Comm 122: Visual Communication (Spring 2020)

4/21/2019

When & Where

<u>When</u>   : Spring 2020, Tuesdays & Thursdays, 2:00 – 3:15 pm
<u>Where</u>   : TBD

Instructor Info

<u>Professor</u>   : Tao Gao (Dept. of Communication; Dept. of Statistics)
<u>Office:</u>   : Rolfe Hall 2315
<u>Email</u>   : tao.gao@stat.ucla.edu (*must include " [Comm122] " in the title of your emails*)
<u>Office Hours</u> : Tuesday 3:30-4:30 pm, or by appointment
<u>TA</u>   : TBD

Course Description

You "see" others' minds whether you are working together in an office, cheering at a sporting event or socializing at a party. This course reveals the roots of communication by studying the social minds of infants, adults and primates and how these social roots are implanted in artificial intelligence.

Learning Objectives and Outcomes

- Understanding cognitive foundations of communication
- Testing social science theories with rigorous experimental methods
- Solving social science challenges with a programming language

Justification for adding sections

As the class does not require prior programming experience, it is essential for adding sections so that the TA can introduce basic programming knowledge and explain the course coding assignments.

Expected Work and Grading

1. (50%) Two Exams

50% of your course grade will be determined by two exams. The nature of these exams will be described more fully in class. Make-up exams will be given only in exceptional circumstances, and in all cases may involve completely new questions, possibly in other formats. (**Advice: you really want to avoid having to take a make-up exam**.) To do well on these exams, you'll have to attend the lectures.

2. (50%) Weekly Entry-level Python Coding Assignments

50% of your course grade will be determined by 8 entry-level coding assignments. **No prior coding experience is required.** The purpose of these coding assignment is to let you develop skills of representing a social science question with a programming language. Your TA will hold sessions to go through basic python syntax. Each assignment will count for 6.25% of your grade. It will be released on Tuesday's lecture. The submission deadline is Sunday at 11:59pm (end of day). You have 3 late days in total. **No late submission will be accepted after that.** Here are details of how your code

will be graded: (1) 1.5% for on-time submission; (2) 3% for code without runtime error (i.e. your code runs smoothly); (3) 6.25% for code returning the correct result.

Preliminary Topics

Week #	Topic
1	Intro: Visual Communication
	The Origin of Communication
2	Goal Inference
	Knowledge and Belief
3	The Rationality Principle
	Visual Roots of Social Cognition
4	Inverse Planning
	Midterm Exam
5	Communication
	Joint Attention
6	Gaze and Pointing
	Emotion and Love
7	Request
	Service and Share
8	Sympathy, Reputation
	Cooperation
9	Morality
	Social Norms
10	Natural Pedagogy
	Final Exam

Reading List

(optional)

Admoni, H., & Scassellati, B. (2017). Social eye gaze in human-robot interaction: a review. Journal of Human-Robot Interaction, 6, 25-63.

Baillargeon, R., Scott, R. M., & Bian, L. (2016). Psychological reasoning in infancy. Annual Review of Psychology, 67, 159-186.

Baldwin, D. A., & Moses, L. J. (2001). Links between social understanding and early word learning: Challenges to current accounts. Social Development, 103, 309-329.

Baker, C. L., Saxe, R., & Tenenbaum, J. B. (2009). Action understanding as inverse planning. Cognition, 113, 329-349.

Carpenter, M., & Liebal, K. (2011). Joint attention, communication, and knowing together in infancy. Joint attention: New developments in psychology, philosophy of mind, and social neuroscience, 159-181.

Dunfield, K. A., & Kuhlmeier, V. A. (2010). Intention-mediated selective helping in infancy. Psychological science, 21, 523-527.

Gao, T., McCarthy, G., & Scholl, B. J. (2010). The wolfpack effect: Perception of animacy irresistibly influences interactive behavior. Psychological Science, 21, 1845-1853.

Gergely, G., Nádasdy, Z., Csibra, G., & Bíró, S. (1995). Taking the intentional stance at 12 months of age. Cognition, 56, 165-193.

Horner, V., Carter, J. D., Suchak, M., & de Waal, F. B. (2011). Spontaneous prosocial choice by chimpanzees. Proceedings of the National Academy of Sciences, 108, 13847-13851.

Jordan, J., McAuliffe, K., & Warneken, F. (2014). Development of in-group favoritism in children's third-party punishment of selfishness. Proceedings of the National Academy of Sciences, 111, 12710-12715.

Liebal, K., Carpenter, M., & Tomasello, M. (2010). Infants' use of shared experience in declarative pointing. Infancy, 15, 545-556.

Liszkowski, U. (2017). Emergence of shared reference and shared minds in infancy. Current opinion in psychology, 28, 26-29.

Martin, A., & Olson, K. R. (2015). Beyond good and evil: What motivations underlie children's prosocial behavior? Perspectives on Psychological Science, 10, 159-175.

Moon, A., Troniak, D. M., Gleeson, B., Pan, M. K., Zheng, M., Blumer, B. A., ... & Croft, E. A. (2014). Meet me where I'm gazing: How shared attention gaze affects human-robot handover timing. In Proceedings of the 2014 ACM/IEEE international conference on Human-robot interaction (pp. 334-341). ACM.

Olson, K. R., & Spelke, E. S. (2008). Foundations of cooperation in young children. Cognition, 108, 222-231.

Onishi, K. H., & Baillargeon, R. (2005). Do 15-month-old infants understand false beliefs? Science, 308, 255-258.

Sabbagh, M. A., & Baldwin, D. A. (2001). Learning words from knowledgeable versus ignorant speakers: Links between preschoolers' theory of mind and semantic development. Child development, 72, 1054-1070.

Santos, L. R., Nissen, A. G. & Ferrugia, J. (2006). Rhesus monkeys (Macaca mulatta) know what others can and cannot hear. Animal Behaviour, 71(5). 1175-1181.

Scholl, B. J., & Gao, T. (2013). Perceiving animacy and intentionality: Visual processing or higher-level judgment? In M. D. Rutherford & V. A. Kuhlmeier (Eds.), Social perception: Detection and interpretation of animacy, agency, and intention (pp. 197-230). Cambridge, MA: MIT Press.

Silk, J. B., Brosnan, S. F., Vonk, J., Henrich, J., Povinelli, D. J., Richardson, A. S., ... & Schapiro, S. J. (2005). Chimpanzees are indifferent to the welfare of unrelated group members. Nature, 437, 1357.

Simons, D. J., & Chabris, C. F. (1999). Gorillas in our midst: Sustained inattentional blindness for dynamic events. Perception, 28, 1059-1074.

Ramenzoni, V. C., & Liszkowski, U. (2016). The social reach: 8-month-olds reach for unobtainable objects in the presence of another person. Psychological science, 27, 1278-1285.

Tomasello, M. (2010). Origins of human communication. MIT press.

Tomasello, M., & Zuberbühler, K. (2002). Primate vocal and gestural communication. The cognitive animal: empirical and theoretical perspectives on animal cognition. MIT Press, Cambridge, 293-299.

Warneken, F. (2018). How children solve the two challenges of cooperation. Annual review of psychology, 69, 205-229.

Warneken, F., & Tomasello, M. (2009). Varieties of altruism in children and chimpanzees. Trends in cognitive sciences, 13, 397-402.

Warneken, F., & Tomasello, M. (2013). Parental presence and encouragement do not influence helping in young children. Infancy, 18, 345-368.

Wellman, H. M. (2014). Making minds: How theory of mind develops. Oxford University Press.