CHAPTER 54

INFORMATICS & COMMUNICATION

Doctoral Theses

01. VAJROBOL (Vajratiya)
Transformers-Driven Approach for Detection of Depression, Cyberbullying and Speaker Identification in Low-Resource Multilingual Contexts.
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Abstract

Natural Language Processing (NLP) has made significant advancements in recent years, but these improvements have largely benefited high-resource languages, leaving low-resource languages underrepresented. The primary challenges include data scarcity, the absence of pre-trained models, and linguistic diversity. This thesis addresses these challenges by developing NLP techniques for text processing, depression detection, cyberbullying detection, and speaker identification in low-resource languages such as Thai, Kannada, Sudanese, Nepali, and Khmer. To bridge linguistic and technological gaps, our research focuses on key challenges such as limited annotated datasets and computational constraints. We employ advanced methods like transfer learning, multilingual models, and cross-lingual embeddings to enhance model performance. By integrating Explainable AI (XAI), cross-lingual transfer learning, and multilingual NLP approaches, we improve both accuracy and interpretability. Additionally, transformer-based architectures and hybrid models are leveraged to create practical, scalable solutions for real-world applications.

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