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A Comparative Study of Machine Learning Techniques for Emotion Recognition using Peripheral Physiological Signals

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Introduction

- Emotions in human produce physical and physiological changes.
- Recent developments in wearable technology have led to increased research interest in using peripheral physiological signals for emotion recognition

Why peripheral physiological signals?

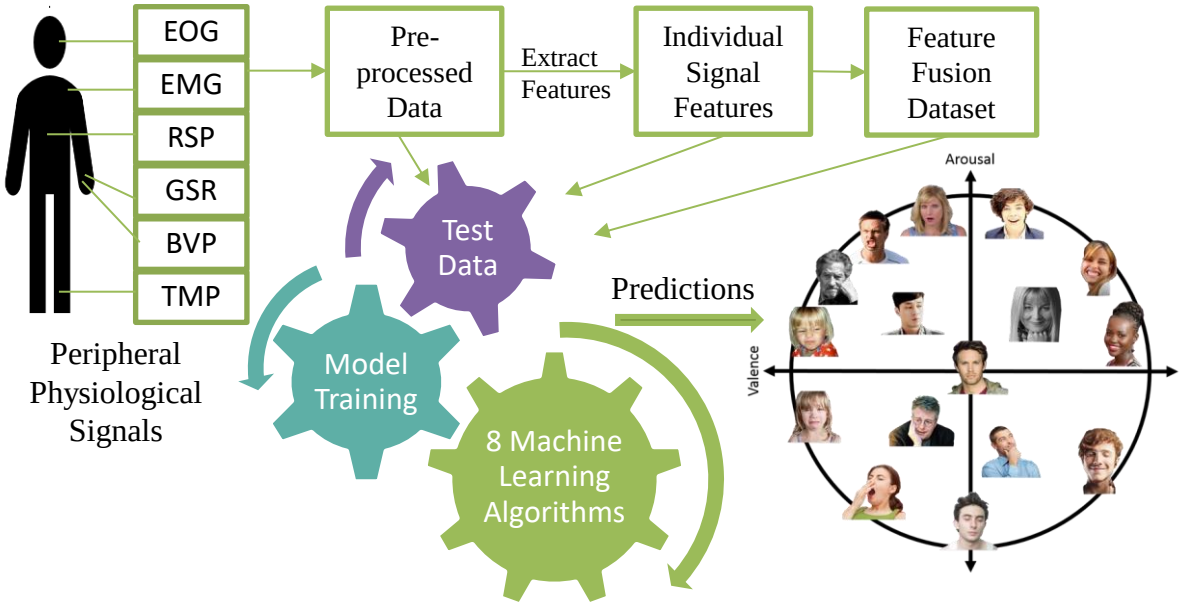
- Peripheral signals are non-invasive
- Easily measured through wearables
- Long-term monitoring
- Real-time prediction applications

Research Question

1. Can we classify emotions using peripheral physiological signals ?
2. Which classification model give the optimal results in classifying emotions ?

Methodology

- DEAP dataset
- Comparison of eight classification models.
- Feature extraction
- Apply ML models on three different data combinations
  1. Raw data
  2. Feature fusion data
  3. Individual feature data
- Subject-dependent classification

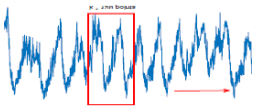


Results

Classifiers	Optimal	Poor
	SVM	DT
	LDA	GNB
	Logistic Regression	KNN

Future Work

Sliding Window

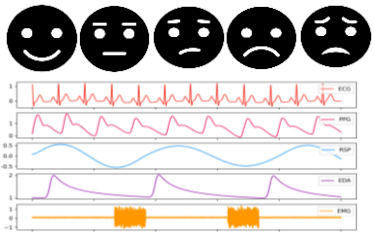


Deep Learning

Hyper Parameter Tuning

Federated Learning

Create novel implicit metric QoE database



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