

# ABHILASH RAPOLU

Email: [rapoluabhi23@gmail.com](mailto:rapoluabhi23@gmail.com) | GitHub: <https://github.com/AbhilashRapolu/eeg-cognitive-monitor> | Location: Telangana, India

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## EDUCATION

IIT Hyderabad | B.Tech Electrical Engineering (3rd Year)

## CURRENT PROJECT

### Real-Time EEG Cognitive Monitoring System

**Lab validation:** 16 subjects, 48 sessions, 62k+ EEG trials

**Error prediction model:** 68.3% accuracy, AUC 0.678 (Gradient Boosting on 44k+ trials)

**Key finding:** Drift states predict +30.5% error risk, -22.9% efficiency loss

**Real-time deployment:** 10 sessions on consumer Muse 2 EEG headset; 4,087 trials, 273 minutes

**Implemented:** 15 biomarkers (theta, alpha, beta, entropy, complexity, PAC)

**Algorithm:** Rolling baseline adaptation; <5sec end-to-end latency

**Technologies:** Python, signal processing, information geometry, ML (Gradient Boosting), LSL

**GitHub:** Check [AbhilashRapolu/eeg-cognitive-monitor](https://github.com/AbhilashRapolu/eeg-cognitive-monitor) for more details about the project

## TECHNICAL SKILLS

**Languages & Tools:** Python (Jupyter), Machine Learning, Deep Learning, Basic EEG Analysis

**ML/DL Experience:** Fraud Detection, Customer Churn Prediction, Regression Models (Housing, Sales), Classification (Titanic), Music Generation, Facial Detection

## PROJECTS

### Machine Learning (Kaggle)

- Credit Card Fraud Detection
- House Price Prediction
- Titanic Survivor Classification
- Customer Churn Prediction
- Black Friday Sales Forecasting

### Deep Learning (MIT Online)

- Deep Learning in Python
- Facial Detection Systems
- Music Generation