

MENTALYTICS

Artificial Mental Models in Rehabilitation

Picture AI-generated

Problem Statement

- In medical rehabilitation, success relies on collaboration among patients, doctors, and physiotherapists
- However, cognitive limitations due to illness and pain can hinder comprehension of medical information and symptom articulation
- Up to 30% of rehabilitation patients face language limitations due to cognitive impairments, migration backgrounds, or psychological issues



Solution Approach

- Artificial Mental Models (AMMs) offer a solution by capturing patients' implicit expectations about therapy, aiding clearer communication and better treatment decisions
- MENTALYTICS: tool for knee rehabilitation, employing AMMs developed from fine-tuned large language models (LLaMA-2, LLaMA-3, Mistral, Phi-3)
- AMM predicts patients' expected pain and effort during exercises



Results

MENTALYTICS tool with AMM that was adjusted wrt biases and hallucinations → 94% accuracy in predicting pain scores of reha patients

