Ling-Qi Zhang

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EDUCATION

Ph.D. in Psychology: Computational Neuroscience 2017 - 2023
University of Pennsylvania, United States

M.A. in Statistics 2018 - 2022
University of Pennsylvania, United States

B.Eng. in Computer Science and Technology 2013 - 2017
Southern University of Science and Technology, China

EMPLOYMENT

Graduate Student 2017 - Now
Computational Neuroscience Initiative, University of Pennsylvania
Advisors: David H. Brainard, Alan A. Stocker

Summer Research Associate / Guest Researcher 2021 - Now
Center for Computational Neuroscience, Simons Foundation
Advisor: Eero P. Simoncelli

Research Assistant 2016 - 2017
Psychology Department, University of California, Los Angeles
Advisor: Ladan Shams

JOURNAL PUBLICATIONS

1. (under review) AS Benjamin, **LQ Zhang**, C Qiu, AA Stocker, and KP Kording (2022). Efficient neural codes naturally emerge through gradient descent learning. bioRxiv, 2022.05.11.491548.
2. **LQ Zhang** and AA Stocker (2022). Prior expectations in visual speed perception predict encoding characteristics of neurons in area MT. *Journal of Neuroscience*, 42(14):2951–2962.
3. **LQ Zhang**, NP Cottaris, and DH Brainard (2022). An image reconstruction framework for characterizing initial visual encoding. *eLife*, 11, e71132.
4. JP Noel*, **LQ Zhang***, AA Stocker, and DE Angelaki (2021). Individuals with autism spectrum disorder have altered visual encoding capacity. *PLOS Biology*, 19(5), e3001215. (* co-first authorship)
5. MAK Peters*, **LQ Zhang***, and L Shams (2018). The material-weight illusion is a Bayes-optimal percept under competing density priors. *PeerJ*, 6, e5760. (* co-first authorship)

CONFERENCE PRESENTATION

1. **LQ Zhang**, Z Kadkhodaie, EP Simoncelli, and DH Brainard (2022). Image reconstruction from cone excitations using the implicit prior in a denoiser. Vision Sciences Society Annual Meeting.
2. **LQ Zhang** and AA Stocker (2021). Psychophysically estimated low-speed prior expectations match the encoding characteristics of neurons in area MT. Vision Sciences Society Annual Meeting.
3. **LQ Zhang**, NP Cottaris, and DH Brainard (2020). Bayesian image reconstruction from retinal cone signals. Vision Sciences Society Annual Meeting. **(Talk)**

4. AA Stocker and **LQ Zhang** (2020). Psychophysically estimated low-speed prior expectations match the encoding characteristics of neurons in area MT. Vision Sciences Society Annual Meeting. (**Talk**, Canceled Due to COVID-19)
5. **LQ Zhang** and AA Stocker (2020). Neural encoding characteristics match behaviorally measured prior expectations in visual speed perception. COSYNE Abstracts, Denver, CO.
6. AS Benjamin*, C Qiu*, **LQ Zhang***, KP Kording, and AA Stocker (2019). Shared visual illusions between humans and artificial neural networks. Conference on Cognitive Computational Neuroscience, Berlin, Germany.
(* equal contribution)
7. Z Fang, **L Zhang**, and K Chen (2016). A behavior mining based hybrid recommender system. IEEE International Conference on Big Data Analysis.

AWARDS

- **MindCORE Collaborative Grant Award**
Amount: $66,000 PI: Alan A. Stocker, Geoffrey K. Aguirre
MindCORE - University of Pennsylvania, 2022
- John I. Yellott Travel Award for Vision Science
Vision Sciences Society, 2022
- Elsevier/Vision Research Virtual Travel Award
Vision Sciences Society, 2021
- Benjamin Franklin Fellowship
University of Pennsylvania, 2017
- Cross-disciplinary Scholars in Science and Technology Scholarship
University of California, Los Angeles, 2016
- Outstanding Student Scholarship
Southern University of Science and Technology, 2016

TEACHING EXPERIENCE

Teaching Assistant for **Neuromatch Academy**, Summer 2020
Teaching Assistant for PSYC 217: Visual Neuroscience, Spring 2019
Teaching Assistant for PSYC 111: Perception, Fall 2018

MENTORING

Independent Study:
Kevin Sun (MD/PhD Student in Neuroscience)
Jacob Glenn (Senior in Mathematics & Computer Science)
Anant Kumar (Junior in Computer Science)

TECHNICAL EXPERIENCE

Programming: Python, MATLAB, Java, C, R, Scala
Tools: LaTeX, Git, PyTorch, CUDA, Mitsuba 2, Ubuntu
Experiment: Psychophysics (PsychoPy), Neuroimaging (fMRI)

PROFESSIONAL SERVICE

- Ad-hoc Reviewer: Neurons, Behavior, Data analysis, and Theory; Vision Research; Conference on Cognitive Computational Neuroscience; Journal of the Society for Information Display
- Panelist / Volunteer, Diversity and Engagement Initiative 10/2021
MindCORE, University of Pennsylvania
- Student Representative, Department of Psychology 09/2019 - 08/2020
University of Pennsylvania