Sequential Analysis Working Group (SAWG)


**BACKGROUND:** Increasingly, the temporal dynamics and sequential structure of multiple data streams recorded simultaneously in a single experimental or observational setting are presenting themselves for meaningfully integrated analysis. Such multiplicity is inherent but not limited to social settings. Multi-Modal Multi-Agent datasets are a growing focus of a number of SDN network projects. Even as behavioral methods traditionally focus on performance scores and event-related categorical tallies, video data—the majority of contemporary behavioral research—provide a continuous sequential data stream at temporal resolution that begins to ‘match’ the resolution of machine perception technology, motion capture or eye-tracking, as well as continuous recording of EEG, and other physiological measures such as blood pressure, heart rate and respiration rate/volume. The computational techniques for analyzing and modeling temporal dynamics, such as Markov models and time series analysis, are well established in the brain and machine perception labs, yet not as common in human behavioral research. Such analytic techniques have been established and applied specifically to observational data of social interactions by a number of social scientists (e.g., Bakeman & Gottman, 1997; Gottman & Roy, 1990; Gottman, 1981). de Barbaro & Forster established a weekly reading & working group during Fall quarter at UCSD to bring together computational and behavioral researchers both inside and outside the TDLC network. The computational expertise in this group provide training opportunities for the behavioral researchers while the range of behavioral studies examined (see attached table) provide computational researchers the exposure and insight into the theoretically meaningful queries relevant to learning, development, and social expertise across domains and species.

**Development of non verbal & verbal communication in children during problem solving**

**Food Negotiations in Elephants**

**Bonobo Mother-Infant Carry dynamics**

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**The Gamelan Project**

**ESL Genie: Modeling Second Language Learner Knowledge**

**Multiparty Multimodal Interaction Dynamics**

**Sequential Analysis: A Guide for Behavioral Scientists**

**Multisensory sensemaking: How children explore objects and ideas in a museum**

**Evaluating object exploration**

**Studying Dynamics of Infant Reaching Development**

**The present study was conducted with children between the ages of 2.5 and 14. Five children were selected who were: 1) above average in the rate of development of gestures, 2) in the process of developing speech, 3) in the process of developing social communication, 4) in the process of developing cognitive and motor skills, and 5) in the process of developing abstract thought and problem solving.**

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