Kenneth W. Latimer

Chicago, IL

https://latimerk.github.io/
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EDUCATION:

Ph.D., The Institute for Neuroscience 2010-2015
The University of Texas at Austin
Advisors: Jonathan W. Pillow, Alexander C. Huk
Dissertation: *Statistical approaches for unraveling the neural code in the visual system*

B.S. in Computer Science, *magna cum laude* 2005-2010
University of Colorado, Boulder
minor in mathematics, certificate in cognitive science

EXPERIENCE:

Machine Learning Scientist II 2024-Present
Expedia Group

Staff Scientist 2023-2024
University of Chicago
Grossman Center for Quantitative Biology and Human Behavior

Postdoctoral Fellow 2018-2023
University of Chicago
Advisor: David Freedman

Postdoctoral Fellow 2015-2018
University of Washington, Seattle
Advisor: Adrienne Fairhall

Undergraduate Research Assistant 2009-2010
Computational Cognitive Neuroscience Lab
University of Colorado, Boulder
Advisor: Randall C. O'Reilly
Undergraduate thesis: *A neural network model for object recognition in cluttered scenes using motion and binocular disparity*

HONORS & AWARDS:

Chicago Fellow (University of Chicago)	2018-2020
Center for Perceptual Systems Training Grant recipient	2014-2015
UT Austin Graduate Studies, Professional Development Travel Award	2012
UT Austin Dean's Excellence Award	2010

TEACHING EXPERIENCE:

TA, The University of Texas at Austin

Quantitative Methods in Neuroscience (NEU 366M) Instructor: Dr. Ila Fiete	Fall 2013
Vertebrate Neurobiology (BIO 365R) Instructor: Dr. George Pollak	Fall 2012

Summer Courses:

Summer Workshop on the Dynamic Brain Guest Lecture: Fitting statistical models to neural data with maximum likelihood methods	September 2016

SERVICE:

Co-Organizer, Theoretical Neuroscience Journal Club (UW, Seattle)

Co-Organizer, Computational and Theoretical Neuroscience Journal Club (UT Austin)

Treasurer, Neuroscience Graduate Student Association (UT Austin)

Ad-hoc reviewer: Current Biology, NBDT, Neural Computation, Neuron, Nature Communications, PLoS Computational Biology, PLoS One, Science, Neural Information Processing Systems 2016-2018,2020-2021, COSYNE 2016-2018,2020, International Conference on Machine Learning 2021-2022, International Conference on Learning Representations 2022

WORKSHOPS & SUMMER SCHOOLS:

Computation Vision Summer School	2019
Summer Workshop on the Dynamic Brain	2015

PUBLICATIONS:

*, † indicate equal contribution

Latimer KW & Freedman DJ (2023). Low-dimensional encoding of decisions in parietal cortex reflects long-term training history. *Nature Communications*, 14(1), 1010.

Duffy A, **Latimer KW**, Goldberg KH, Fairhall AF, & Gadagkar V (2022). Dopamine neurons evaluate natural fluctuations in performance quality. *Cell Reports*, 38(13):110574.

Latimer KW & Huk AC (2021). Superior colliculus activates new perspectives on decision-making. *Nature Neuroscience*, 24(8):1048-1050. (News & Views on Jun et al. 2021)

Latimer KW & Fairhall AL (2020). Capturing adaptation to second-order statistics with generalized linear models: gain scaling and fractional differentiation. *Frontiers in Systems Neuroscience*, 14:60.

Latimer KW, Rieke F, & Pillow JW (2020). Inferring synaptic inputs from spikes with a conductance-based neural encoding model. *eLife*.

Latimer KW (2019). Nonlinear demixed component analysis for neural population data as a low-rank kernel regression problem. *Neurons, Behavior, Data Analysis & Theory.*

Latimer KW*, Barbera D*, Sokoletsky M, Awwad B, Katz Y, Nelkin I†, Lampl L†, Fairhall AL†, & Priebe NJ† (2019). Multiple timescales account for adaptive responses across sensory cortices**.** *Journal of Neuroscience*, 39(50):10019-1003**.**

Zoltowski D, **Latimer KW**, Yates JL, Huk AC, & Pillow JW (2019). Discrete stepping and nonlinear ramping dynamics underlie spiking responses of LIP neurons during decision-making. *Neuron*, 102(6):1249-1258.

Latimer KW, Yates JL, Meister MLR, Huk AC, & Pillow JW (2016). Response to Comment on "Single-trial dynamics of spike trains in parietal cortex reveal discrete steps during decision-making." *Science*, 351(6280):1406.

Latimer KW, Yates JL, Meister MLR, Huk AC, & Pillow JW (2015). Single-trial dynamics of spike trains in parietal cortex reveal discrete steps during decision-making. *Science*, 349(6244):184-187.

Latimer KW, Huk AC, & Pillow JW (2015). Bayesian inference for latent stepping and ramping models of spike train data. Chapter in *Advanced State Space Methods for Neural and Clinical Data*, ed. Zhe Chen, Cambridge University Press.

Latimer KW, Chichilnisky EJ, Rieke F, & Pillow JW (2014). Inferring synaptic conductances from spike trains under a biophysically inspired point process model. *Advances in Neural Information Processing Systems*, 27:954-962.

Park I, Archer E, **Latimer KW,** & Pillow JW (2013). Universal models for binary spike patterns using centered Dirichlet processes. *Advances in Neural Information Processing Systems*, 26: 2463-2471.

Scholl B, **Latimer KW**, & Priebe NJ (2012). A retinal source of spatial contrast gain control. *Journal of Neuroscience*, 32(29):9824-30.

PREPRINTS:

Awh MP, **Latimer KW**, Zhou N, Leveroni ZM, & Jai Y (2023). Experience shapes initial exploration for non-generalizable spatial learning. *bioRxiv.*

Latimer KW, Huk AC, & Pillow JW (2017). No cause for pause: new analyses of ramping and stepping dynamics in LIP (Rebuttal to Response to Reply to Comment on Latimer et al. 2015). *bioRxiv.*

CONFERENCE PRESENTATIONS:

Latimer KW (2023). Analyzing experience-dependent behavior during learning in rats performing a maze task. Talk, 20 Years of Collaboration in Computational Neuroscience Workshop.

Latimer KW (2022). Tensor models for decomposing neural population activity during visual categorization. Talk, Inaugural Chicago Symposium on Computational Neuroscience.

Latimer KW & Freedman, DJ (2022). Encoding models for quantifying multi-area interactions on single trials during flexible categorical decisions. Poster, Society for Neuroscience annual meeting.

Latimer KW & Freedman, DJ (2020). Stimulus encoding in the lateral intraparietal parietal cortex during categorization depends on training history. Poster, Computational and Systems Neuroscience (COSYNE) annual meeting.

Latimer KW & Freedman, DJ (2019). Learning dependency of motion direction tuning in the lateral intraparietal area during a categorization task. Poster, Society for Neuroscience annual meeting.

Latimer KW, Sokoletsky M, Barbera D, Priebe NJ, Lampl I, & Fairhall A (2018). Multiple timescales of adaptation in mouse primary somatosensory and visual cortices. Poster, Computational and Systems Neuroscience (COSYNE) annual meeting.

Zoltowski DM**, Latimer KW**, Huk AC, & Pillow JW (2018). Extending models of latent dynamics in area LIP during perceptual decision-making. Poster, Computational and Systems Neuroscience (COSYNE) annual meeting.

Latimer KW, Priebe NJ, Katz Y, Li B, Lampl I, & Fairhall A (2017). Revealing shared features of adaptation in visual and somatosensory cortex within a common framework. Poster, Max Planck Florida Institute for Neuroscience, Sunposium.

Latimer KW, Yates JL, Huk AC, & Pillow JW (2015). Deciphering the neural representation of perceptual decisions with latent variable models. Poster, Computational and Systems Neuroscience (COSYNE) annual meeting.

Latimer KW, Chichilnisky EJ, Rieke F, & Pillow JW (2014). Inferring synaptic conductances from spike trains with a point process encoding model. Poster, Computational and Systems Neuroscience (COSYNE) annual meeting.

Park I, Archer E, **Latimer KW,** & Pillow JW (2014). Scalable nonparametric models for binary spike patterns. Poster, Computational and Systems Neuroscience (COSYNE) annual meeting.

Latimer KW, Yates JL, Meister MLR, Huk AC, & Pillow JW (2013). Understanding perceptual decision-making in area LIP with latent variable models. Poster, University of Texas, Conference on Learning and Memory.

Latimer KW, Yates JL, Meister, MLR, Huk AC, & Pillow JW (2012). Analyzing perceptual decision-making in area LIP with hidden Markov models. Poster, Society for Neuroscience annual meeting.

Latimer KW, Yates JL, & Pillow, JW (2011). Modeling perceptual decisions in the parietal lobe with hidden Markov Models. Poster, University of Texas annual Neuroscience Symposium.

Mingus B, Kriete T, Herd S, Wyatte D, **Latimer K**, & O'Reilly R (2011). Generalization of Figure-Ground Segmentation from Monocular to Binocular Vision in an Embodied Biological Brain Model. In Schmidhuber, J., Thorisson, K.R., Looks, M. (Eds.). *Artificial General Intelligence*. 351-356.