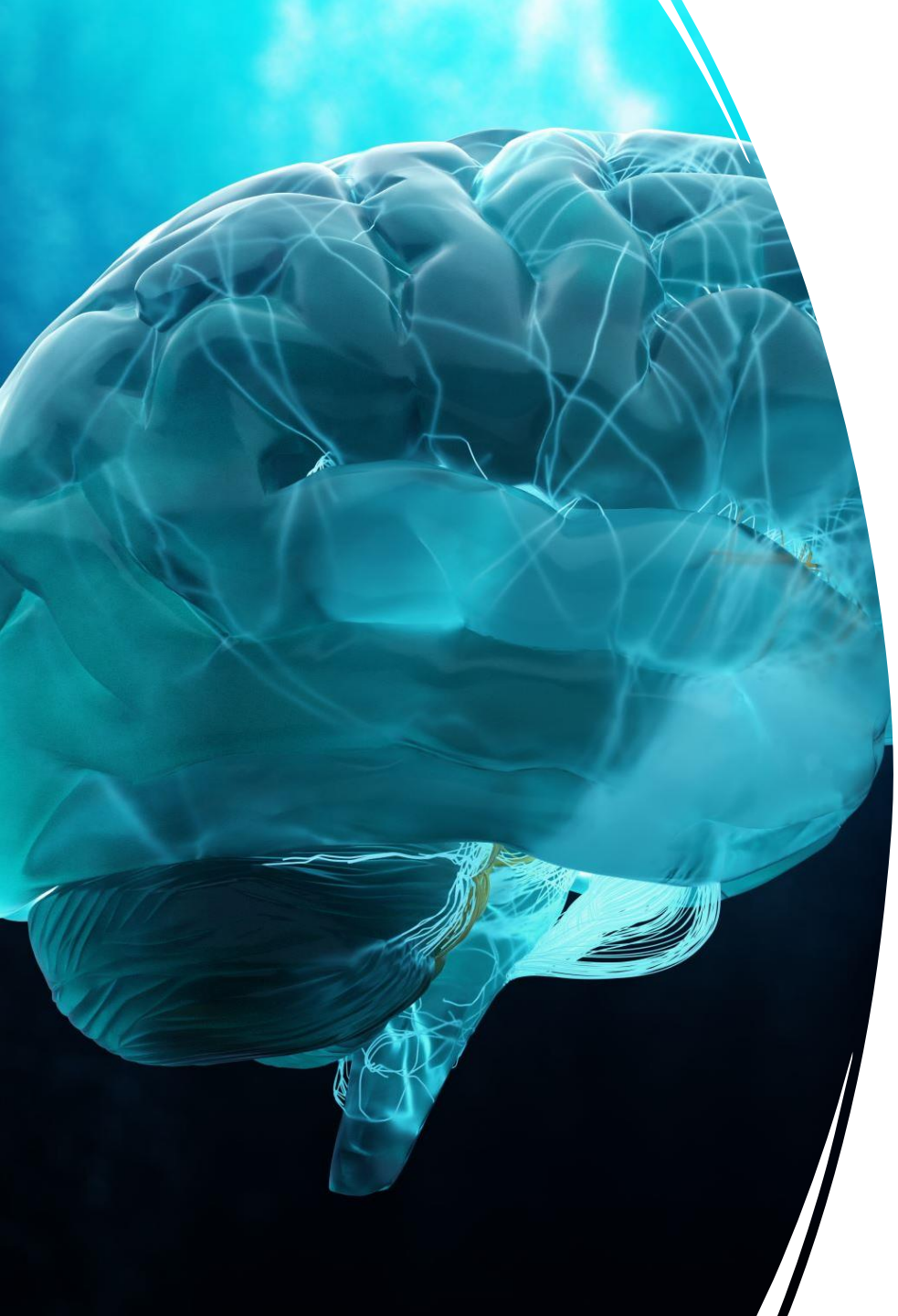

AI in Mental Health: Personalized Stress Management Solutions

Empowering Users to Manage Stress with AI

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Introduction

Mental health challenges significantly impact productivity, relationships, and overall well-being. Issues such as stress, anxiety, and burnout are increasingly common. This project leverages AI to provide accessible, personalized, and effective solutions for managing stress and improving mental health.

Problem Statement

- Challenges:
- - Lack of awareness about stress triggers.
- - Generalized solutions fail to meet individual needs.
- - Limited time for traditional mental health support.
- Impact: Increased stress, reduced productivity, lower quality of life.

Proposed Solution

This AI-driven solution offers real-time stress detection, personalized recommendations, and seamless integration with wearable devices. The system enables users to proactively manage stress through tailored interventions and tracks their progress for continuous improvement.

Objectives

01

- Provide accessible mental health support.

02

- Detect stress proactively before it escalates.

03

- Deliver personalized interventions.

04

- Offer insights and trends to users and professionals.

System Workflow

- User inputs data via app or devices.

- AI analyzes stress patterns and preferences.

- Personalized recommendations are provided.

- Feedback refines AI for better predictions.

System Architecture

The system comprises four core components: sensors, controllers, actuators, and a feedback loop. Sensors collect user data, controllers analyze inputs, actuators provide actionable recommendations, and the feedback loop improves model accuracy over time. A detailed diagram illustrates these components.

Technologies Used

- Frontend: React.js for user interface.

- Backend: Flask with Python for APIs.

- Machine Learning: scikit-learn, Joblib, and Pandas.

Datasets Used

- - Emotion Sentiment Dataset: For mood analysis.
- - Test Dataset: Simulated scenarios to validate the system.
- Data preprocessing involved cleaning, feature extraction, and normalization to ensure high-quality inputs.

Features of the AI Solution

- - Real-time mood analysis.
- - Stress prediction model.
- - User feedback collection.
- - Integration with wearables.