

# **BACHELOR PAPER**

Thesis submitted in fulfillment of the requirements for the degree of Bachelor of Science in Engineering at the University of Applied Sciences Technikum Wien - Degree Program Business Informatics

## **Development and Evaluation of a Hybrid Approach for Automated Error Detection and Classification in LoRaWAN-Based IoT Data Pipelines Using Log Data**

By: Emir Hamulic

Student Number: wi23b168

Supervisor: Rohatsch Lukas, MSc

Wien, January 17, 2026

# Declaration

"As author and creator of this work to hand, I confirm with my signature knowledge of the relevant copyright regulations governed by higher education acts (see Urheberrechtsgesetz / Austrian copyright law as amended as well as the Statute on Studies Act Provisions / Examination Regulations of the UAS Technikum Wien as amended).

I hereby declare that I completed the present work independently and that any ideas, whether written by others or by myself, have been fully sourced and referenced. I am aware of any consequences I may face on the part of the degree program director if there should be evidence of missing autonomy and independence or evidence of any intent to fraudulently achieve a pass mark for this work (see Statute on Studies Act Provisions / Examination Regulations of the UAS Technikum Wien as amended).

I further declare that up to this date I have not published the work to hand nor have I presented it to another examination board in the same or similar form. I affirm that the version submitted matches the version in the upload tool."

Wien, January 17, 2026

Digital Signature

# Kurzfassung

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

**Schlagworte:** Schlagwort1, Schlagwort2, Schlagwort3, Schlagwort4

# Abstract

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

**Keywords:** Keyword1, Keyword2, Keyword3, Keyword4

# Contents

<b>List of Figures</b>	<b>1</b>
<b>List of Tables</b>	<b>2</b>
<b>Documentation table of AI-based tools</b>	<b>3</b>
<b>List of Abbreviations</b>	<b>4</b>
<b>A Anhang A</b>	<b>5</b>
<b>B Anhang B</b>	<b>6</b>

# List of Figures

## List of Tables

# Documentation table of AI-based tools

AI-Based Tool	Intended Use	Prompt, Source, Page, Paragraph...
DeepL Translate	Translation of an article in English	Source (XXX), Chapter X on page X-X
Chat GPT 4.0	Grammar and Spelling	"Please list issues with spelling and grammar in the following text: ..." Entire document

# List of Abbreviations

**ABC** Alphabet

**WWW** world wide web

**ROFL** Rolling on floor laughing

## A Anhang A

## B Anhang B