

AI4ED: Augmented Intelligence for the Detection and Support of Eating Disorders

Degree programme : Master of Science in Engineering
Thesis advisor : Prof. Dr. Mascha Kurpicz-Briki
Expert : Dr. Elena Nazarenko

Eating disorders are a significant mental health concern. This study uses machine learning (ML) models and natural Language processing (NLP) techniques to detect eating disorders in German and French texts. Our research highlights the importance of data quality and optimization in effective model building.

Introduction

Integrating NLP and ML in clinical psychology offers advanced diagnostic tools. Traditional assessments, often based on self-reported questionnaires and clinical interviews, can overlook the emotional depth and nuances present in patients' communications. Automated text analysis, on the other hand, can significantly improve accuracy and efficiency. This study focuses on detecting eating disorders (EDs) through machine learning, analyzing German and French social media texts.

Data Collection

From YouTube, we compiled anonymized German and French YouTube comments. Using specific keywords, we identified relevant videos and extracted the associated data. Three annotators labeled the data using a six-label annotation framework based on the ICD-10.

Results

For the German dataset, using back translation and a supervised ensemble of support vector machine classifiers, we achieved an average F1-score of 0.83. For the French dataset, downsampling the majority class and optimizing hyperparameters through a grid search led to an average F1-score of 0.91.



Ghofrane Merhbene
Data Science
Ghofranemer@gmail.com

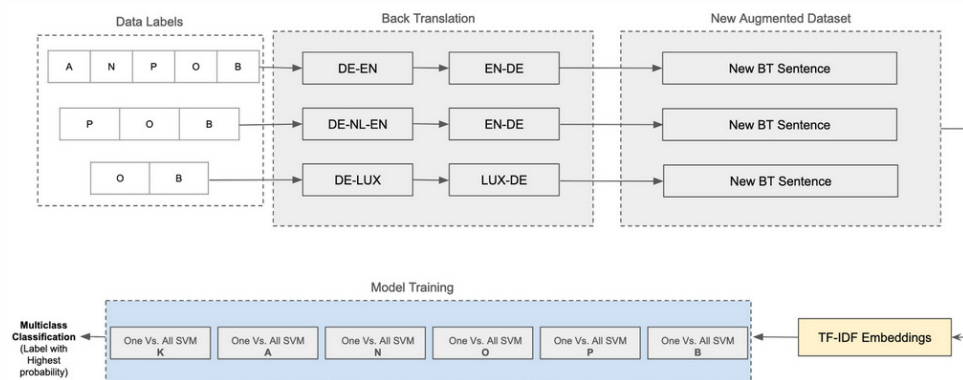


Fig. German Experimental Setup

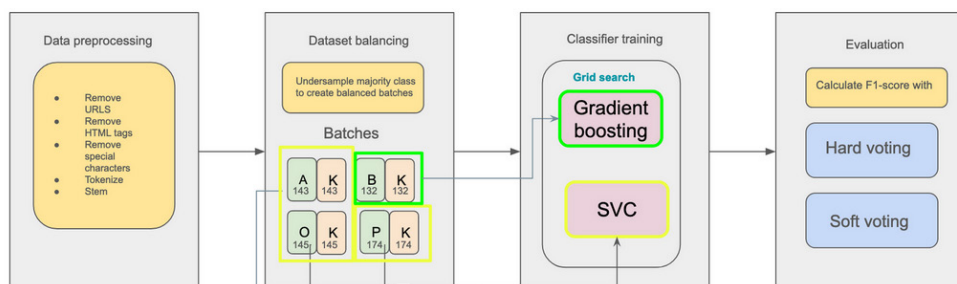


Fig. French Experimental Setup