Generating Neural Signals From Human Behavior By Neurocognitive Variational Autoencoders

Tech ID: 33869 / UC Case 2024-956-0

BRIEF DESCRIPTION

An innovative algorithm linking electroencephalogram (EEG) neural data with cognitive model parameters to predict brain signals from behavioral data.

FULL DESCRIPTION

Neurocognitive Variational Autoencoder (NCVA) is a cutting-edge algorithm designed to bridge the gap between neural and behavioral data. By integrating generative and predictive modeling, NCVA facilitates a deeper analysis of the connections between behavior, brain activity, and cognitive processes. This technology stands out by predicting EEG signals from behavioral data and vice versa, aiding in the diagnosis and treatment of neurological and psychological disorders and supporting the design of experiments to test neurocognitive theories.

SUGGESTED USES

- Diagnosis and treatment planning for neurological and psychological disorders.
- Design and optimization of neurocognitive experiments.
- Advanced research in computational cognitive neuroscience.

ADVANTAGES

- Enables the discovery of previously unknown neural features.
- Facilitates the prediction of EEG signals from behavioral responses.
- Enhances the design of experiments to identify affected brain regions or test psychological theories.
- Improves understanding of the relationship between behavior and brain activity, and cognitive processes.

PATENT STATUS

Patent Pending

RELATED MATERIALS

- Vo, K., et al. Srinivasan, R. (2024). Deep latent variable joint cognitive modeling of neural signals and human behavior. NeuroImage, 291.

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OTHER INFORMATION

KEYWORDS

Cognitive Modeling, EEG Prediction, Brain Activity, Neural Data Analysis, Computational Neuroscience, Neurocognitive Variational Autoencoder

CATEGORIZED AS

- **Medical**
  - Diagnostics
  - Disease: Central Nervous System
  - Research Tools
  - Software
- **Research Tools**
  - Other

RELATED CASES

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