

Inner Me: An AI-Assisted Framework for Automated Psychotherapy Session Transcription, Emotion Analysis, and Summarization

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Abstract- Psychotherapy sessions generate large volumes of unstructured conversational data that must be documented, analyzed, and reviewed by therapists. Manual transcription and subjective interpretation of emotional cues are time-consuming and cognitively demanding. This paper presents Inner Me, an AI-assisted framework designed to support psychotherapists through automated speech-to-text transcription, emotion recognition, session summarization, and interactive question-answering.

Keywords: Artificial Intelligence, Psychotherapy, Speech-to-Text, Emotion Recognition, Natural Language Processing

I. INTRODUCTION

The growing demand for mental health services has increased the workload of psychotherapists. Accurate records of therapy sessions are essential for continuity of care, progress tracking, and clinical decision-making. Inner Me automates transcription, emotion detection, and summarization to reduce therapist workload.

II. RELATED WORK

Prior research explores mobile health technologies, affective computing, and NLP-based summarization. However, integrated systems specifically tailored for psychotherapy workflows remain limited.

III. SYSTEM OVERVIEW

Inner Me processes recorded psychotherapy sessions and generates structured insights. Core components include audio preprocessing, transcription, emotion recognition, summarization, and question-answering.

IV. METHODOLOGY

Speech-to-text is performed using deep learning ASR

APIs. Emotion recognition uses ML classifiers on acoustic features such as MFCCs and pitch. NLP techniques extract key themes for summarization.

V. SYSTEM ARCHITECTURE

The system follows a pipeline architecture from audio input to insight delivery through a secure web interface.

VI. IMPLEMENTATION

Python is used for backend processing, Streamlit for UI, and ML libraries like TensorFlow and PyTorch for analysis.

VII. RESULTS AND DISCUSSION

The system improves documentation efficiency and provides consistent emotional insights, reducing therapist administrative burden.

VIII. CONCLUSION

Inner Me demonstrates how AI can augment psychotherapy practice by automating routine tasks while preserving clinical judgment.