Advanced Analysis Pipeline for Mobile EEG Recordings During Real-World Settings

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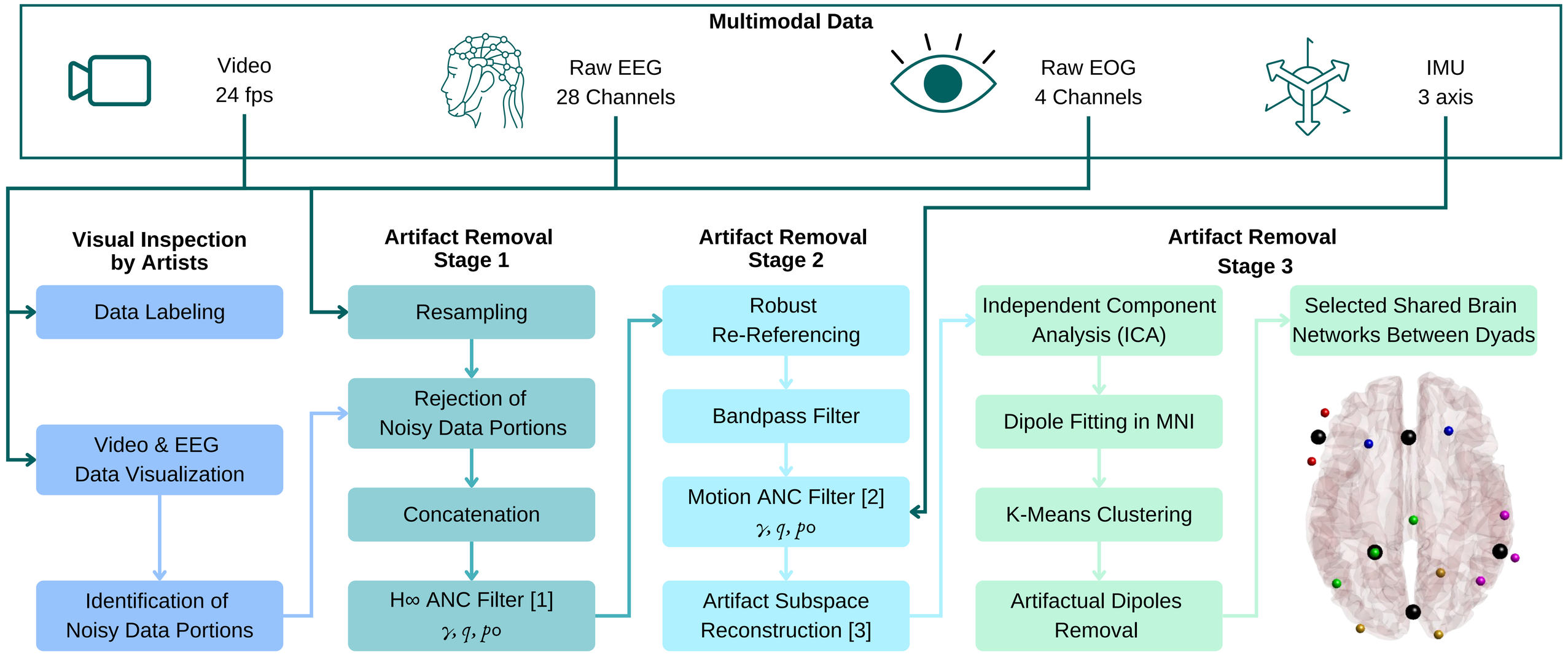
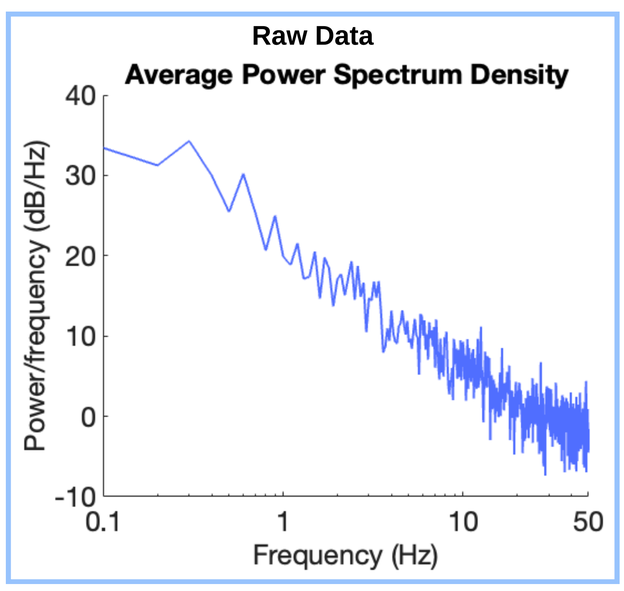
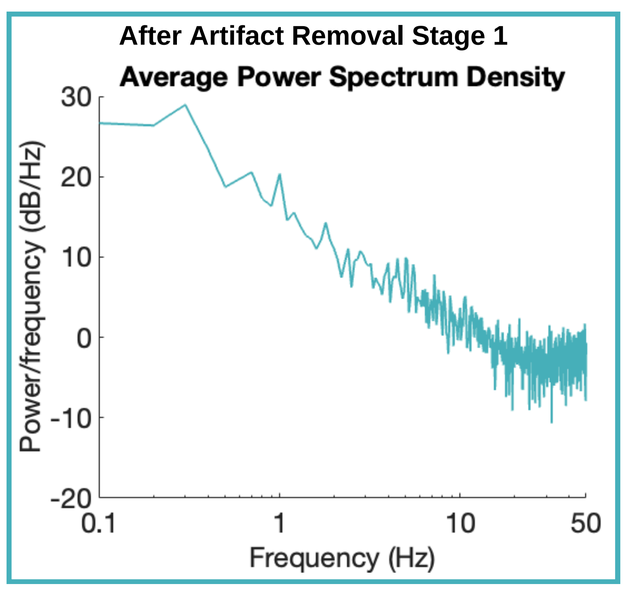
Introduction

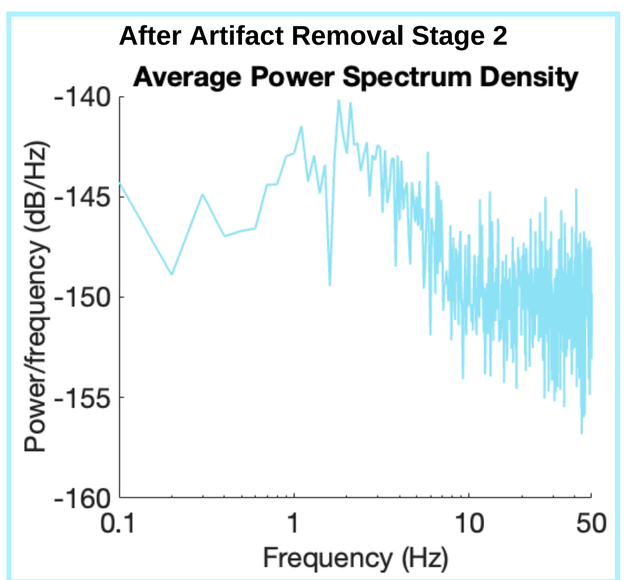
Current EEG methodologies are **limited** by their susceptibility to **artifacts** and reduced effectiveness in dynamic, real-world settings, which constrains the quality and interpretability of the collected data. These limitations highlight the need for more **robust EEG approaches**, ones that are **resilient to noise**, capable of **real-time processing**, and flexible enough to support **multimodal integration** across diverse environments. Enhancing EEG methods to seamlessly integrate with other data streams, such as those used in art-science collaborations, could significantly expand their utility. Addressing these challenges will not only improve EEG analysis but also enable novel insights into the interacting brain in action, thereby advancing research in social neuroscience and beyond.

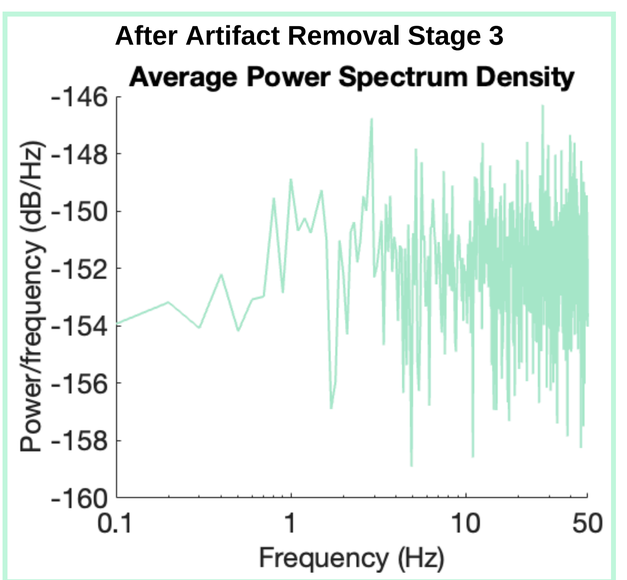
Proposed Methodology









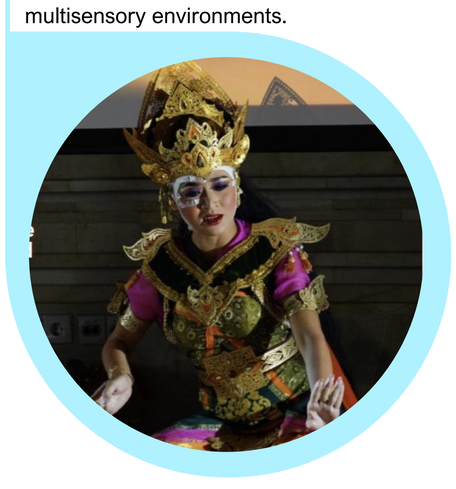


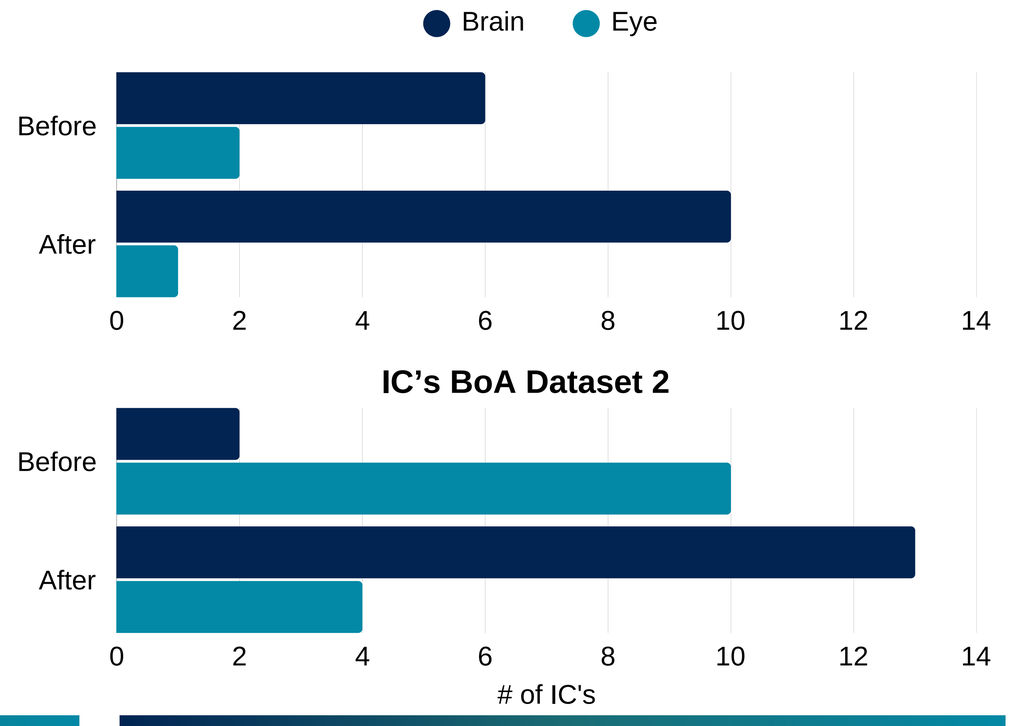
Results

Our MoBI research examines brain activity during improvised and choreographed dance, revealing shared neural networks and stronger connectivity during interactive movement. These insights inform social neuroscience, support BCI development, and spark innovative art-science collaborations.

In this neuro-acting study, brain synchronization was assessed among student actors of varying expertise during three performances. Expert-selected scenes evoked stronger neural connectivity during shared gazes, prompting further exploration of actor and audience synchronization to uncover emotional and artistic dynamics.

The Bali performance enabled real-world EEG recording in a culturally immersive setting, allowing analysis of neural responses to complex audiovisual stimuli during live art. This naturalistic context supports the study of brain dynamics in ecologically valid, multisensory environments.





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