Child development and aging

Discussion group

Key issue (1)

- Explore common ground in understanding age differences across the lifespan in generalistic (e.g. intelligence) and specific (e.g. visual attention, reinforcement learning) approaches?
  - Possibly using watershed model based approaches

Key issue (2)

- How to achieve a more integrative perspective on both ends of the life span despite using measures that are very specific for a given cognitive function (e.g. reinforcement learning)?
- Use of paradigms that can be decomposed with a formal model, study changes of parameters across life span
  - Allows for simulation of age differences based on mechanistic, modeled understanding of brain or cognitive processes

Key issue (3)

- Is optimality of behavior age specific?
  - Given cognitive capacity, and neural and cultural context determines optimal response in a given task / environment
  - it can be adaptive for different age groups to show different behavioral strategies or neural engagement

  For example, in reinforcement learning, value-based decisions are very well understood and characterized, but decisions that do not follow this standard behavior are ill-conceptualized (random choices, forgetting, switching behavior ….) and these might change with age and different environments

  Need for toolboxes of likely behaviors for different age groups and environments, to develop a comprehensive view of behavioral variability across the lifespan

Potential research paradigm

- Exploring optimality of behavior given individual environments in different age groups
  - What are the adaptation processes that compensate cognitive immaturity and decline?
  - Experience sampling:
    - Everyday life events (social, health-related, work, school, …)
    - Self reports (mood, …)
    - Cognitive of interest (risky decisions, working memory, …)
  - Repeated assessment and time-continuous assessment of dependency of interrelations on given environment (e.g. influence of prior social conflicts on risky decisions in adolescence)
  - Timed assessment of brain measures given explored age differences in dependency of cognitive performance on given environmental events