Faculty Mentor: Prof. Anne Fernald

Project Title: How Children’s Early Language Experience Nurtures Language Learning across SES and Culture

Description: At the Language Learning Lab we explore how infants learn to make sense of language in the first years of life. A central question in our research is how infants’ early experience with language from caregivers at home influences their later language development. In particular, how does poverty affect parent-infant interactions in ways that may compromise early language learning and later school success? In several different projects we investigate how infants from a wide range of backgrounds develop speed and efficiency in interpreting language in real time: (1) At our main lab on the Stanford campus, we conduct experimental studies with English-learning children from age 18 months to 5 years, combined with naturalistic observations of parent-infant communication at home. (2) It is also possible to participate in our outreach research project with low-SES English-speaking families, working in our mobile lab in rural areas of Northern California. (3) With colleagues in Pediatrics at the Stanford Medical School, we are running a longitudinal study of language development by premature infants, following these children from birth to 4 years of age. (4) In a collaborative project with the California School for the Deaf in Fremont CA, we are also exploring early language development by deaf children learning American Sign Language. (5) And in a large-scale collaboration with the NGO Tostan in Africa (http://www.tostan.org), we are conducting research on language learning by children living in rural villages in Senegal.

HB-REX interns have the opportunity to become involved in any of these projects. As an RA you will help to recruit families, design and run experiments, code and analyze data, and interact with parents and children. You will also be able to participate in a lab-based summer seminar on language development as well as in weekly lab and project meetings. Our lab community is a lively and very supportive group of researchers at all levels of experience with lots of student involvement, an excellent environment in which to prepare for honors research in child development.

The news stories below describe two recent studies from our research group:

Skills Required:
No previous research experience necessary!
High energy and a desire to learn
A positive and professional attitude
Conscientiousness and meticulous attention to detail in many different jobs you’ll do
Good organizational and interpersonal skills
You will work independently as well as part of a research team

Skills to be Learned:
Learn how developmental research is designed and conducted
Hone your critical thinking and analytic skills
Engage with parents and children from a broad range of backgrounds
Serious students interested in developing skills for honors research are especially welcome!
**Hours Per Week:** 30-40 hours/week for 8-10 weeks  
**Contact Person:** Melanie Ashland, Lab Manager, Center for Infant Studies  
email: kat.adams@stanford.edu
Faculty Mentor: Prof. Anne Fernald

Project Title: The Development of Real-time Language Processing by Spanish-learning Infants and Toddlers

Description: This project focuses on early language development by Latino children learning Spanish as their first language, as well as bilingual children learning both Spanish and English at the same time. In our research, we explore fundamental questions about language learning in the first years of life, conducting carefully controlled experiments with children from 18 months to 5 years. As an RA you will work both at our main lab on the Stanford campus and at our community lab in Sunnyvale (easily accessible by Caltrain), helping to recruit participating families, run experiments with both Spanish- and English-learning infants and children, code and analyze data, and interact with parents and children. You will also have the opportunity to participate in a lab-based summer seminar on language development as well as in weekly lab and project meetings. Our lab community is a lively and very supportive group of researchers at all levels of experience with lots of student involvement, an excellent environment in which to prepare for honors research in child development.

Skills Required:
RA must have NATIVE fluency in Spanish
No previous research experience necessary!
High energy and desire to learn
Positive and professional attitude
Conscientiousness and meticulous attention to detail in the many different jobs you’ll do
Good organizational and interpersonal skills
You will work independently as well as part of a research team

Skills to be Learned:
Learn how developmental research is designed and conducted
Hone your critical thinking and analytic skills
Engage with parents and children from a broad range of backgrounds
Serious students interested in developing skills for honors research are especially welcome!

Hours Per Week: 30-40 hours/week for 8-10 weeks
Contact Person: Dr. Nereyda Hurtado, Center for Infant Studies
email: nhurtado@stanford.edu
Faculty mentor: Dr. Anthony M. Norcia

Research supervisor(s) (name, position, email): Dr. Faraz Farzin, postdoctoral fellow, ffarzin@stanford.edu

Project topic(s): Visual Development in Infants, Children, and Adults

Brief description of scientific issues: The goal of our research is to understand visual development. The studies in our lab involve studying vision in infants, children, adults, as well as individuals with developmental disorders. Our studies primarily employ measures of EEG, while research participants are presented with various types of visual stimuli including images of faces.

Skills required: We are seeking a motivated, detail-oriented, organized, and hard-working undergraduate to join our lab. Interpersonal skills and professional demeanor are also important. Experience with human subjects research and programming skills are a plus.

Skills to be learned: The research assistant will be involved in a number of aspects of the research project, including participant recruitment and scheduling, assisting with data collection using EEG methodology, and data organization. Work may also include reading scientific materials related to the project. At the end of their term, the research assistant will have had exposure to all aspects of the research process.

# Hours/week (up to 40hrs/wk): 20-40 hours per week

# Weeks (between 6/13/11 - 9/5/11, or later if necessary): 8-10 weeks Between 7/1 and 9/5

Contact person (with email): Faraz Farzin ffarzin@stanford.edu
**Faculty mentor:** Anthony Wagner

**Research supervisor(s) (name, position, email):** Alan Gordon, PhD Student, gordonam@stanford.edu

**Project topic(s):** Cognitive neuroscience of memory and decision making

**Brief description of scientific issues:** Lateral parietal and prefrontal cortices have been associated with the integration of sensory information into decision variables that govern motor response, in both electrophysiology and fMRI studies. A recent study using a source memory paradigm suggests that mnemonic decisions may be supported by cortical structures similar to those that support perceptual decision-making. In order to elucidate the extent to which mnemonic and perceptual decision-making are supported by similar neural structures, the present study will examine fMRI data from human subjects performing perceptual and mnemonic decision tasks matched in many stimulus and response dimensions.

**Skills required:** Programming (Matlab, preferred); coursework in cognitive neuroscience/memory and statistics

**Skills to be learned:** Functional MRI and behavioral data collection and analysis; knowledge of current empirical and theoretical literatures

**# Hours/week (up to 40hrs/wk):** 40/wk

**# Weeks (between 6/13/11 - 9/5/11, or later if necessary):** 8-10 wks

**Contact person (with email):** Alan Gordon, gordonam@stanford.edu
Faculty mentor: Brian Knutson

Research supervisor(s) (name, position, email): Charlene C. Wu, Graduate Student, charlene.wu@stanford.edu

Project topic(s): Neural and behavioral investigations of affect on reward processing, decision-making, and financial risk-taking.

Brief description of scientific issues: By integrating psychological theory with neuroscience methods, our research seeks to understand the neural basis of emotion and how these affective circuits influence decision-making (http://www-psych.stanford.edu/~span/).

Skills required: Prior experience in behavioral testing, FMRI scanning, and/or statistical analysis preferred.

Skills to be learned: study design, experimental programming (E-Prime, MatLab), behavioral and FMRI data collection/analysis, scientific presentation of research findings.

# Hours/week (up to 40hrs/wk): 40

# Weeks (between 6/12/12 - 8/31/12, or later if necessary) 8-10

Contact person (with email): Charlene C. Wu (charlene.wu@stanford.edu)
Faculty mentor: Carol S. Dweck

Research supervisor(s) (name, position, email): Rodolfo Cortes, graduate student, cortes@stanford.edu

Project topic(s): social learning in infancy and early childhood

Brief description of scientific issues: How do children learn to become functioning members of their cultures? How do parents teach cultural practices? How do children acquire a sense of duty toward others and develop into moral individuals? These are some of the ongoing questions in our lab.

Skills required: Previous experience working with children is a plus but not necessary.

Skills to be learned: Students will help develop experimental procedures, recruit parents and children to come into the lab, run the studies, and help to code and analyze the data.

# Hours/week (up to 40hrs/wk): 30-40

# Weeks (between 6/13/11 - 9/5/11, or later if necessary): entire summer quarter

Contact person (with email): cortes@stanford.edu
Faculty mentor: Ellen Markman

Research supervisor(s) (name, position, email): Lucas Butler, Graduate Student, lpbutler@stanford.edu

Project topic(s): Intention & Demonstration in Children’s Causal Reasoning

Brief description of scientific issues:
A critical problem in cognitive development is the acquisition of generic knowledge—that is, knowledge that is important and generalizable to kinds and categories. One possible solution to this problem is recognizing when someone is explicitly communicating or demonstrating information for your benefit. Recent work has suggested that even in infancy infants are sensitive to cues that someone is doing something pedagogically, for their benefit, and may take information conveyed in this way as important and generalizable (e.g., Csibra, 2010; Csibra & Gergely, 2009). In recent work, we have been exploring the role of explicit teaching and demonstration in the kind-based inductive inferences that older children make. In our work, we have found that pedagogical demonstration has a profound impact on preschooler’s inferences about kinds and categories.

Skills required:
Experience working with children, especially preschool children, is a plus. Students should have taken at least Psych 1, and preferably also have taken either Psych 60, Psych 141, or another developmental psychology course.

Skills to be learned:
Students will learn all aspects of planning and conducting research studies with children, from the background research and design, to the piloting and conducting of controlled experiments, coding and analysis of data, and writing up of research reports.

# Hours/week: At least 20 hrs/wk is required, preferably 40 hrs/wk.
# Weeks: 8 weeks, 6/21-8/10
Contact person (with email): Lucas Butler, lpbutler@stanford.edu
Faculty mentor: Ellen Markman

Research supervisor(s) (name, position, email): Taylor Holubar, Graduate Student, tholubar@stanford.edu

Project topic(s): "But apples ARE yummy! How preschoolers think about differences of opinion."

Brief description of scientific issues: In principle, every American adult knows the difference between a fact and an opinion: facts have right answers, and opinions don’t; everyone should agree about facts, but reasonable people can disagree about opinions. How is it, then, that we can say things like "chocolate is delicious" or "that was the worst movie ever made," as if they were self-evident and categorically true? And how do children learn to differentiate facts and opinions, given the inconsistent input they hear? In our research, we are exploring what children know about facts and opinions and their epistemological status. In particular, we’re interested in when and why children are able and willing to acknowledge that different people can have different opinions.

Skills required: Experience working with children, especially preschool children, is a plus. Students should have taken at least Psych 1, and preferably also have taken either Psych 60, Psych 141, or another developmental psychology course.

Skills to be learned: Students will learn all aspects of planning and conducting research studies with children, from the background research and design, to the piloting and conducting of controlled experiments, coding and analysis of data, and writing up of research reports.

# Hours/week: At least 20 hrs/wk is required, preferably 40 hrs/wk.
# Weeks: 8 weeks, 6/21-8/10
Contact person (with email): Taylor Holubar, tholubar@stanford.edu
Faculty mentor: Ellen Markman

Research supervisor(s) (name, position, email): Sarah Gripshover, Graduate Student, sarah.grip@gmail.com

Project topic(s): Teaching Nutrition to Preschool Children

Brief description of scientific issues:
How do very young children understand the relationship between food and the body, and how can developmental psychologists use insight from cognitive development to teach nutrition? In this project, you will use materials developed by Professor Ellen M. Markman and Sarah Gripshover to give children conceptual tools for understanding food as a source of nutrition. Our goal is to determine the extent to which training on foundational concepts related to nutrition may then scaffold children’s understanding of new information or evidence related to nutrition.

Contact person (with email): Sarah Gripshover, Graduate Student, sarah.grip@gmail.com
Faculty mentor: James Gross

Research supervisor(s) Scott Jacobs, PhD student, sejacobs@stanford.edu

Project topic(s): Test anxiety and emotion regulation

Brief description of scientific issues: It is widely recognized that anxiety can influence performance in test-taking situations. However, surprisingly little is known about the strategies that people use to regulate their test-taking anxiety and the effects that those strategies have on performance outcomes.

These projects aim to understand how emotion generation and emotion regulation processes influence performance outcomes.

Skills required: None

Skills to be learned: Experimental design, data collection procedures, and statistical analysis using SPSS.

# Hours/week (up to 40hrs/wk): 40

# Weeks (between 6/13/11 - 9/5/11, or later if necessary) 10

Contact person (with email): Scott Jacobs, PhD student, sejacobs@stanford.edu
Faculty mentor: Jeanne Tsai

Research supervisor(s) (name, position, email): Birgit Koopmann-Holm, Graduate student, bkoopmann@stanford.edu

Project topic(s): Culture and Emotion

Brief description of scientific issues:
We are examining cultural differences in how much people want to avoid feeling negative emotions (“avoided affect”) and how that relates to how people respond to the suffering of another person. We are running an experiment now during which we manipulate how much people want to avoid feeling negative. Then we examine how that influences how people respond to the suffering of another (e.g., which sympathy cards they choose). Also, we are running a large questionnaire study in which we assess avoided negative affect and responses to suffering. Over the summer, we will analyze the data from these studies and will code the open-ended responses that we are collecting for these studies.

Skills required: Detail-oriented, reliable, good analytical skills

Skills to be learned: Development of a coding system, coding open-ended data using that coding system, running statistical analyses using SPSS

# Hours/week (up to 40hrs/wk): 40 hrs/wk

# Weeks (between 6/11/12 - 9/3/12, or later if necessary) 10 weeks

Contact person (with email): bkoopmann@stanford.edu
Faculty mentor: Dr. Kalanit Grill-Spector

Research supervisor(s) (name, position, email): Dr. Kalanit Grill-Spector, Dr. Nathan Witthoft, Dr. Golijeh Golarai

Project topic(s): Neural and Psychological aspects of face processing

Brief description of scientific issues: The research project will examine neural and perceptual correlates of face processing in normal adults, adults with deficits in face processing (individuals with congenital prosopagnosia) and children (ages 7-16 years). Students will be involved in designing & running behavioral experiments examining different perceptual and cognitive aspects of face processing including recognition memory and eye tracking during viewing of faces and other object categories. In addition, students will be involved in analyzing functional and anatomical brain data related to face processing. Importantly, results will be compared across subject groups. The outcome of the research will determine how faces are processed in the brain and what are the neural mechanisms that underlie poorer face recognition memory in children and congenital prosopagnosics vs. typical adults.

Skills required: Be able to program in matlab; Experience with brain data analysis software such as mrVISTA is a plus.

Skills to be learned: Learn about the functional and anatomical organization of the human ventral stream in typical adults as well as in congenital prosopagnosia and throughout development. Learn to design, run and analyze behavioral experiments of face and object perception. Learn to analyze and understand functional neuroimaging data in humans.

# Hours/week (up to 40hrs/wk): 40 hours a week

# Weeks (between 6/13/11 - 9/5/11, or later if necessary) Flexible, but preferable if the start is mid or end of July

Contact person (with email): kalanit@stanford.edu
Faculty mentors: Hazel Rose Markus & Jennifer Eberhardt -- Mind, Culture, & Society (MCS) Lab

Note: Two positions, one per professor

Research supervisor(s) (name, position, email):
Cynthia Levine, PhD Student & MCS Program Coordinator, mcslab@gmail.com

Project topic(s): The Mind, Culture, and Society Lab explores the ways in which the sociocultural environment and its products shape psychological experience. More specifically, research in the MCS Lab examines how race, ethnicity, culture, gender, and social class affect perception, attitudes, motivation, and behavior. These psychological processes are examined across a wide variety of domains, including education, law, business, and medicine.

Summer projects will be involve participation in our lab's current research projects. Please visit our lab website for a list of current projects: http://www-psych.stanford.edu/~mcslab/index.php.

Brief description of scientific issues: Psychological processes—perception, cognition, emotion, motivation—are inextricably linked to the social worlds we inhabit. Psychology exists both in the head and in the world, and is most productively analyzed at this intersection.

Skills required: Prior experience is not required although significant coursework in psychology is preferred.

Skills to be learned: As a research assistant in the MCS lab, you will gain valuable research experience while exploring how race and culture shape psychological experience. Research assistants provide very needed and valued assistance to the research process. As a research assistant, you will gain experience: 1) researching background information for a new or ongoing study, 2) designing and manipulating experimental stimuli for use in studies, 3) constructing and modifying various surveys and studies through the use of specialized computer programs, 4) running specific studies and debriefing participants, 5) recruiting and scheduling participants for various studies, 6) gathering, coding, or entering in data, and much more.

# Hours/week (up to 40hrs/wk): 40 hours/wk -- 2 positions
# Weeks (between 6/13/11 - 9/5/11, or later if necessary) 8 - 10 weeks, 10 weeks preferred

Contact person (with email):
Cynthia Levine, PhD Student & MCS Program Coordinator, mcslab@gmail.com
Faculty Mentor: Michael Frank

Research Supervisor: Ally Kraus, Lab Manager, amkraus@stanford.edu

Project Topic: Social looking in children

Brief Discussion of Scientific Issues: How do babies and young children look at the social world? We are interested in using eye-tracking methods to find out! In this project, we will show kids simple videos of social interactions and use a corneal-reflection eye-tracker to record how children look at the videos—which actors they look at, how they scan between participants in a conversation, and how they identify the referents in spoken language. This information can help us understand the changes in social cognition that happen during the first couple of years of life, and can provide valuable descriptive data to apply to the analysis of social cognition deficits in children with Autism Spectrum Disorders. The intern will assist with this project as well as work on their own related project.

This project will take place in the Language and Cognition lab in the Psychology Department and involve designing and running experiments with children and adults. We will be working with children at Bing Nursery and in our own on-campus lab, and we will be testing adults using Amazon's Mechanical Turk web service. The project may additionally involve some weekday and weekend trips to a local science museum to collect data in the field. Being part of the lab means joining an active research community with weekly lab meetings and reading groups.

Skills Required: Familiarity/comfort working with children Basic computer skills (e.g. MS Office)

Preferred: Basic experimental psychology background (Psych 1, Psych 60, etc.) Basic programming skills in MATLAB or R

Skills to be learned: Eye-tracking methods, Experimental methods with children, Data analysis methods, Web-based experimental methods

# Hours/week (up to 40hrs/wk): 40

# Weeks: 10 weeks, ideally starting 6/18.

Contact Person: Ally Kraus, amkraus@stanford.edu
Faculty mentor: Nalini Ambady (Interpersonal Perception and Communication Lab)

Research supervisor(s) (name, position, email): Aneeta Rattan, Postdoctoral Fellow, arattan@stanford.edu

Project topic(s): Nonverbal behavior, interpersonal perception, interracial interactions

Brief description of scientific issues: This summer, we are interested in exploring how nonverbal behavior is expressed and interpreted in intergroup interactions. In particular, we will be exploring nonverbal behavior in people's interracial interactions - what do people intend to communicate, what actually gets communicated, and how is it interpreted?

More generally, our lab represents a growing center of research aimed at understanding the ways in which social factors interplay with perception, cognition, and behavior. Our broad research interests include the accuracy of spontaneous social judgments from "thin slices" (brief observations) of behavior, the cognitive and behavioral effects of stereotyping, nonverbal and verbal communication in real-life settings, and the role of social and structural group memberships in interpersonal relations. We examine these phenomena at multiple levels of analyses ranging from the neurological and physiological to sociocultural.

Skills required: No experience necessary, but you must be detail-oriented, conscientious, organized, dedicated, willing to learn, and have excellent interpersonal skills. You should also have an intrinsic interest in the research topics we will be studying and the ability to work independently.

Skills to be learned: Research assistants will learn how to design and administer experimental studies, how to edit videos with Adobe Premiere, how to code and analyze nonverbal behavior, and will have the opportunity to discuss research ideas with members of the IPC lab.

# Hours/week (up to 40hrs/wk): 40 hours per week

# Weeks (between 6/13/11 â€“ 9/5/11, or later if necessary): 10 weeks

Contact person (with email): Aneeta Rattan (arattan@stanford.edu)
Faculty mentor: Prof. Stephen Kosslyn

Research supervisor(s) (name, position, email): Yoni Donner, CS PhD student, yonid@stanford.edu

Project topic(s): Assessment of within-person variation in cognitive abilities

Brief description of scientific issues: The central issue is how basic cognitive abilities vary within a given person, depending on both internal and external factors (such as having slept poorly or having just had a cup of coffee). The position would involve helping us implement cognitive tests online in a platform that allows large-scale studies of the factors affecting within-person variation in cognitive abilities, as well as helping test participants using this platform.

Skills required: basic programming, experimental design, basic statistics

Skills to be learned: cognitive testing, advanced experimental design, data analysis, web development

# Hours/week (up to 40hrs/wk): 20

# Weeks (between 6/13/11 - 9/5/11, or later if necessary): 10

Contact person (with email): Yoni Donner <yonid@stanford.edu>