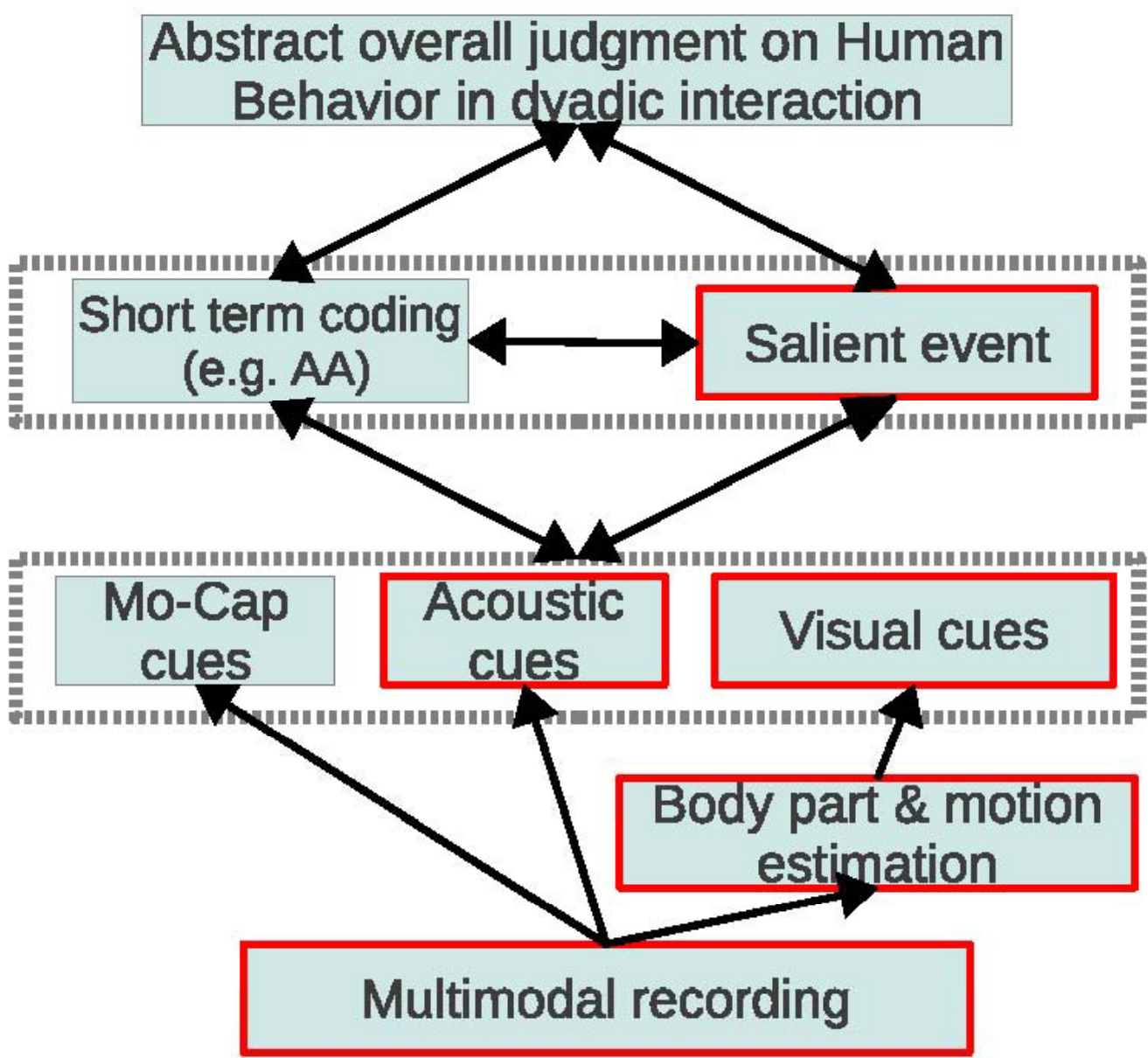


Multimodal Detection of Salient Behaviors of Approach-Avoidance in Dyadic Interactions

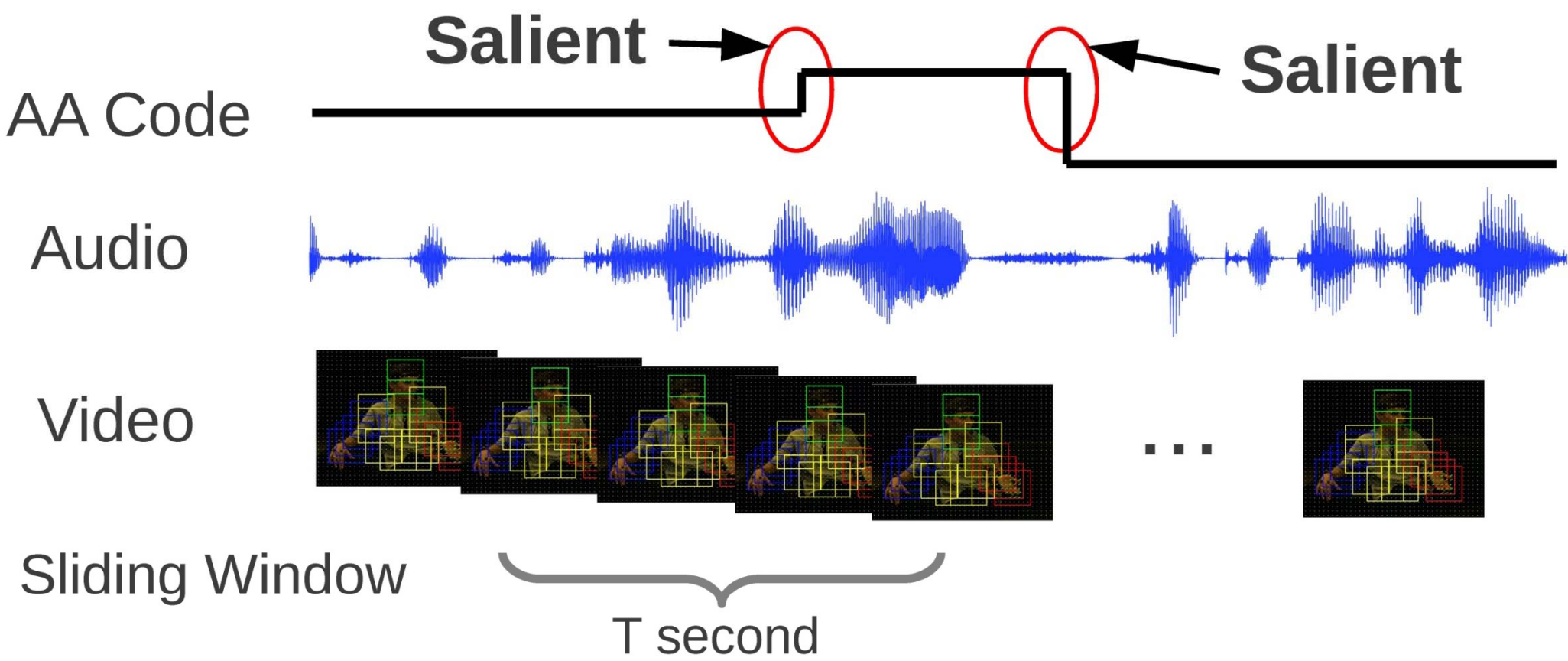
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SAIL & Dept. Psychology

Introduction

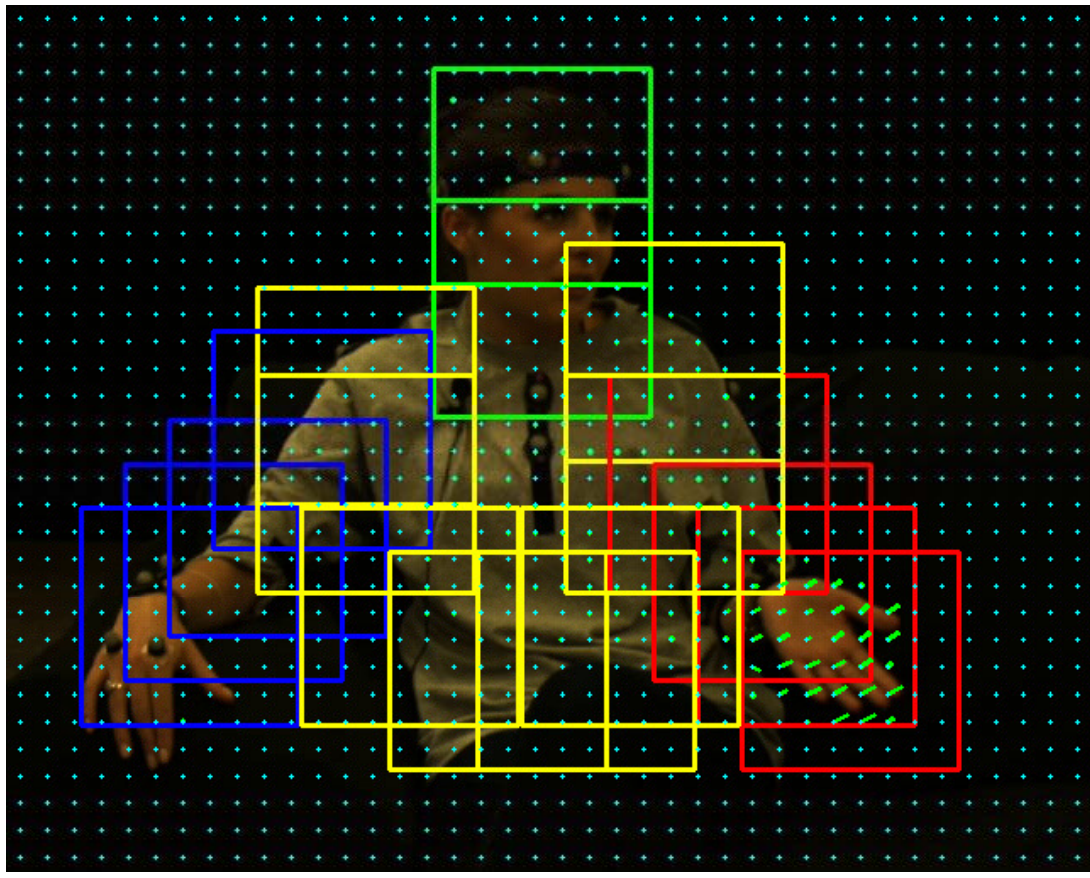


- ❑ **Approach Motivation:** energization of behavior by, or direction of behavior toward, positive stimuli
- ❑ **Avoidance Motivation:** energization of behavior by, or direction of behavior away from, negative stimuli
- ❑ What are the most **salient** events affecting AA Code
- ❑ How do AA salient events relate to multimodal observations
- ❑ Analyze with multimodal dyadic interaction recordings
- ❑ Psychologist annotated AA code
- ❑ Using data from 8 subjects, each with 2 to 6 sessions

Features

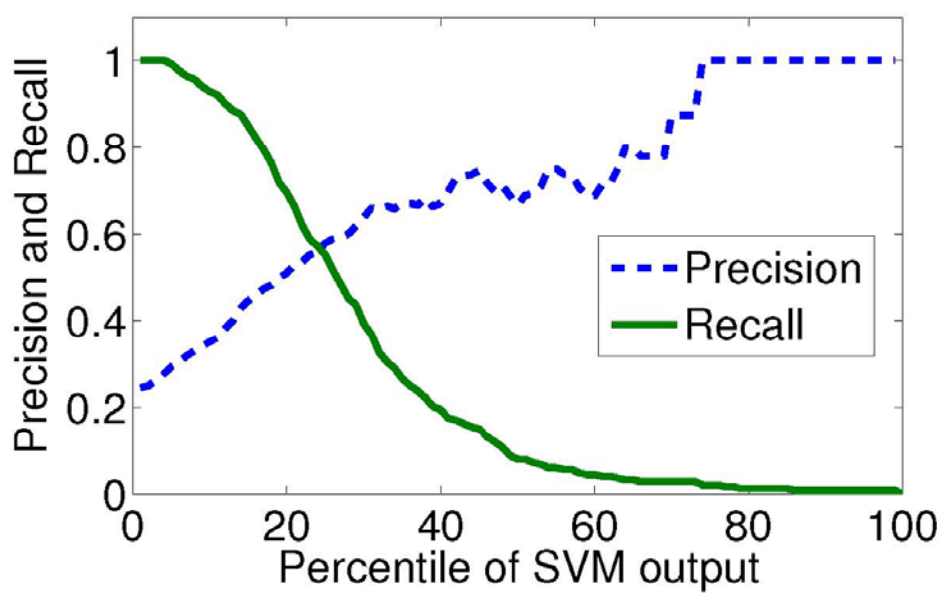


- ❑ Speech energy
- ❑ Body pose estimation
- ❑ Motion vector
- ❑ Functional of motion over T sec window

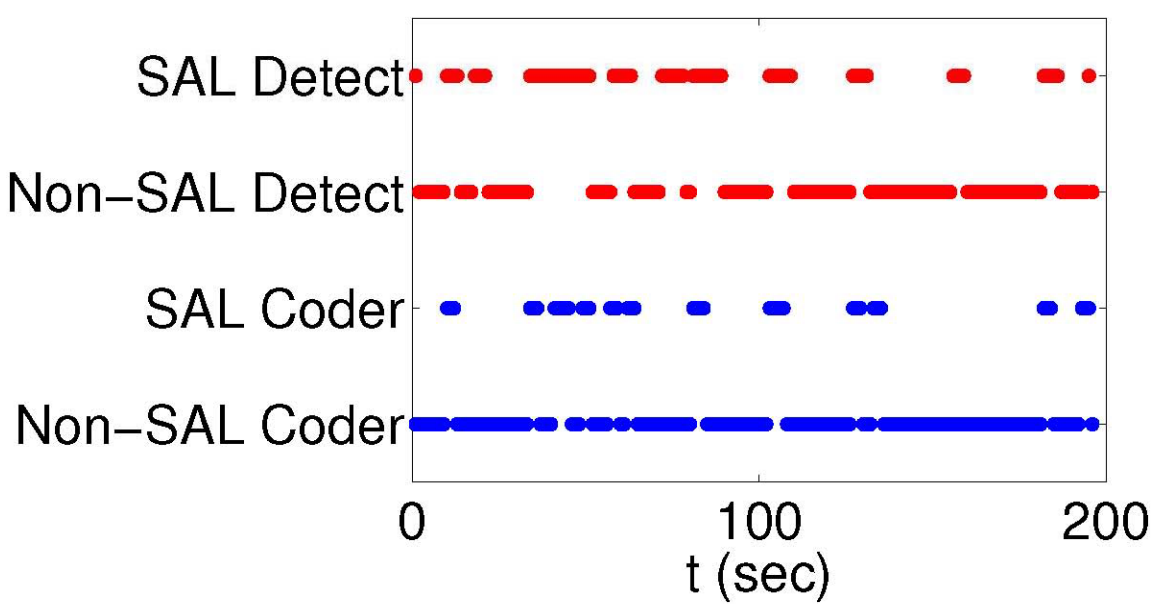


Experiments

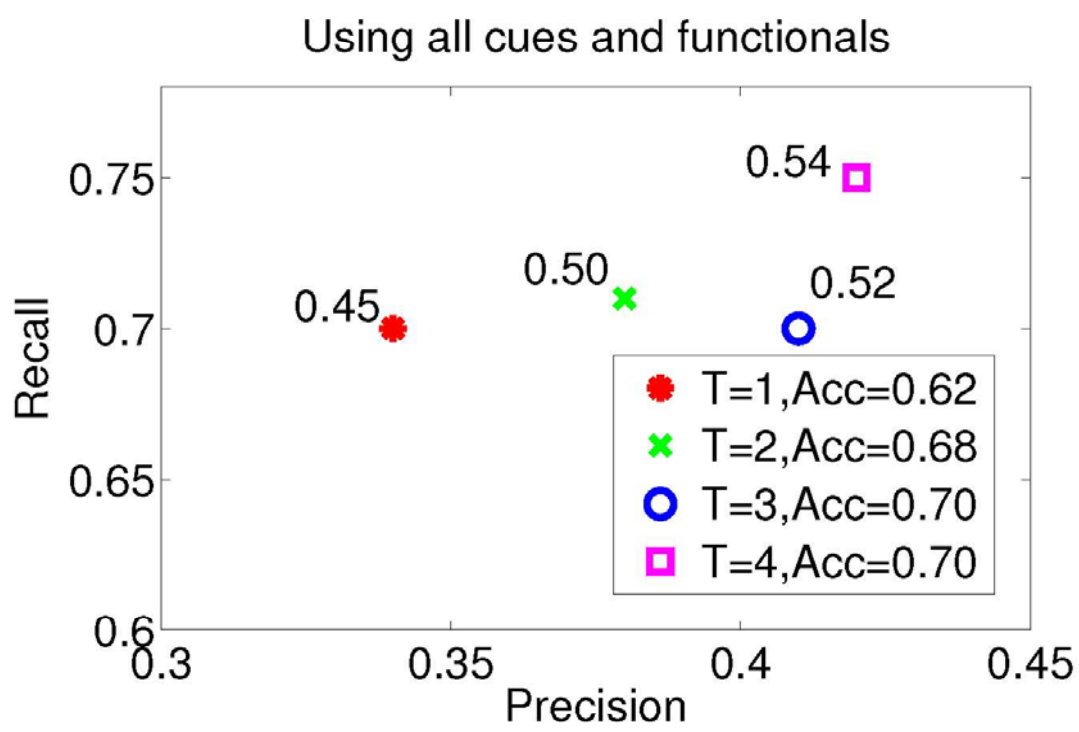
- ❑ **Balanced two class setup** (SVM Leave-one-subject-out)
 - Samples nearest to salient events, and two neighbors are considered **salient samples**
 - Samples farthest to salient events, select equal quantity as **non-salient samples**
- ❑ **Detection in entire sessions** (SVM Leave-one-session-out per subject)



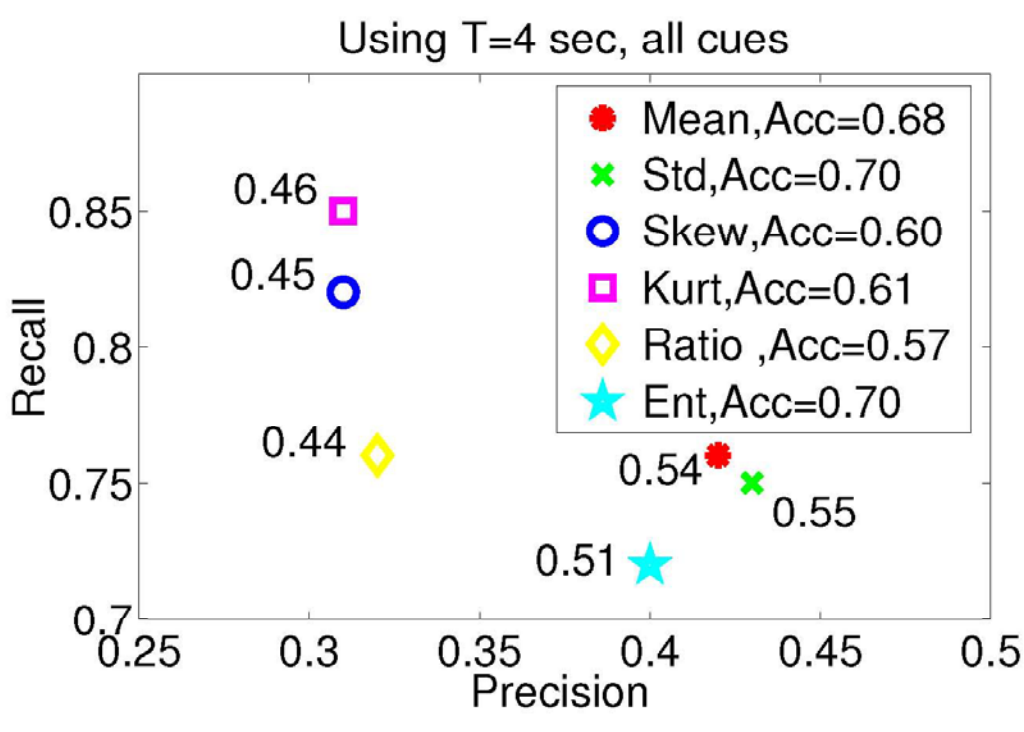
SVM threshold tuning for one subject



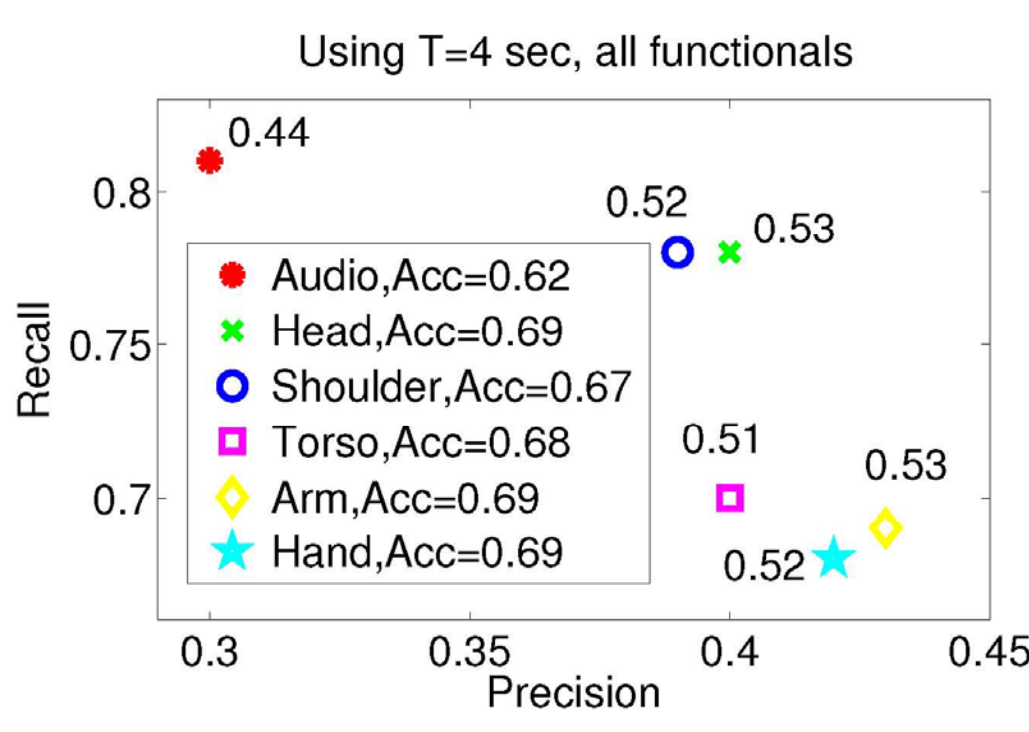
Detection result in one session



Effect of analysis window length, T=4 best



Mean of abs, std, entropy are better



Visual cues similar, outperform audio

Conclusion

- ❑ Multimodal detection of salient event, effect of analysis window, feature selection and functional
- ❑ Future work includes on-going data collection, extraction of finer behavior details (gaze, facial, etc.), analysis of degree and direction of AA code change, and how to integrate local saliency to overall judgment