

Research Papers on 'mental health'

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Paper 1:

A Systematic Evaluation of LLM Strategies for Mental Health Text Analysis: Fine-tuning vs. Prompt Engineering vs. RAG

Date: 2025-03-31

Time: 16:54:04

Authors:

Arshia Kermani, Veronica Perez-Rosas, Vangelis Metsis

Summary:

- This study presents a systematic comparison of three approaches for the analysis of mental health text using large language models (LLMs): prompt engineering, retrieval augmented generation (RAG), and fine-tuning. Using LLaMA 3, we evaluate these approaches on emotion classification and mental health condition detection tasks across two datasets. Fine-tuning achieves the highest accuracy (91% for emotion classification, 80% for mental health conditions) but requires substantial computational resources and large training sets, while prompt engineering and RAG offer more flexible deployment with moderate performance (40-68% accuracy). Our findings provide practical insights for implementing LLM-based solutions in mental health applications, highlighting the trade-offs between accuracy, computational requirements, and deployment flexibility.

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Paper 2:

Resonance: Drawing from Memories to Imagine Positive Futures through AI-Augmented Journaling

Date: 2025-03-31

Time: 14:30:47

Authors:

Wazeer Zulfikar, Treyden Chiaravalloti, Jocelyn Shen, Rosalind Picard,
Pattie Maes

Summary:

- People inherently use experiences of their past while imagining their

future, a capability that plays a crucial role in mental health.

Resonance is an AI-powered journaling tool designed to augment this ability by offering AI-generated, action-oriented suggestions for future activities based on the user's own past memories. Suggestions are offered when a new memory is logged and are followed by a prompt for the user to imagine carrying out the suggestion. In a two-week randomized controlled study (N=55), we found that using Resonance significantly improved mental health outcomes, reducing the users' PHQ8 scores, a measure of current depression, and increasing their daily positive affect, particularly when they would likely act on the suggestion. Notably, the effectiveness of the suggestions was higher when they were personal, novel, and referenced the user's logged memories. Finally, through open-ended feedback, we discuss the factors that encouraged or hindered the use of the tool.

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