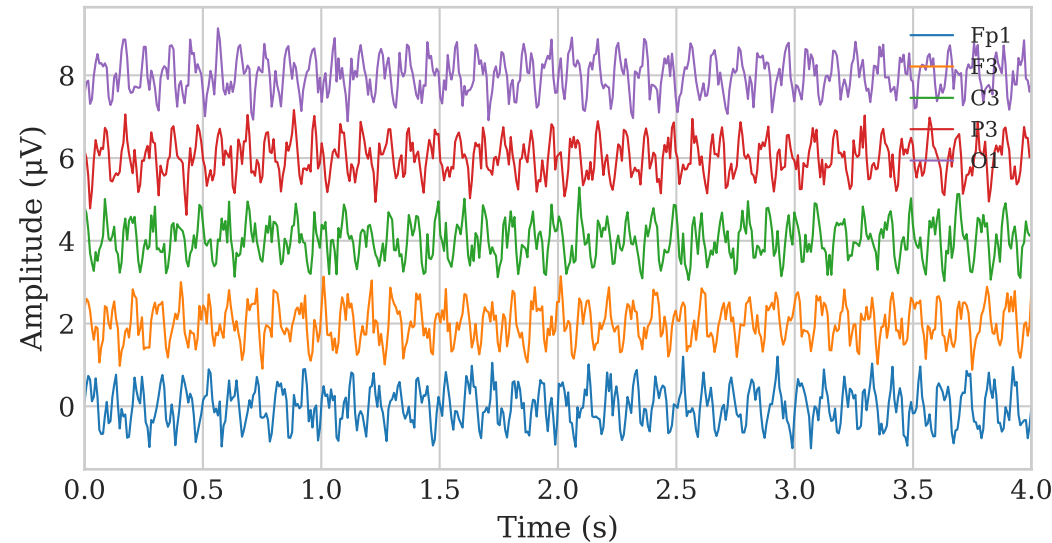
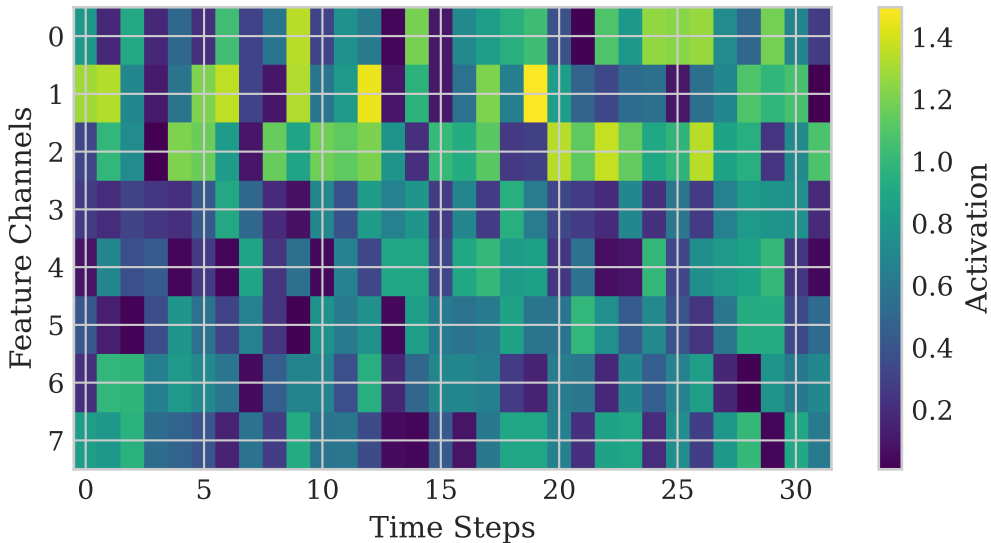


Sample Classification Output with RAG Explanation

Input: Raw EEG Signal (5 channels shown)



Extracted Features (CNN-LSTM output)



CLASSIFICATION
STRESS DETECTED

Confidence: 94.7%

EEG Biomarkers Detected:

- Alpha suppression: -12.3%
- Beta elevation: +18.5%
- Frontal asymmetry: 0.23

RAG-Generated Clinical Explanation

RAG-Generated Clinical Explanation:

The EEG signal analysis indicates elevated stress levels based on multiple neurophysiological markers:

1. Alpha Band Suppression (8-13 Hz): The 12.3% reduction in alpha power, particularly in posterior regions (O1, O2), indicates decreased relaxation and increased cortical arousal consistent with acute stress response (Klimesch, 1999).
2. Beta Band Elevation (13-30 Hz): The 18.5% increase in beta activity, especially in frontal regions (F3, F4), suggests heightened cognitive processing and anxiety-related neural activation (Ray & Cole, 1985).
3. Frontal Alpha Asymmetry: The positive asymmetry index (0.23) indicates greater left frontal activation, associated with approach-related emotional processing under stress (Davidson, 2004).

Recommendation: Consider stress management intervention. Confidence level: HIGH (94.7%)