



COLLEGE of ENGINEERING
AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

MSc Seminar

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*Human-Centred Training and Validation of
Text-Based Emotion Detection Machine Learning Models*

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Abstract:

When communicating via social media, people rely heavily on text-based emotional expression. However, interpreting and understanding emotions expressed by others over text is challenging due to the lack of non-verbal communication cues such as tone and body language. Advances in Artificial Intelligence (AI), especially in natural language processing (NLP) and large-language models, have made significant strides in nuanced language interpretation. Yet, human emotion is a complex psychological phenomenon. AI-based emotion detection is still an emerging field, lacking comparative studies and human-oriented design approaches.

In this research, we take a human-centered approach to developing and validating emotion detection machine learning (ML) models in the context of text-based social media communication. We propose an interdisciplinary approach in which an NLP model, based on the popular RoBERTa ML model, is trained in datasets of social media communications labelled using different psychological emotion theories. The trained emotion detection models are then validated through a user study that compares the model output to human evaluators to determine which model best replicates human emotion interpretation.