



CHEMISTRY INTEREST GROUP

# *Summer Projects*

2025-26





# *PulseSort*

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## AIM

PulseSort develops a machine learning pipeline to classify 12 hand/finger gestures using dual-channel EMG signals. The project focuses on preprocessing, time-domain feature extraction, and multiclass classification with SVM, KNN, and Logistic Regression, targeting real-time prosthetic control with high accuracy and minimal channels.





# *PulseSort*

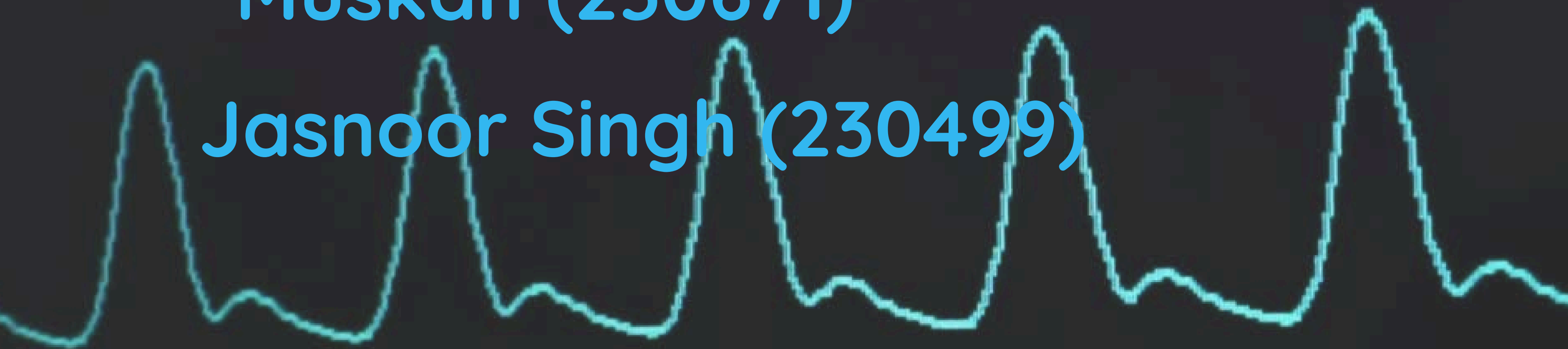
- **Week 1: Collect dual-channel EMG data for 12 gestures, set up Python environment.**
- **Week 2: Normalize and segment data (1000ms windows, 10ms steps), perform EDA.**
- **Week 3: Extract TD features, train baseline SVM, KNN, Logistic Regression models.**
- **Week 4: Optimize SVM (RBF kernel), KNN, Logistic Regression; apply PCA, cross-validation.**
- **Week 5: Select best model, validate, deploy and submit report.**

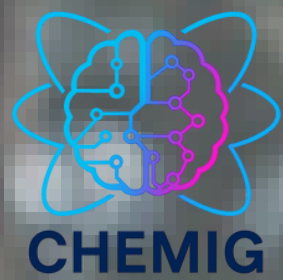


# *Mentors*

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# *Thank you*

**Forms will be released tonight  
Do Apply!!**