

Inspire Create Transform

Data Fusion Emotion Recognition from voice-speech, multiple channel electroencephalography, facial expression, electrodermal activity and heart rate

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Introduction



Introduction

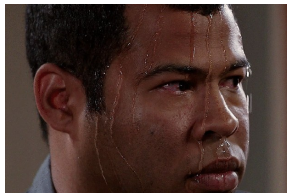
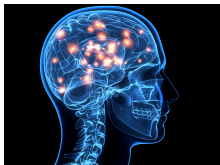
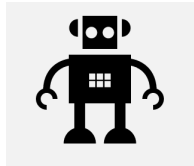
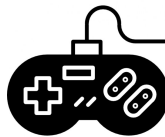
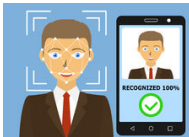


Figure: Physiological responses

introduction



Introduction



Figure: GRIMMAT's prototype for EEG signals collection

Objectives

Objectives: Aim

Aim

To develop a framework for the beginning of data fusion algorithms in emotion recognition from physiological signals such as voice, EEG, facial micro expressions, temperature and electrocardiograms.



Objectives: Objectives

Objectives

- ▶ To acquire the specific knowledge about data fusion theoretical framework.

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- ▶ To formulate a specific and appropriate problem.

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- ▶ To acquire the specific knowledge about data fusion theoretical framework.
- ▶ To formulate a specific and appropriate problem.
- ▶ To test the basic algorithms of data fusion for the proposed solution with database information and the GRIMMAT previous results.

State of the Art

GRIMMAT Trayectoria

2014

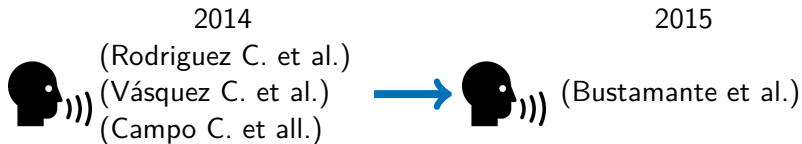
(Rodriguez C. et al.)

(Vásquez C. et al.)

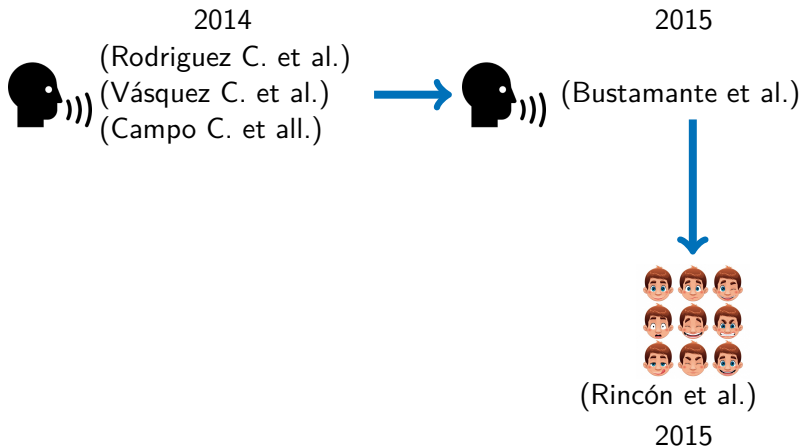
(Campo C. et all.)



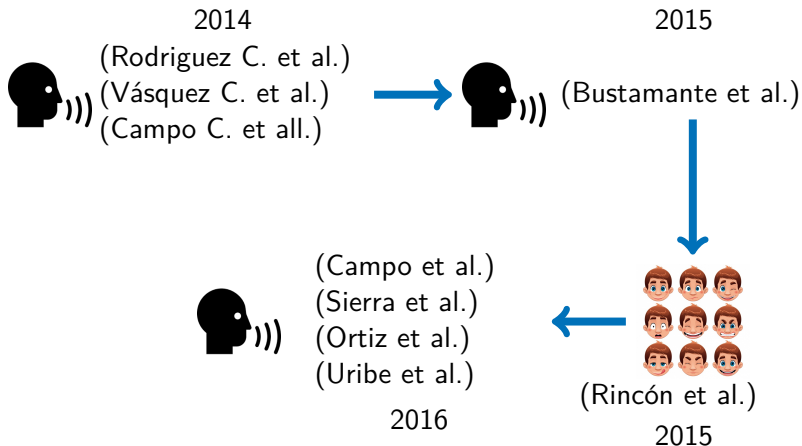
GRIMMAT Trayectoria



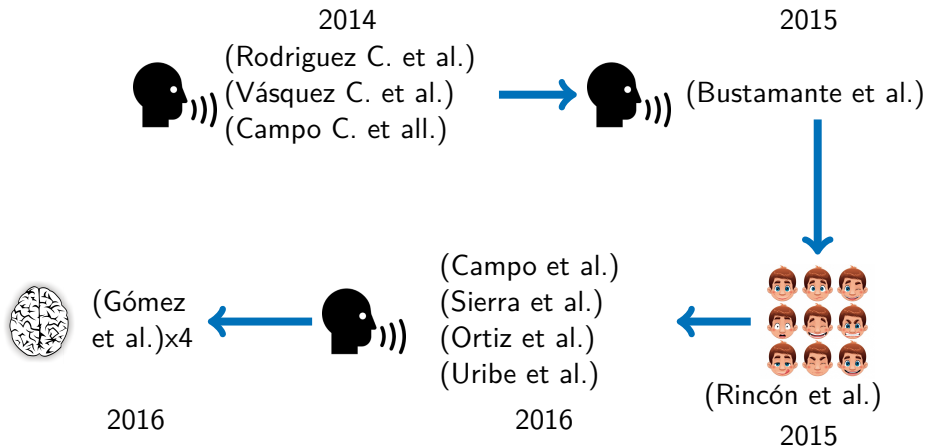
GRIMMAT Trayectoria



GRIMMAT Trayectoria



GRIMMAT Trayectoria



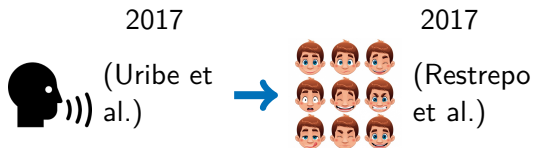
GRIMMAT Trayectoria

2017



(Uribe et
al.)

GRIMMAT Trayectoria



GRIMMAT Trayectoria



Methodology

Signal



Methodology

Signal



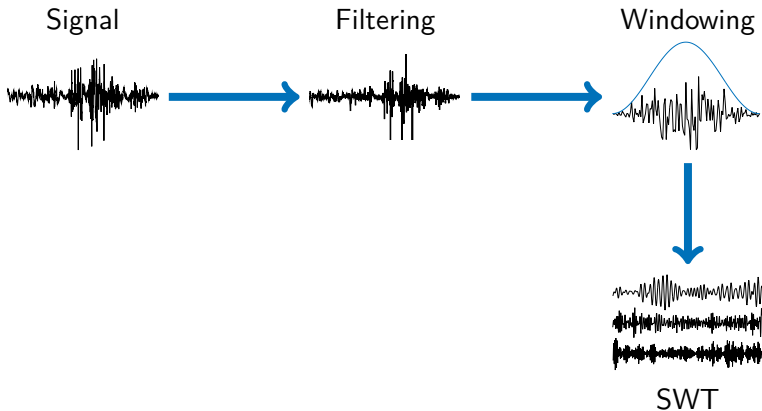
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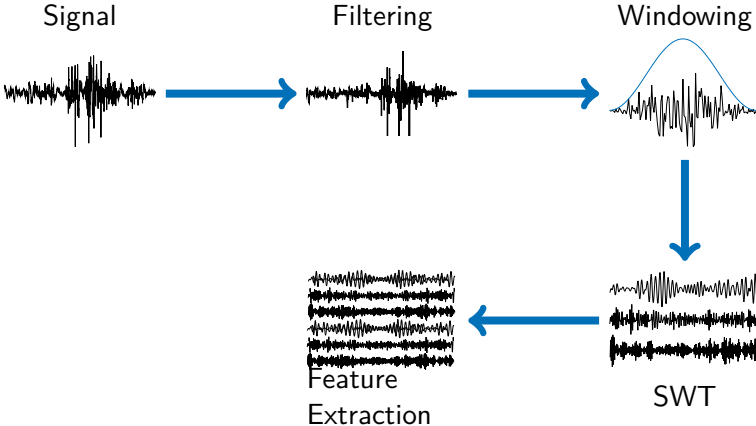
Methodology



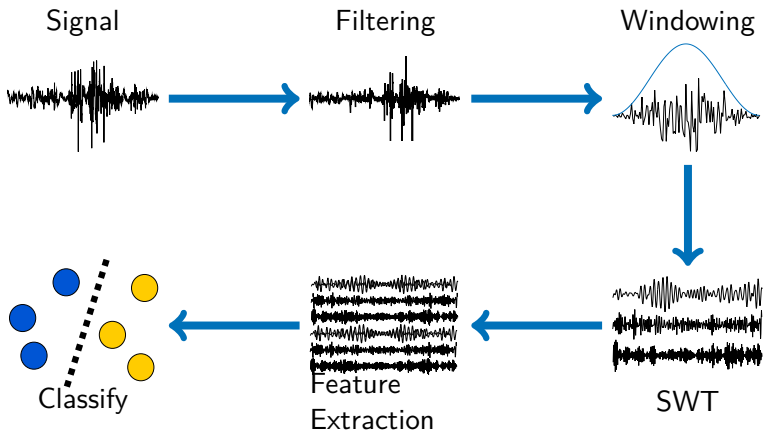
Methodology



Methodology



Methodology

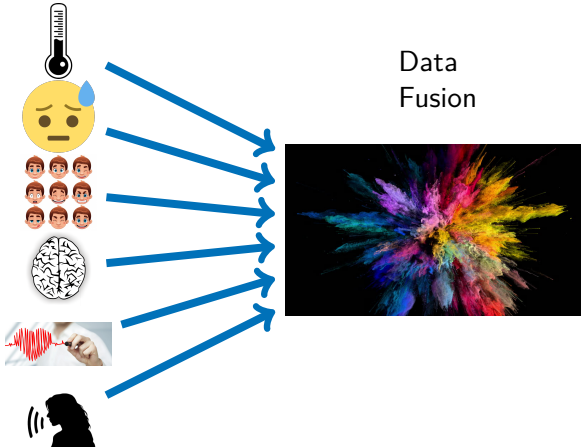


Justification

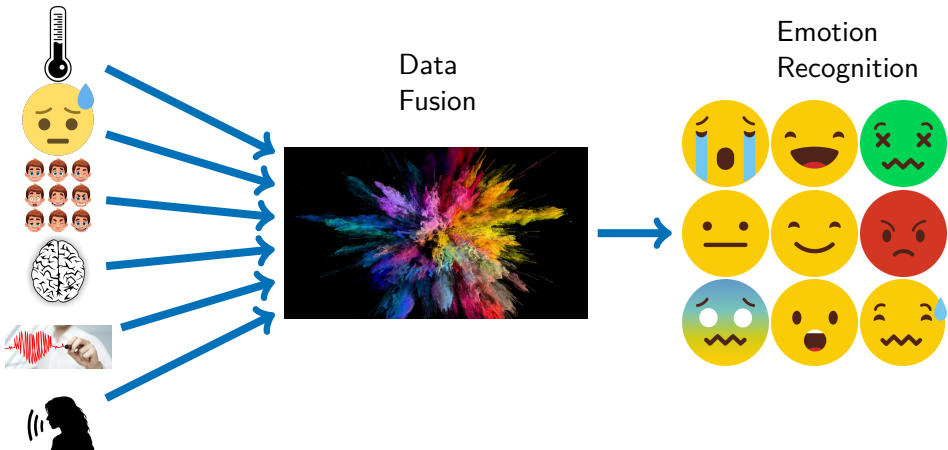
Justification



Justification



Justification

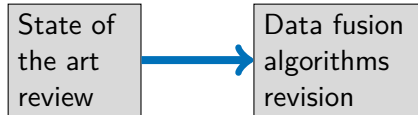


Methodology

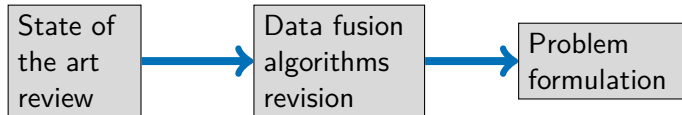
Methodology

State of
the art
review

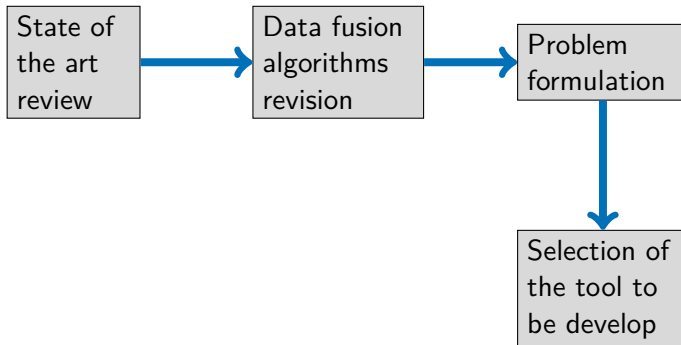
Methodology



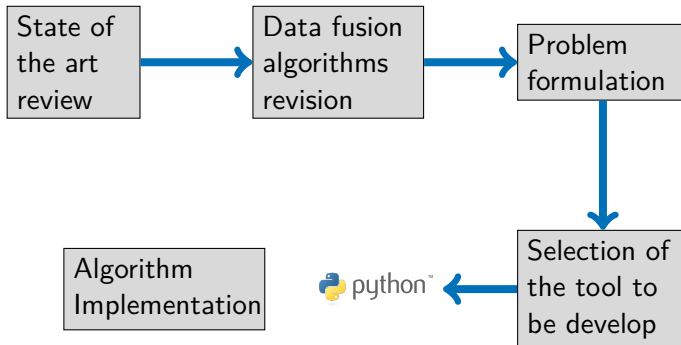
Methodology



Methodology



Methodology



Methodology: Early Fusion

Early Fusion: Feature Level



Early Fusion: Feature Level



Feature
extraction



Feature
extraction



Feature
extraction



Feature
extraction

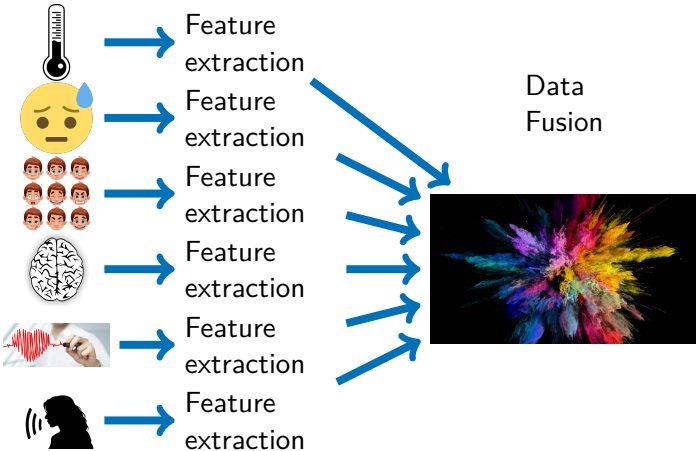


Feature
extraction

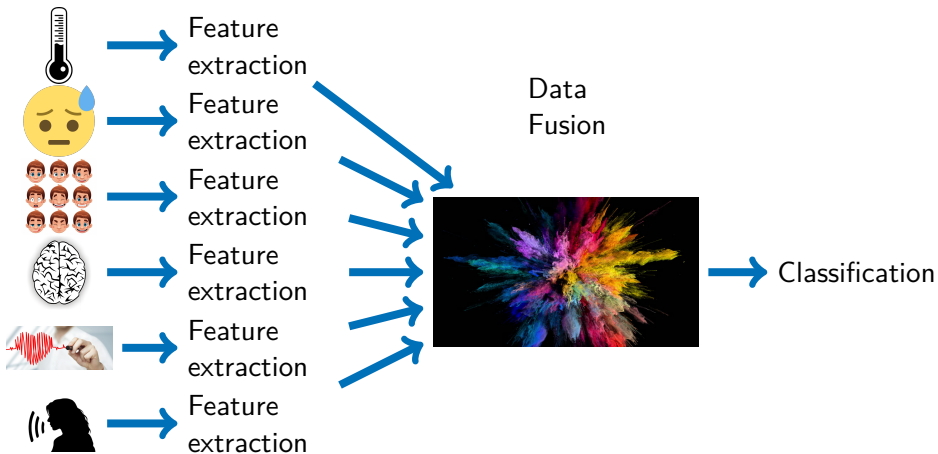


Feature
extraction

Early Fusion: Feature Level



Early Fusion: Feature Level



Methodology: Late Fusion

Late Fusion: Decision Level



Late Fusion: Decision Level



Feature
extraction



Feature
extraction



Feature
extraction



Feature
extraction



Feature
extraction



Feature
extraction

Late Fusion: Decision Level



Feature
extraction



Classification



Feature
extraction



Classification



Feature
extraction



Classification



Feature
extraction



Classification



Feature
extraction



Classification

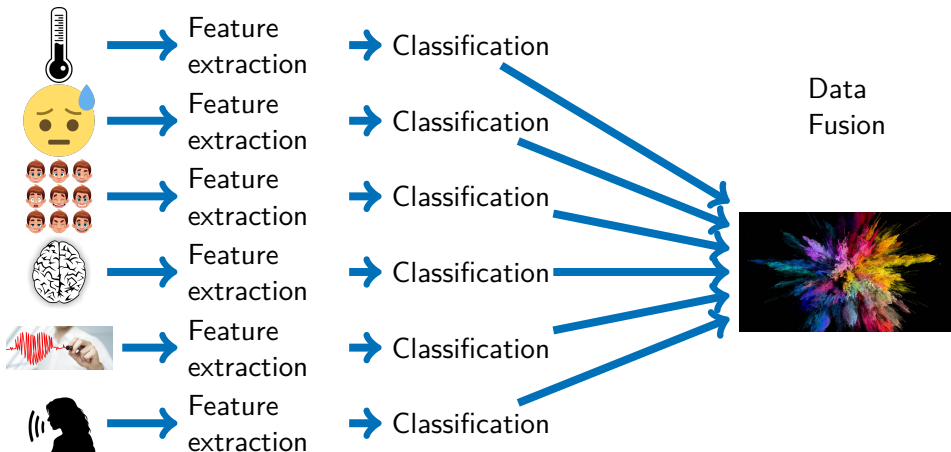


Feature
extraction



Classification

Late Fusion: Decision Level



Scope

Scope

This research practice considers the integration of different algorithms for emotion recognition in human being, which have been already developed and tested by the research group of mathematical modeling of EAFIT. Nevertheless, the computational experiments will be performed by using public data. The main databases that will be employed for the tests is HCI Tagging database (Soleymani and Lichtenauer, 2012). It is expected to test the present developments in GRIMMAT's own databases for future works.

References

References I

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Thanks