Evaluation and Development of Strategies for Facial Features Extraction for Emotion Detection by Software

Proposal presentation.
February 27th, 2015

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Outline

1. Concepts
2. Problem Description
3. Approach
4. Timeline
5. Results
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8. Applicability
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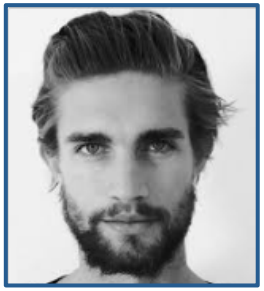
Useful Concepts



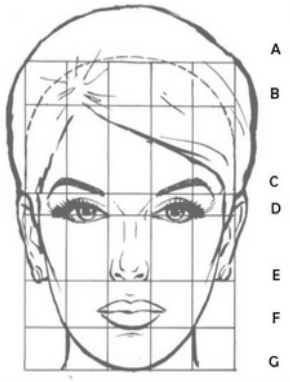
Beard

Bang

Glasses

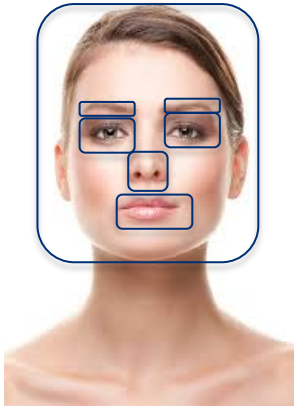
Skin tone

"Noisy Images"



Facial Canon

Set of proportions most people follow. (*Ricketts, 2002)*



Partial feature detection

Establishment of feature marks

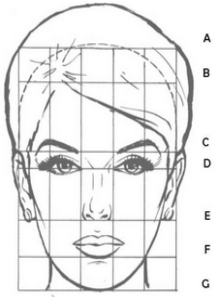
Global Vision of the Problem

Picture

Pre processing

Ideas

Results



Anfis

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Emotion Map

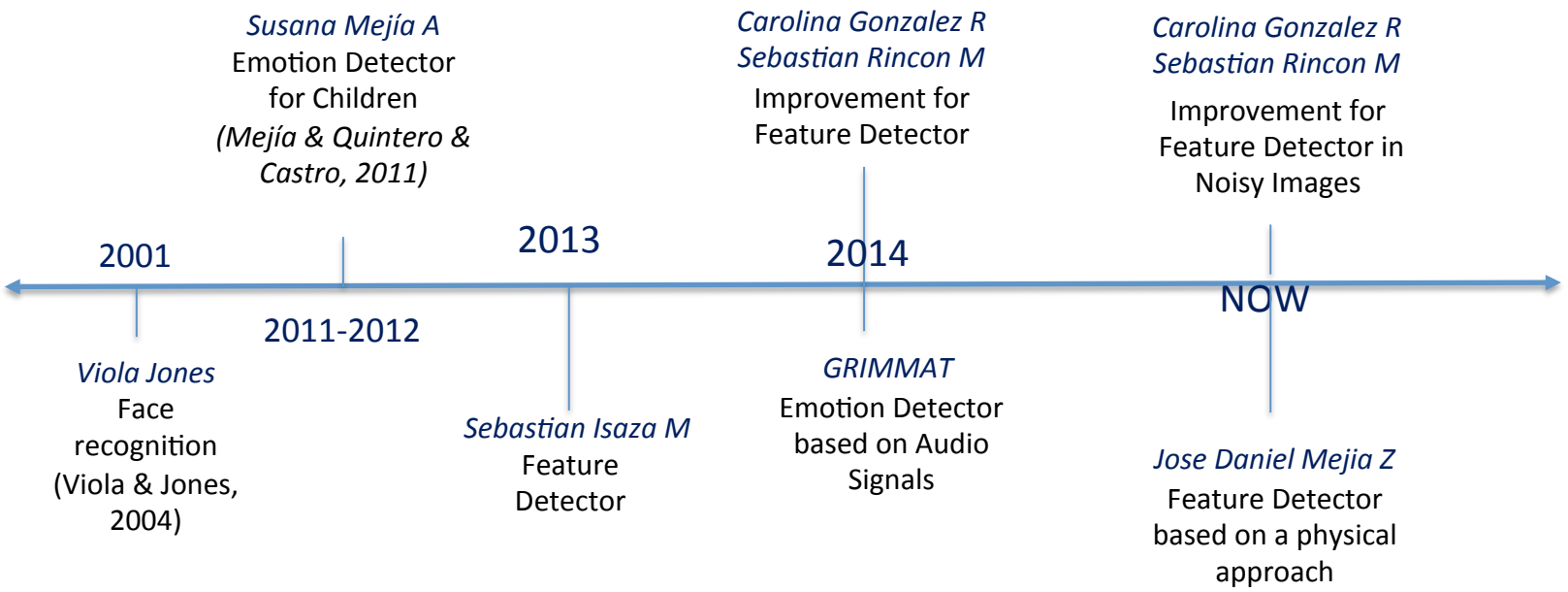
Voice

Audio Signal

Processing

Russell's taken from http://blogatuttotondo.altervista.org/category/adolescenti/

Progress



The current research will start with a compilation of information, collected from previous work of the people mentioned above. Focusing on the most promising results and untested ideas.

Why us?

Ability to master certain areas

Mathematical Logic

Validation and optimization skills

How?

Investigating the most recent advances

Understanding the problem with a mathematica approach

Studying diverse topics.
ex: Fourier spectrum analysis
Filters
Image Processing

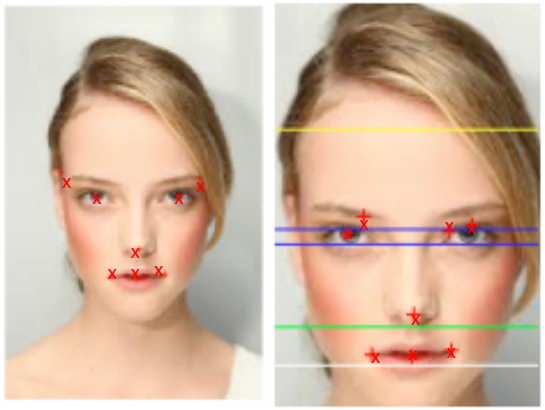
Validating the results

Finding errors to probe the precision of the algorithm

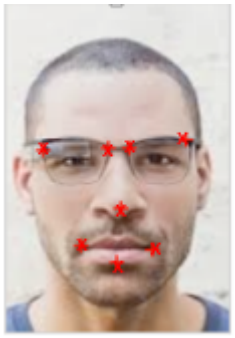
Re-training other's algorithms

Past Results

Pre-processing



Canon's proportions



Lack of accuracy while stablishing marks

Objectives

To improve the methodology used in the previous research practice, seeking for a more robust algorithm to extract features from noisy images.

- To evaluate different facial feature extraction techniques, previously used, in a larger data base.
- To search the state of art, looking for new techniques in feature extraction; and evaluate them.
- To study different pre-processing techniques for images, in order to strengthen the algorithm in feature extraction.
- To design and use filters in images, to minimize the noises that difficult the feature extraction and therefore the emotion detection.
- To compare the results obtained in the current research and the ones obtained with the physics engineering approach.
- To verify whether different features can be treated as noise.

Other's approach

- *Optical Image processing*

  Signal processing for which the input is an image, and the output may be a modified image or information related to it.

- *Biometrics*

  Refers to technologies for measuring and analyzing human body characteristics.

- *FACS (Facial Action Coding System) (*Ekman & Friesen, 1977)

  Tool used to measure facial expressions based on compound facial movements.

Applications

Academic Purposes

Social Relationships

Costumer Service

There is psychological evidence that proves that changes in emotions can lead to a possible lie.

Governmental (*Kroll, 2013)*

Business Area (*T. International, 2013*)

References

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