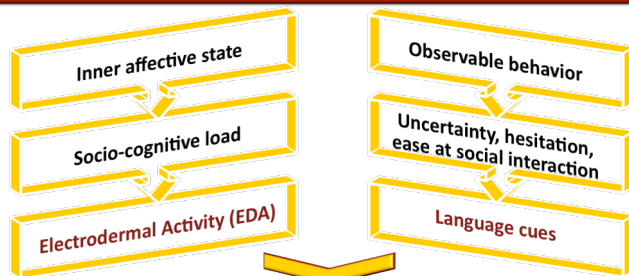
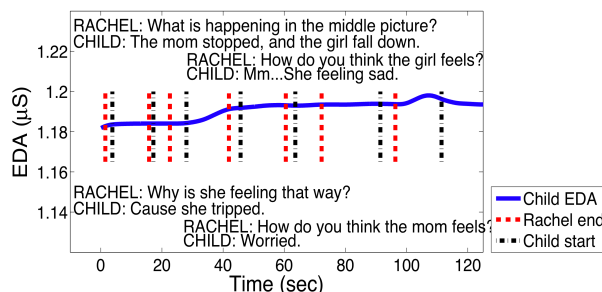


## INTRODUCTION AND MOTIVATION



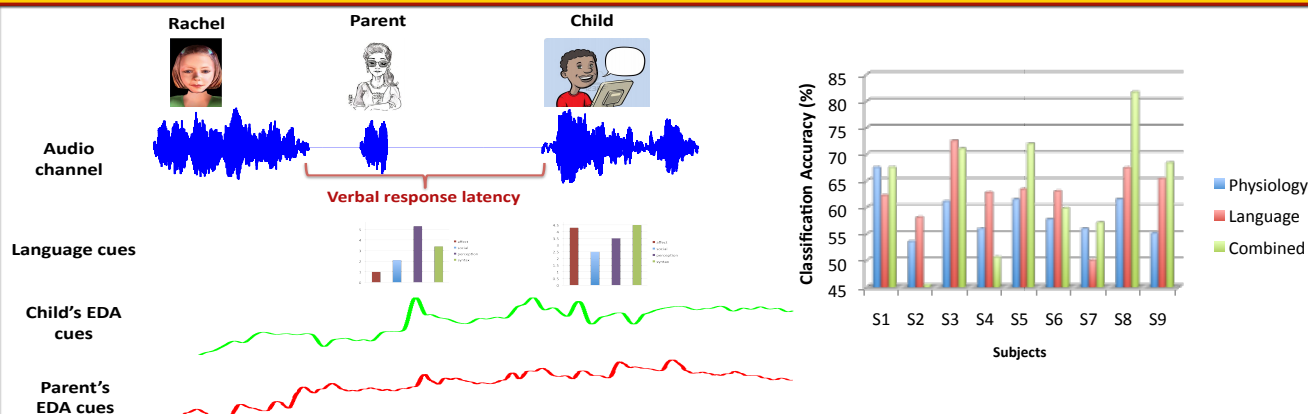
Children's **physiological** and **linguistic** cues exhibit different feature-level patterns between **short** and **long** verbal response latencies.

## EDA and VRLs



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

## METHODOLOGY AND RESULTS



### Physiological Features

1. Time-based (first four moments)
  - Filtered EDA, 1<sup>st</sup> / 2<sup>nd</sup> 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 1<sup>st</sup> order difference over time and bands.

### Class Labeling -> Short/Long Latencies

- Threshold: 70<sup>th</sup> percentile of each subject's VRLs.

### Linguistic Features

1. General turn descriptors.
2. Sentence structure.
3. Psychological processes.
  - Social, affective, cognitive, perceptual processes
4. Paralinguistic information.

### Feature Selection and Classification

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

## 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.

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## DISCUSSION AND FUTURE DIRECTIONS

- Child's physiology and language are associated with his/her VRLs.
- Physiological and linguistic behavior can complement each other.
- Parent's cues provide additional information for the interaction.
- Future work: speech act tagging, time-dependencies.