

Affective Computing: Optimizing Human-Computer Interaction through Non-Verbal Communication Based on Facial Analysis

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Objectives

- Understand the main objectives and techniques about Affective Computing
- Optimize computer software through Facial Expressions using Affective Computing
- Understand the methods

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Introduction

- Artificial Intelligence
- Affective Computing (1990)
 - What is emotion?
 - Human emotional intelligence
 - Non-verbal communication
- Examples
 - HAL (2001: A Space Odyssey)
 - Kismet (MIT)

Applications

- Recognizing Affect in Speech
- EmoteMail
- Detection and Analysis of Driver Stress
- Affective Computing and Autism
- The Affective Remixer: Personalized Music Arranging
- The Conductor's Jacket

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Software Prototype (work in progress)

- Objectives: analyze the human faces and present the emotional state of the user
- Steps:
 - Image Processing
 - Face Detection
 - Find Emotion
- How this technique could affect the human-computer interaction?

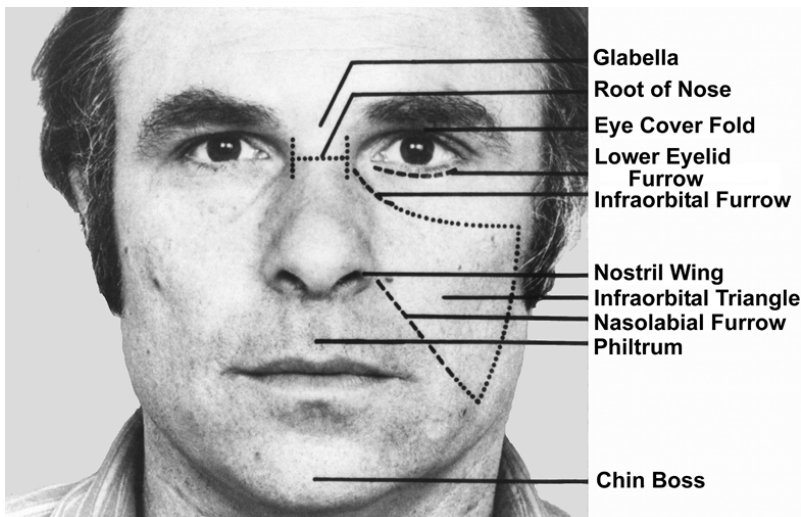
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Techniques

- Image Filters / Histogram Equalization
- Image Segmentation
- Eigenface Technique
- FACS (Facial Action Coding System)



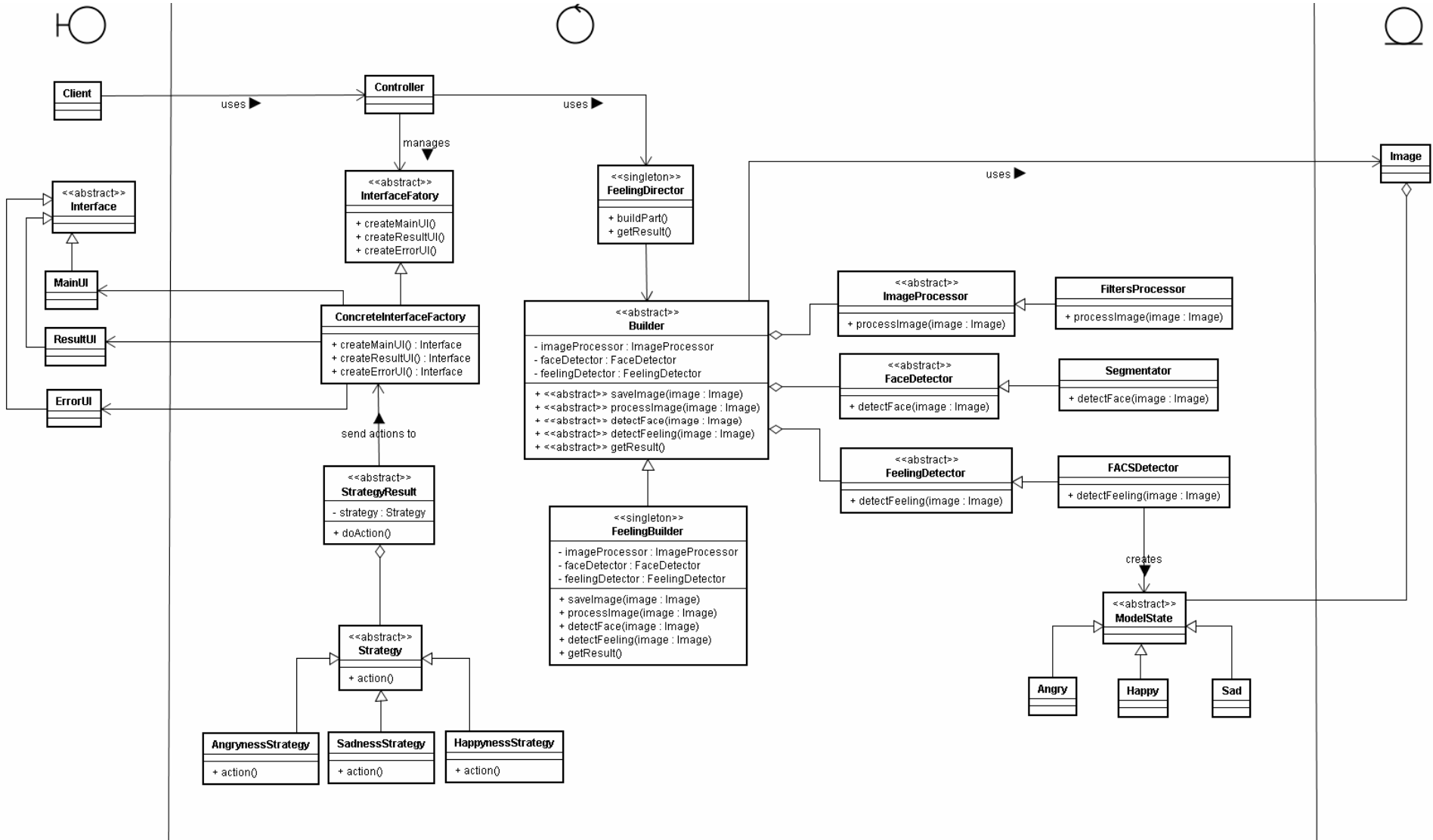
FACS (Paul Ekman)

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Current Development



Future Steps

- Finish the application
- Understand some image's techniques
- Conclude the studies about software's optimizing using Affective Computing and facial expression

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Comments, Questions, Suggestions?

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Thank you!

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