

Presentation Skills Automatic Real-time Feedback Mechanisms

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Presentation Skills Automatic Real-time Feedback Mechanisms

- ▶ Give users automatic feedback on their presentations.
- ▶ What is a good presentation?
- ▶ Visuals and sound
- ▶ What to measure and how?
- ▶ Discussion

Literature review: Sound

- ▶ Volume
- ▶ Pitch
- ▶ Speed
- ▶ Intonation

Literature review: Visuals

- ▶ Nonverbal communication affects the clarity and powerfulness of the speaker's message
- ▶ Most important aspects:
 - ▶ Posture
 - ▶ Gestures
 - ▶ Eye contact
 - ▶ Facial expressions
- ▶ Our focus: posture, gestures, eye contact
- ▶ 'Good measurements' are difficult:
 - ▶ Differences when practicing vs on stage
 - ▶ Cultural differences

Results - Movement & Posture

- ▶ Posture: From static to nervous
- ▶ Static: Very little movement, easy to measure.
- ▶ Different between a dynamic or nervous presentation
- ▶ How to measure this:
 - ▶ Capturing frames every n seconds
 - ▶ Background subtraction combined with three-frame differencing¹
 - ▶ Analyse results and give feedback

¹Collins et al. (2000) - A System for Video Surveillance and Monitoring

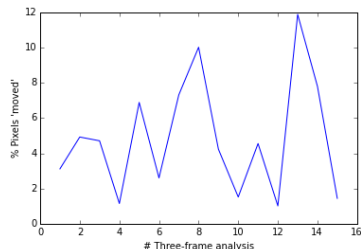
Results - Movement & Posture

Differential imaging



Figure 1: Original three frames (top row), background subtraction and the end result (bottom row)

Differential imaging - Analysing



► **Static:**

Mean: 4.160425290465355

Standard Dev: 2.1473045628850933

► **Normal:**

Mean: 5.140186529606581

Standard Dev: 3.494529689254688

► **Nervous::**

Mean: 5.340183582156897

Standard Dev3: 4.562151108328613

Figure 2: Percentage of pixels moved per three frame analysis. Going from static to nervous

Results - Eye contact & Gestures

- ▶ Started implementing software to detect eyes
- ▶ Turned out to be too difficult
- ▶ Recognizing frontal face is a more stable alternative
- ▶ Focus on gestures
- ▶ Recognizing place of hands by color

Results -Sound

- ▶ FFT
 - ▶ Little tests: big differences when non montuous
 - ▶ Best time frame to take FFT on is still unclear
- ▶ Volume
 - ▶ Noise was very disturbing for results
 - ▶ Average dB for speech was 80

Conclusion, Discussion & Future work

- ▶ Small steps towards the ideal goal
- ▶ Spent too much time on:
 - ▶ Working with badly documented software
 - ▶ Trying to connect with Kinect and OpenCV
 - ▶ Trying to implement things that were too difficult
- ▶ Future work:
 - ▶ Implement software for detecting eyes/frontal face
 - ▶ Implement software for recognizing facial expressions
 - ▶ Extend software for recognizing gestures
 - ▶ Implement software for recognizing tempo/speed of speech
 - ▶ Combine all these software pieces in one scoring system
 - ▶ Give feedback to a user