REAL-TIME FEEDBACK SYSTEM FOR MONITORING AND FACILITATING DISCUSSIONS

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INTRODUCTION

Humans have individual characteristics such as personality traits, behavior, emotions etc. When people communicate, all these aspects in different combinations are reflected in their speaking mannerism such as how much an individual speaks or interrupts other speakers, or speech pitch, volume, rate, etc. Our system extracts these speech features from audio signals of a conversation and provides **real-time feedback on social behavior,** assisting speakers to adjust their speaking mannerisms to each other if required. The system can play a vital role in boosting the effectiveness of job interviews, group discussions, coaching sessions, public speaking, counseling, etc.

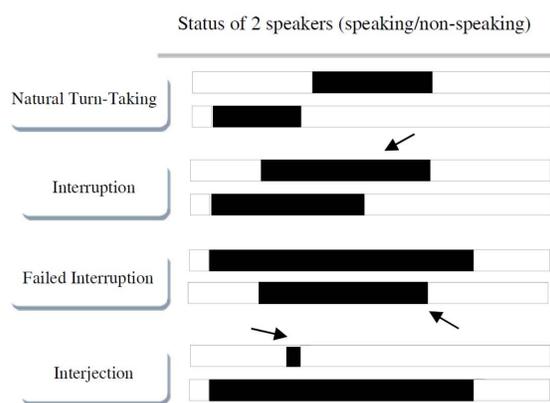## SYSTEM OVERVIEW
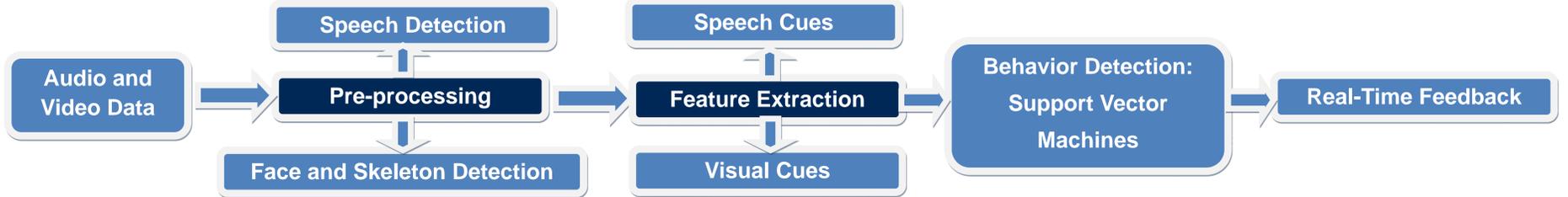
SPEECH CUES

Fig. 1. Non-verbal speech statistics derived from binary speaking status (speaking/ non-speaking). Periods of speaking/non-speaking are indicated as black and white respectively. Other non-verbal speech cues include speaking percentage and rate, pitch, amplitude, etc.
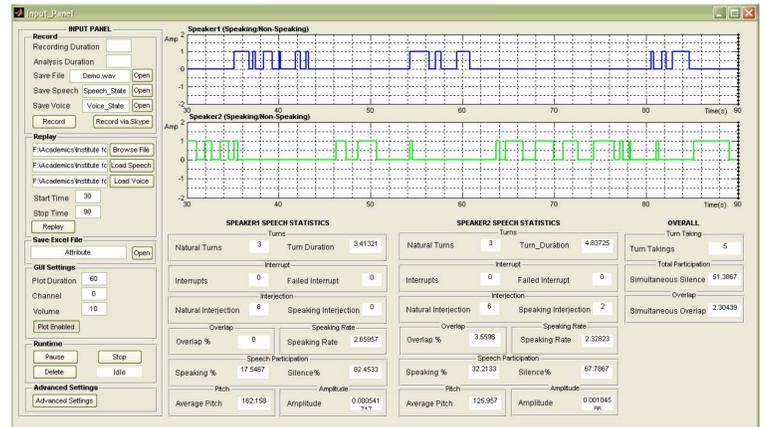

Fig. 2. Graphical User Interface (GUI) displays the speaker segmentation and various non-verbal speech measures. On the left: user input panel and controls panel.
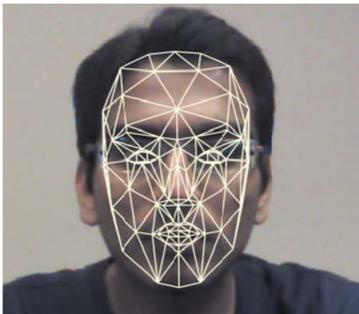
VISUAL CUES

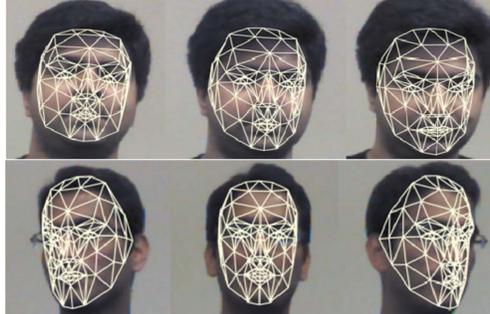Fig.3 Lip motion detection to identify the speakers.

Fig.4 Nodding Detection: (Top) Vertical motion to detect "Agreement"; (Bottom) side movement to detect "Disagreement".
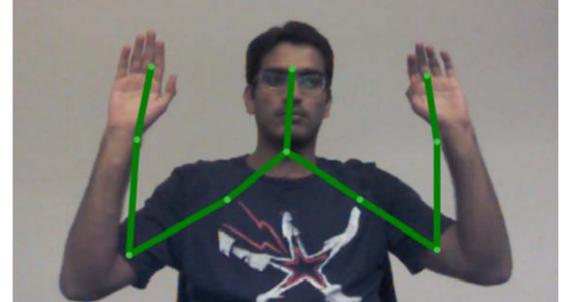

Fig.5 Pose Detection: Hunch forward, lean backward, and straight, along with gesture detection.
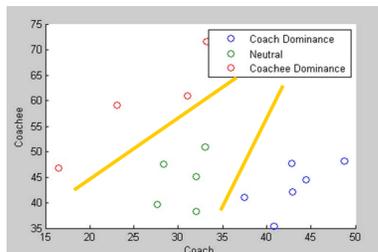
BEHAVIOR DETECTION AND FEEDBACK

Fig.6. Behavior detection through supervised learning with various non-verbal speech and visual cues.
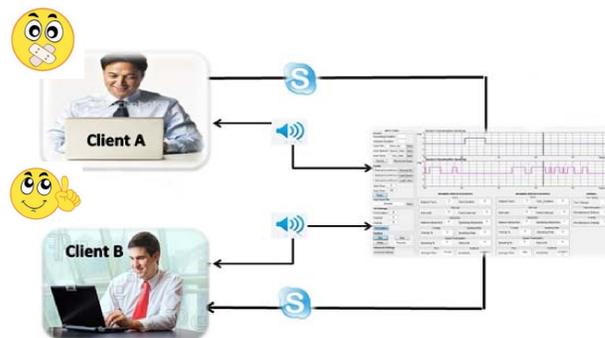

Fig.7 Sociofeedback system can provide feedback via brief messages or emoticons in real-time.

Fig.8. Sociofeedback via Skype.

Fig.8 Retrospective feedback as animations: Dominating behavior (top); Low level of interest (below).

CONCLUSION AND FUTURE WORK

- Accurate calculation of speech and visual cues in real-time.
- User-friendly GUI that assists in speech behavior analysis.
- The system provides real-time feedback to individual speakers via brief messages and emoticons over Skype or smartphones.
- A larger, diverse data set is needed in order to generalize the findings

- Retrospective feedback via animations that summarize the salient features of social interactions during a discussion.
- The ultimate objective in this line of research is to develop template-based social-feedback system for different types of social interactions e.g. Interviews, coaching, group discussions etc.