

UROF Proposal  
Early Childhood Cognition Lab  
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Reasoning about costs, competence, and culpability in very early childhood

The Early Childhood Cognition Lab in the Brain and Cognitive Sciences Department at MIT investigates how children and infants learn about the world through active exploration of their environments and ultimately how the early stage of childhood lays the foundations for the infrastructure of human cognition. As part of this lab headed by Dr. Laura Schulz, I will be working on a more particular project with graduate student Julian Jara-Ettinger looking at the developmental trajectory of how children perceive morality.

In this project, we will be running behavioral studies at the Boston Children's Museum with infants ranging from 18-48 months old. There will be three different experiments, each with a set of 16 children in a certain age group. The overall aim of the project is to investigate how very young children distinguish between various levels of competency and incompetency and how this perception influences their moral judgments. From studying this, we may be able to better understand the cognitive differences in people with autism and also how Theory of Mind supports learning and moral reasoning.

The first experiment will explore the question of whether or not children (18-24 months old) are able to distinguish between an incompetent and unable agent. We will show them a puppet who can—with some trouble—play with a toy and another one who is unable to play with it, and then ask them which puppet they would rather play with.

For the second experiment, we will be showing the children a competent agent and an incompetent one, both of whom will refuse to help their parent out. After, we will ask which puppet they would prefer to play with. For this experiment, we will be collecting two data sets—one with 2-year-olds and another with 3-year-olds—and seeing if there is a developmental trajectory in their moral reasoning in regards to such bystanders.

The last experiment is to ensure that the 3-year-olds are paying attention and not making their decisions at chance. We will once again show them a competent and incompetent puppet but this time we will ask them which puppet we should ask to show their parent how the toy works.

As a UROP, I will be recruiting children for these experiments and also running and recording them at the Boston Children's Museum. I plan to go to the museum to run these behavioral studies once a week, alternating between Sunday mornings and Tuesday afternoons. When I get back from the museum, I will transfer the video recordings to the ECCL computer and enter the participant information on our

database. After we finish collecting data for each of the experiments, I will also help with data analysis and interpretation. Overall, I plan to spend about six hours a week on this UROP.

I am incredibly excited to be part of this project. After having a more computational UROP in the Gabrieli Lab last semester, I'm looking forward to getting to see another side of Brain and Cognitive Sciences by studying human behavior and cognition this semester. It'll also be really cool to explore morality in a scientific way and see how children develop their moral reasoning. And most importantly, I think this study will have a beneficial role in the greater scope of the world. Besides expanding knowledge in childhood cognition (which also ultimately helps us understand human/adult cognition), it'll serve as a comparison point for future studies examining neurological disorders such as autism and help better pinpoint exactly what brain faculties they impair. From this stepping point, we'll be able to dive deeper into certain areas and better understand how such diseases work and eventually how we can try to fix them. And personally, I'm also excited to just learn more about how human behavior and cognition works and how it developed in our childhood.

From this UROP, I hope to gain a better idea of what the Brain and Cognitive Sciences field is like and has to offer—both to me personally as a scientist and to the greater world of humanity. I'm looking forward to gaining experience in carrying out behavioral studies and I'm also excited to work with children. Overall, I just want to gain more knowledge and experience in this field, and to grow to be more certain that it's the right field for me.