K. CORA AMES

kca2120@columbia.edu

EDUCATION

Columbia University 12/2014 - present
Post-doctoral fellow

Stanford University 06/2009 - 11/2014
Ph.D. in Neuroscience
GPA: 3.8

University of Chicago 09/2005 - 06/2009
B.S. with General Honors in Mathematics
GPA: 3.6

RESEARCH EXPERIENCE

Post-Doctoral Research Columbia University
Research Advisors: Dr. Mark Churchland, Dr. Larry Abbott 12/2014 - present

- Designed and performed experiments investigating the interaction between the motor cortices of each hemisphere in nonhuman primates (primary advisor: Mark Churchland)
- Trained recurrent neural networks to model methods of communication between brain regions (primary advisor: Larry Abbott)
- Leveraged machine learning and statistical analysis techniques in MATLAB on large, simultaneously recorded neural datasets

Doctoral Research Stanford University
Research Advisor: Dr. Krishna Shenoy 06/2010 - 11/2014

- Designed and performed experiments investigating the interaction between motor preparation and motor execution in the arm movement system of nonhuman primates
- Leveraged machine learning and statistical analysis techniques in MATLAB on large, simultaneously recorded neural datasets

GRANTS

Simon's Collaboration on the Global Brain Post-Doctoral Fellowship 07/2015 - 06/2018
3 years of full post-doctoral research funding
Awarded to approx. 10 neuroscience post-doctoral researchers per year.

Stanford Graduate Fellowship 06/2009 - 09/2014
3 years of full graduate funding
Awarded to top incoming Ph.D. students at Stanford University

National Science Foundation Graduate Fellowship 06/2010 - 05/2013

AWARDS

Second Prize, Sammy Kuo Award 2014
Awarded to the top neuroscience papers published by Stanford graduate students each year.

Community Choice Award, National Science Foundation Video Competition 2013
Video-making competition for graduate students to explain their research to the public.
My team's video was one of the top-voted videos by the public.

TEACHING EXPERIENCE

Teaching Assistant Stanford University
The Neural Basis of Behavior 3/2014 - 6/2014

- Led small group discussion on recent systems neuroscience papers, advised students on experimental design proposals, and ran one lecture.
- 15 students

Teaching Assistant Stanford University
Information and Signaling Mechanisms in Neurons and Circuits 9/2011 - 12/2011

- Graded homework and ran a weekly review section
- 30 students

LEADERSHIP AND SERVICE

Organizer New York City
SCGB Post-doctoral Seminar Series 1/2016 - 6/2017

- Selected speakers and ran meetings for seminar series featuring post-doctoral research
- Meetings were held every other month and sponsored by the Simons Collaboration on the Global Brain

Student Representative Stanford University
Neuroscience Program Committee 6/2015 - 6/2016

- Advocated for graduate students during meetings and decisions of the Stanford Neuroscience Program Committee
- Participated as a member of the Graduate Student Recruitment committee, including evaluating incoming graduate student applications, organizing recruitment weekend, and helping to select the incoming class.
- Selected and invited four professors from other universities to attend the neuroscience program annual retreat.

PUBLICATIONS

Ames, K. C., Ryu, S. I., & Shenoy, K. V. (Accepted at *Nature Communications*) The interaction of where and when to reach in a last-moment reach correction task

Trautmann, E., Stavisky, S., Lahiri S., **Ames K.C**, Kaufman, M., Ryu, S., Ganguli S., & Shenoy, K.V. (*in press*) Accurate estimation of neural population dynamics without spike sorting. Neuron, in press. doi: https://doi.org/10.1101/229252

Pandarinath, C., **Ames, K. C.**, Russo, A. A., Farshchian, A., Miller, L. E., Dyer, E. L., & Kao, J. C. (2018). Latent Factors and Dynamics in Motor Cortex and Their Application to BrainMachine Interfaces. Journal of Neuroscience, 38(44), 9390-9401.

Ames, K. C., Ryu, S. I., & Shenoy, K. V. (2014). Neural Dynamics of Reaching Following Incorrect or Absent Motor Preparation. Neuron, 81(2), 438-451.

MANUSCRIPTS IN REVISION AND REVIEW

Ames, K. C. & Churchland, M. M. (BioRXiv, in review at ELife) Motor cortex signals corresponding to the two arms are shared across hemispheres, mixed among neurons, yet partitioned within the population response. https://www.biorxiv.org/content/10.1101/552257v1

CONFERENCE PRESENTATIONS

Ames, K. (2018, November) "Neural dynamics of bimanual control." Society for Neuroscience Conference, Minisymposium Talk 006.03

Ames, K., Abbott, L., Churchland, M. (2018, November) "Neural activity in primate motor cortex during bimanual versus unimanual rhythmic movements." Society for Neuroscience Conference, Poster 224.01

Ames, K., and Churchland, M. (2018, February) "Population-level but not neuron-level similarity during movement of the contra- vs ispi-lateral hand." Computational and Systems Neuroscience (COSYNE) conference, Poster II-28

Ames, K., and Churchland, M. (2017, November) "Motor cortex activity during contralateral versus ipsilateral arm movements: Preserved response structure despite local reorganization of responses." Society for Neuroscience Conference, Poster 152.23

Ames, K., and Churchland, M. (2017, September) "Dynamics of neural coordination across hemispheres." Simons Collaboration on the Global Brain Annual Meeting, Invited talk

Ames, K., and Churchland, M. (2017, August) "Motor cortex activity during contralateral versus ipsilateral movements: preserved global response structure despite local reorganization of responses." Simons Collaboration on the Global Brain Post-doctoral Seminar Series, Invited talk

Ames, K., and Churchland, M. (2017, May) "Motor cortex activity during contralateral versus ipsilateral movements: preserved global response structure despite local reorganization of responses." Neural Control of Movement conference, Poster 2-B-7

Ames, K., and Shenoy, K. (2014) "Motor cortical activity predicts behavioral corrections following last-minute goal changes." Computational and Systems Neuroscience (COSYNE) conference, Poster III-98

Ames, K., Ryu, S., and Shenoy, K. (2013) "Neural and behavioral responses to last-minute goal changes in a reaching task." Society for Neuroscience Conference, Poster 750.21/YY11

Ames, K., Ryu, S., and Shenoy, K. (2013) "Neural dynamics of reaching following incorrect or absent motor preparation." Translational and Computational Motor Control (TCMC) Meeting, Oral presentation

Ames, K., Ryu, S., and Shenoy, K. (2012) "Neural dynamics of reaching following incomplete or incorrect planning." Computational and Systems Neuroscience (COSYNE) conference, Oral presentation

Ames, K., Ryu, S., and Shenoy, K. (2011) "Neural dynamics of movement execution following incomplete or incorrect planning." Society for Neuroscience Conference, Poster 591.17/MM25

Ames, K., Scott, M., and Kay, L. (2009) "Dopamine receptors modify oscillatory circuits in the rat olfactory bulb." Society for Neuroscience Conference, Poster 256.4/U21