Yuan Chang Leong

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Research Interests

Learning and decision-making, cognitive and neural mechanisms
Motivational biases and expectancy effects
Computational modeling of brain and behavior
Social cognition

Education

Present **Stanford University,** Stanford, CA
PhD Student in Psychology
Advisor: Jamil Zaki

2013 **Princeton University,** Princeton, NJ
A.B. in Psychology, *Summa cum Laude*
Certificate in Quantitative and Computational Neuroscience, Highest Honors
Advisor: Yael Niv
Thesis: Learning what's relevant in a largely irrelevant world – The role of selective attention in learning

Academic Awards and Honors

2017 Social and Affective Neuroscience Society Annual Meeting Poster Award

2016 Zimbardo Teaching Prize
Awarded for inspiring teaching in the introductory psychology course

2013 John Brinster'43 Neuroscience Senior Thesis Prize
Awarded annually to the most outstanding senior thesis in neuroscience

2013 Outstanding Academic Achievement in Neuroscience
Awarded to the best performing student in the neuroscience program

2013 Howard Crosby Warren Senior Award for Psychology

2013 Phi Beta Kappa, elected to Princeton Chapter

2013 Sigma Xi, elected to Princeton Chapter

2012 Society for Neuroscience Undergraduate Student Travel Award

2012 Howard Crosby Warren Junior Award for Psychology

Journal Articles

Zadbood A., Chen J., **Leong, Y.C.,** Norman, K.A., Hasson U. (in press). How we transmit memories to other brains: constructing shared neural representations via communication. *Cerebral Cortex.*

Leong, Y. C.*, Radulescu, A.*, Daniel, R., DeWoskin, V., & Niv, Y. (2017). Dynamic interaction between reinforcement learning and attention in multidimensional environments. *Neuron*, *93*(2), 451-463.

Chen, J.*, **Leong, Y.C.***, Honey, C., Yong, C.H., Norman, K.A. & Hasson, U. (2017). Shared experience and shared memory reveal a common structure for brain activity during natural recall. *Nature Neuroscience, 20*(1), 115-125.

Niv, Y., Daniel, R., Geana, A., Gershman, S.J., **Leong, Y.C.** & Wilson, R.C. (2015). Reinforcement learning in multidimensional environments relies on attention mechanisms. *The Journal of Neuroscience*, *35*(21), 8145-8157.

Johnson-Laird, P.N., Kang, O.E. & **Leong, Y.C.** (2012). On musical dissonance. *Music Perception: An Interdisciplinary Journal*, 30(1), 19-35

Leong, Y.C. & Zaki, J. (under review). Unrealistic optimism in advice taking: A computational account.

Morelli, S.*, **Leong, Y.C.***, Carlson R., Kullar M. & Zaki, J. (under review). A neural signature for detecting social support hubs in emerging social networks.

Leong, Y.C., Hughes, B. & Zaki, J. (in prep). Seeing what we want to see: Motivation shapes perceptual judgments and category-selective activity in the ventral visual stream.

Conference Proceedings

Velez, N.*, **Leong, Y.C.***, Pan, C., Zaki, J. & Gweon, H. (2016). Learning and making novel predictions about others' preferences. Extended abstract accepted for *the 37th Annual Conference of the Cognitive Science Society, Philadelphia .*

Leong, Y.C. & Niv, Y. (2013). Human reinforcement learning processes act on learned attentionally-filtered representations of the world. Extended abstract presented at *The 1st Multidisciplinary Conference on Reinforcement Learning and Decision Making, Princeton, NJ.*

Daniel, R., DeWoskin, V., **Leong, Y.C.**, Radulescu, A. & Niv, Y. (2013) Humans employ selective attention when learning in complex environments: evidence from computational modeling and neuroimaging. Extended abstract presented by R. Daniel at *The 1st Multidisciplinary Conference on Reinforcement Learning and Decision Making, Princeton, NJ.*

Invited Talks

Leong, Y.C. & Zaki, J. (2017). Optimism bias in advice-taking: A computational account. *Symposium talk at the Berkeley-Stanford-Davis Talks, Berkeley, CA*

Leong, Y.C. & Zaki, J. (2017). Inflated perception of expertise: A computational account. *Symposium Talk at the Society for Personality and Social Psychology Annual Meeting, San Antonio, TX*

Leong, Y.C. (2016). A primer to computational modeling in psychology and neuroscience. *Workshop at the Stanford Undergraduate Psychology Research Conference, Stanford, CA*

Leong, Y.C., Daniel, R., Radulescu, A., DeWoskin, V. & Niv, Y. (2015). Dynamic interaction between reinforcement learning and attention in multidimensional environments. *Talk delivered at the 5th Annual Interdisciplinary Symposium on Decision Neuroscience, Boston, MA*

Leong, Y.C., Daniel, R., Radulescu, A., DeWoskin, V. & Niv, Y. (2014). Dynamic interaction between reinforcement learning and attention in multidimensional environments. *Talk delivered at the 2nd Manhattan Area Memory Meeting, New York City, NY*

Leong, Y.C. & Niv, Y. (2013). Learning what's relevant in a largely irrelevant world. *Talk delivered at the 8th Barbados Workshop in Reinforcement Learning: Planning in Reinforcement Learning, Holetown, Barbados.*

Posters

Leong, Y.C., Hughes, B. & Zaki, J. (2017) Seeing what we want to see: Motivation shapes perceptual judgments and category-selective activity in the ventral visual stream. *Poster presented at the Social and Affective Neuroscience Society Annual Meeting, Los Angeles, CA (SANS Poster Award)*

Leong, Y.C., Morelli, S., Carlson, R., Kullar M. & Zaki, J. (2017) Neural Prediction of Social Support Hubs in Emerging Social Networks. *Poster presented at the Social and Affective Neuroscience Society Annual Meeting, Los Angeles, CA*

Leong, Y.C., Hughes, B. & Zaki, J. (2016) Seeing what we want to see: Motivation shapes perceptual judgments and category-selective activity in the ventral visual stream. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA*

Leong, Y.C. & Zaki, J. (2016). Excessive optimism when evaluating and following advice. *Poster presented at the Society of Personality and Social Psychology Annual Meeting, San Diego, CA*

Leong, Y.C., Radulescu, A., Daniel, R. & Niv, Y. (2015). Computation and update of neural value signals are biased by attention in a multidimensional decision-making task. *Poster presented at the Cognitive Neuroscience Society Annual Meeting, San Francisco, CA*

Leong, Y., Radulescu, A., Daniel, R. & Niv, Y. (2014). Behavioral and neural correlates of attention control during reinforcement learning. *Poster presented at the Cognitive Neuroscience Society Annual Meeting, Boston, MA*

Leong, Y. & Niv, Y. (2012). The role of selective attention in learning. *Poster presented at the Society for Neuroscience Annual Meeting, New Orleans, LA (SfN Undergraduate Travel Award)*

Research Grants

2017 Stanford Center for Cognitive and Neurobiological Imaging Seed Grant, $1100

2016 Stanford Center for Cognitive and Neurobiological Imaging Seed Grant, $3700

2012 Nancy J. Newman, MD'78 & Valerie Biousse, MD Award for Neuroscience Undergraduate award with grant of $1000 for research-related expenses

2012 Quantitative and Computational Neuroscience Training Award, $3000

Skills

Software Packages: Psychtoolbox, FSL, Princeton MVPA Toolbox, PyMVPA, Emergent

fMRI Methods: Univariate analyses, multivariate classification and regression, inter-subject correlation, representational similarity analysis

Other Analysis Methods: Trial-by-trial computational modeling, probabilistic programming

Programming Languages: MATLAB, Javascript, python, HTML, CSS

Training and Courses attended

SRNDA-Stanford Center for Reproducible Neuroscience Better Science Workshop, Los Angeles, March, 2017

Shanghai Neuroeconomics Collective Summer School, Shanghai, July 2015

Summer Workshop in Computational Social Science, Stanford, CA, September 2014

14th Annual Institute for Research in Cognitive Science Undergraduate Summer Workshop, Philadelphia, PA, June 2012

Princeton Neuroscience Institute Summer Research Program, Princeton, NJ, June 2011

Teaching and Mentorship

Psych One Teaching Fellow, Autumn 2015, Spring 2016

Judgment and Decision-Making, Teaching Assistant, Winter 2016

Introduction to Perception, Teaching Assistant, Fall 2016

Undergraduate research advising

- Courtney Gao, Stanford University (2016-present)
- Deshawn Sambrano, California State University, Fullerton (2016)
- Elizabeth Frankel, Stanford University (2016)
- Chelsey Pan, Stanford University (2014-2015)
- Derek Kincade, Stanford University (2014-present)

Academic advising for high school students:

- Xiao Chen Du, Hwa Chong Institution, Singapore (2015)
    - Starting at Duke University, Fall 2017
- Hanxi Zeng, Downtown Magnet High School, Los Angeles (2015)
    - Now an undergraduate at UC Irvine