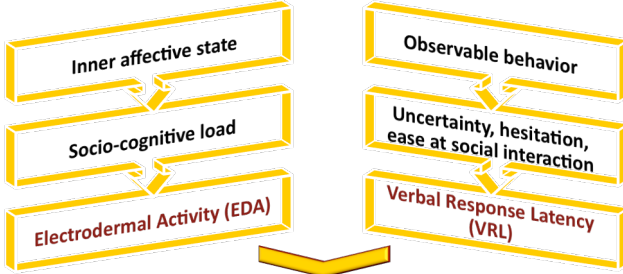


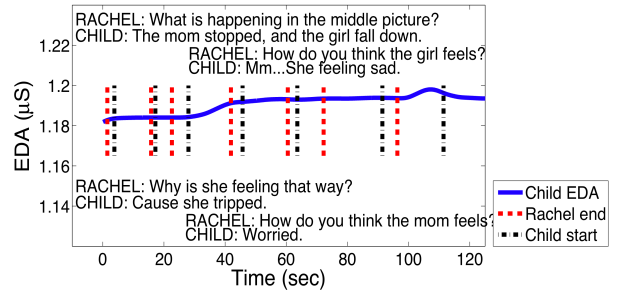
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INTRODUCTION AND MOTIVATION



Children's physiological signals exhibit different feature-level patterns between short and long verbal response latencies.

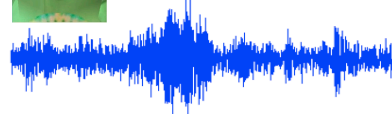
EDA and VRLs



Increase of arousal is associated with long VRLs, reflecting higher socio-cognitive demands.

METHODOLOGY AND RESULTS

Audio channel



VRL



Child's EDA channel



Physiological Features

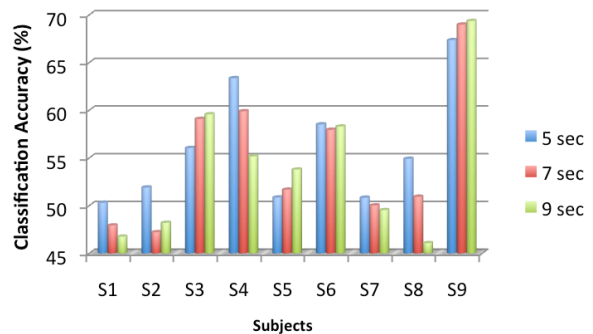
1. Time-based (first four moments)
 - Filtered EDA, 1st / 2nd order difference.
2. Extrema-based (peaks and valleys)
 - Mean height, width and their ratio.
3. Frequency-based (FFT-64, 7 frequency bands)
 - Mean value over each band.
 - Absolute 1st order difference over time and bands.

Feature Selection and Classification

- Feature selection with Fisher Discriminant Ratio.
- Feature decorrelation.
- K-nearest neighbours (K=15).

Class Labeling -> Short/Long Latencies

- Threshold: 70th percentile of each subject's VRLs.



RACHEL ECA INTERACTION CORPUS

- Child interacting with an Embodied Conversational Agent (ECA), Rachel, and his/her parent.
- Designed to encourage children to:
 - Participate in social interactions.
 - Display their emotional reasoning abilities.
- Provides structured and consistent stimuli.
- Data from 9 children on the autism spectrum.



DISCUSSION AND FUTURE DIRECTIONS

- Child's physiology is associated with his/her VRL.
- Subjects with less predictive cues seemed more comfortable while interacting with the ECA.
- Future work: examine prosodic and lexical cues wrt physiology, incorporate parent's physiology.

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