Prof. R. Wattenhofer

EEG Codecs

Leveraging the principles that inspired deep learning, derived from the human brain's architecture, this project aims to develop neural-based codecs for EEG data, enhancing our understanding and utility of brain activity.

Our goal is to create a codec system that efficiently encodes and compresses EEG data, while also exploring its potential in generating EEG signals for broader neuroscientific and clinical applications.

EEG technology, essential for various medical and research applications, faces challenges with data size and management. Inspired by audio codecs' success, we propose using deep learning models to achieve similar efficiencies with EEG data.

We have collected a large set of datasets from different labs. The goal of this project is utilize this comprehensive dataset of EEG recordings from multiple sources, design and train deep learning models to compress and accurately reconstruct EEG signals. Finally, we aim to test the codec's compression efficiency, fidelity, and speed against existing methods, and potentially explore its generative capabilities for synthetic data generation in AI-driven EEG analysis.

Requirements:
Knowledge in Deep Learning, or solid background in Machine Learning.

Interested? Please contact us for more details!

Contact

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