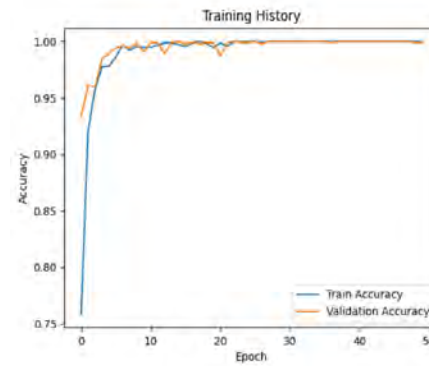
Knocking Detection: Accuracy, Loss curves and Confusion matrix

Parameter	Trained Model	TFLite Model
Accuracy	98.5 %	97.4 %
Inference speed	98ms per sample	18ms per sample
Model size	514KB	45KB

TinyML Model Performances

Applied AI for Digital Production Management – what's next?

The programme prepares you to take on **key roles** in a **wide variety of positions** in **different areas** depending on your personal interests and background.

Job profile

- AI Development & production
- Production planning & management
- Quality management
- Project management
- Industrial engineering
- Application of AI in production
- Research & teaching

Areas and industries

- Automotive & Mobility
- Logistics and supply chain
- Electronics and high-tech industries
- Companies undergoing digital transformation in production and manufacturing

Helpful soft skills

- Communication
- Problem-Solving
- Teamwork
- Analytical thinking
- Adaptability

Voices of DIT

"

My passion for production management, particularly in the areas of supply chain management, logistics, data management, quality and sustainability management, and my curiosity about how AI influences these domains. This motivated me to purse a master's degree with diverse specialization. When I came across the master program "Applied AI for Digitial Production Management" offered by THD-Campus Cham, I knew it was the perfect opportunity to realize my academic and professional goals.   Studying at Campus Cham has been truly rewarding experiences – from beautiful and peaceful location to incredible expertise of highly knowledgeable professors. The diverse community of classmates from around the world has enriched my learning experiences, allowing me to exchange ideas and perspectives.

"

Ratan Bharadwaj Vedula
Student of Master Applied AI for Digital Production Management

Voices of DIT

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My background is in Industrial Engineering and after several years working as an automation engineer in a global manufacturing company, I discovered my passion for production optimizing through automation and applied artificial intelligence (AI). When I learned about the master's program "Applied AI for Digital Production Management", THD-Campus Cham, Germany offering comprehensive knowledge, I knew it was the perfect next step for me. Studying at Campus Cham has been an inspiring journey, allowing me to bridge engineering and AI while collaborating with international peers on real industrial projects.

Van Thuy Cuc Dang
Student of Master Applied AI for Digital Production Management

Voices of DIT

" I was interested in studying a master's degree abroad because I wanted to acquire new experiences that would help me grow not only in my career but also as a person. As a student in the "Applied AI for Digital Production Management" master's program at THD-Campus Cham, I learned diverse courses through case studies which boosted my career. I had many exciting experiences and new challenges: from meeting new friends and discovering German culture to working on AI projects and even trying to understand a few phrases in Bayrisch. "

Marbell Palechor Alarcon
Student of Master Applied AI for Digital Production Management

Voices of DIT

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After completing my Bachelor's in Venezuela, I wanted to embrace a greater challenge and explore cutting-edge industry trends. Therefore, I decided to pursue my Master's in Germany. At the DIT, I learned the AI fundamentals, understood its societal impact, and gained hands-on experience on its applications. Moreover, adapting to a new system, language, and culture, while thriving in an environment that encourages initiative and innovation, has made this experience highly rewarding.

Orlando Manrique
Student of Master Applied AI for Digital Production Management

Would you like to find out more?

Would you like more detailed information about the programme, or do you have any questions?

You are very welcome to contact **Dr. –Ing. Sunil Survaiya.**

Simply make an appointment at sunil.survaiya@th-deg.de.

Additional Information:

Programm enquiries: studium-cham@th-deg.de

Admission test enquiries: master-mdm-exam@th-deg.de