

Curriculum Vitae of Richard D. Lange

University of Rochester PhD Student

<http://cs.rochester.edu/~rlange>

Education: University of Rochester

Expected Graduation 2019

Degree PhD in Brain and Cognitive Science/Computer Science
Fellowships & Grants Sproull Fellowship ◦ NSF Research Traineeship #1449828 ◦ NIH Training Grant in Vision Science #5T32EY007125-27

Education: Dartmouth College

Graduated 2013

Degree BA ◦ Magna Cum Laude ◦ Honors Thesis
Major Computer Science modified with Engineering GPA 3.88/4.0
Minor Japanese Language and Literature GPA 3.83/4.0
Honors James O. Freedman Presidential Scholar
Leo, Deborah and Milton Williams (1942) Memorial Fund

Research

Shivkumar, S.*, **Lange, R.***, Chatteraj, A.*, Haefner, R. "A probabilistic population code based on neural samples." NeurIPS 2018.
Lange, R., Gomez-Laberge, C., Haefner, M., Born, R. "Neural Signatures of Variable Beliefs Increase with Task Learning in V1." AREADNE 2018
Lange, R., Bondy, A., Cumming, B., Haefner, R. "Within-trial dynamics of noise correlations imply binarized feedback of internal beliefs." Cosyne 2018.
Chatteraj, A. **Lange, R.**, Wu, S., Shivkumar, S., Haefner, R. "A probabilistic population code based on neural sampling." Cosyne 2018.
Lange, R., Haefner, R. "Characterizing and interpreting the influence of internal variables on sensory activity." Current Opinion in Neurobiology 2017.
Kralik, J. D., Muldrew, D. B. C., Gunasekaran, D., **Lange, R.** "Cognitive control for goal-directed reaching in a humanoid robot." IEEE-ROBIO 2017.
Lange, R., Chatteraj, A., Hochberg, M., Yates, J., Haefner, R. "Perceptual Confirmation Bias from Approximate Online Inference." Cosyne 2017.
Lange, R., Haefner, R. "Inferring the brain's internal model from sensory responses in a probabilistic inference framework." Biorxiv 2016. <http://dx.doi.org/10.1101/081661>.
Lange, R., Bondy, A., Cumming, B., Haefner, R. "On the neural basis of probabilistic inference during perceptual decision-making." Cosyne 2016.
Lange, R., Chatteraj, A., Haefner, R. "On the computational basis of the confirmation bias." NIPS 2015 Workshop on Bounded Optimality and Rational Metareasoning.
Lange, R. "Using Motion Information to Improve the Heuristic of Objectness." 2013. Undergraduate thesis.

*equal contribution

Teaching Experience & Other Education

Co-instructor: Philosophy of Perception Fall 2018
Brains, Minds, and Machines Summer School Summer 2017
Graduate Guest Lectures in Computational Neuroscience 2016-2017
TA: Social Implications of Computing Spring 2016
Video Game Development (Rochester Scholars) Summer 2015
TA: Machines and Consciousness Spring 2015
TA: Introduction to Computer Science Fall 2010, Winter 2013
TA: Dartmouth Machine Shop Fall 2009

Recent Internships

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|-----------------------|-------------------------|-------------|
| Software Engineering | Google, Inc. | Summer 2016 |
| Engineer in Residence | The Harley School | 2013-2014 |
| Software Engineering | Crittercism/Aptelligent | Winter 2012 |

Other Selected Projects

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| RocAlphaGo | an open-source replication of Google DeepMind's AlphaGo AI http://www.github.com/Rochester-NRT/RocAlphaGo |
| VAE Tutorial | a tutorial to walk readers through creating their own custom Variational Auto-Encoder class in Keras http://www.github.com/wrongu/vae-tutorial |
| LORDAP | a Matlab/Octave toolbox for data pipeline management http://www.github.com/wrongu/lordap |