MACHINE LEARNING FRAMEWORK FOR INFERRING LATENT MENTAL STATES FROM DIGITAL ACTIVITY (MILA)

Tech ID: 34136 / UC Case 2025-178-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

The DALMSI framework is a novel method for inferring a user's latent mental states from their digital activity. Researchers at UC Berkeley developed this technology to address the limitations of traditional, intrusive methods like surveys or physical sensors. The system works by receiving and segmenting a stream of digital interaction data, and then uses neural encoding to transform these segments into representations, which a machine learning model maps to specific internal states like cognitive load or emotional state. This offers a non-intrusive, real-time, and scalable solution for understanding user experience without requiring a user's conscious effort or special hardware.

SUGGESTED USES

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User experience (UX) and user interface (UI) design: Automatically adapting a digital interface based on a user's real-time cognitive load to prevent frustration.

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Mental health and wellness applications: Monitoring changes in a user's digital activity to detect patterns indicative of stress, anxiety, or other mental health conditions.

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Personalized learning and education: Adjusting the pace or difficulty of educational content in real-time based on a student's level of engagement or confusion.

»

Adaptive advertising and content recommendation: Delivering more relevant and timely content by inferring a user's emotional state or interest level from their interactions.

»

Human-computer interaction (HCI) research: Providing a new tool for researchers to study user behavior and cognitive processes in a naturalistic setting.

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

» **Computer**

» Software

RELATED CASES

2025-178-0

Adaptive advertising and content recommendation: Delivering more relevant and timely content by inferring a user's emotional state or interest level from their interactions.

»

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ADVANTAGES

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Non-intrusive: Infers mental states from existing digital activity without requiring users to wear sensors or provide explicit feedback.

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Real-time analysis: Provides immediate insights into a user's state, enabling dynamic adjustments to the digital environment.

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Scalability and Accessibility: Can be deployed on standard computing devices without the need for specialized hardware.

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Continuous monitoring: Allows for the tracking of a user's state over time, revealing trends and subtle changes that may be missed by one-time assessments.

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High-fidelity data: Neural encoding and machine learning can capture and interpret complex patterns in digital behavior that are too subtle for human observation.

RELATED MATERIALS

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