

# LUCY L. W. OWEN

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## EDUCATION

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<b>Dartmouth College</b> Ph.D. candidate: Psychological and Brain Sciences	<i>2016 - present</i>
<b>Columbia University, Teachers College</b> Master of Science: Neuroscience and Education Thesis: The Role of Dopamine in Memory Psi Chi, Psychology Honors Organization	<i>2013 - 2014</i>
<b>Davidson College</b> Bachelor of Arts Major in Studio Art, Minor in Chemistry, Pre-Medicine Concentration	<i>2006 - 2010</i>

## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	Python, R, JavaScript, MATLAB
<b>Software &amp; Tools</b>	Numpy, PANDAS, Scikit-learn, Bash, Git, Docker
<b>Neuropsychological Assessment</b>	MOCA, NART, Trails A & B, Category Fluency, Digit Span

## EXPERIENCE

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<b>Ph.D. student, Dartmouth College</b> <i>PI: Dr. Jeremy Manning</i>	<i>2016 - present</i>
<b>Intern, Facebook Reality Labs</b> <i>Nascent Research intern with a focus on adaptive experimentation, reporting to Michael Shvartsman.</i>	<i>June 2020 - December 2020</i>
<b>Lab manager, Columbia University</b> <i>PI: Dr. Daphna Shohamy</i>	<i>2014 - 2016</i>
<b>Research assistant, Columbia University Teachers College</b> <i>PI: Dr. Peter Gordon</i>	<i>2013 - 2015</i>

## AWARDS

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<b>Neukom Prize for Outstanding Graduate Research in Computational Science</b>	<i>2020</i>
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## PUBLICATIONS

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- Owen LLW**, Chang TH, Manning JR (2021) High-level cognition during story listening is reflected in high-order dynamic correlations in neural activity patterns. *Nature Communication*, 12(1):5728.
- Scangos KW, Khambhati AN, Daly PM, **Owen LLW**, Manning JR, Ambrose JB, Austin E, Dawes HE, Krystal AD, Chang EF (2021) Distributed subnetworks of depression defined by direct intracranial neurophysiology. *Frontiers in Human Neuroscience*, 15:561.
- Lahlou S, Gabbitov E, **Owen LLW**, Shohamy D, Sharp M, (2021, May) Preserved motor memory in Parkinson's disease. *bioRxiv*: 441882.
- Owen LLW**, Browder J, Letham B, Stocck G, Tymms C, Shvartsman M, (2021, April) Adaptive nonparametric psychophysics. *arXiv*: 2104.09549.

Scangos KW, Khambhati AN, Daly PM, **Owen LLW**, Manning JR, Ambrose JB, Austin E, Dawes HE, Krystal AD, Chang EF (2020, December) Distributed subnetworks of depression defined by direct intracranial neurophysiology. *bioRxiv*: 943118.

**Owen LLW**, Chang TH, Manning JR (2020, November) High-level cognition during story listening is reflected in high-order dynamic correlations in neural activity patterns. *bioRxiv*: 763821.

**Owen LLW**, Muntianu TA, Heusser AC, Daly P, Scangos K, Manning JR (2020, April) A Gaussian process model of human electrocorticographic data. *Cerebral Cortex*: 30(10), 5333-5345.

Scangos KW, Khambhati AN, Daly PM, **Owen LLW**, Manning JR, Ambrose JB, Austin E, Dawes HE, Krystal AD, Chang EF (2020, February) Biomarkers of Depression Symptoms Defined by Direct Intracranial Neurophysiology. *bioRxiv*: 943118.

**Owen LLW**, Chang TH, Manning JR (2019, September) High-level cognition during story listening is reflected in high-order dynamic correlations in neural activity patterns. *bioRxiv*: 763821.

**Owen LLW**, Heusser AC, Manning JR (2018, October) A Gaussian process model of human electrocorticographic data. *bioRxiv*: 121020.

**Owen LLW**, Manning JR (2017, March) Towards human Super EEG. *bioRxiv*: 121020.

Heusser AC, Ziman K, **Owen LLW**, Manning JR (2018) HyperTools: A Python toolbox for gaining geometric insights into high-dimensional data. *Journal of Machine Learning Research*, 18(152): 1 - 6.

## TALKS

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**Owen LLW** (2021, May) Fast timescale network dynamics in complex thought. *Invited presentation to Brown Providence, RI*. Virtually presented.

**Owen LLW** (2021, May) How do high-order brain network dynamics support narrative understanding? *Canadian Computational Neuroscience Spotlight Canada*. Virtually presented.

**Owen LLW** (2020, December) Adaptive experimentation for psychophysics. *Facebook reality labs*. Redmond, Washington. Virtually presented.

**Owen LLW** (2020, September) Scalable multi-dimensional psychophysics experiment. *Facebook reality labs*. Redmond, Washington. Virtually presented.

**Owen LLW** (2020, July) Characterizing properties of brain activity. *Facebook reality labs*. Redmond, Washington. Virtually presented.

**Owen LLW** (2020, June) A Gaussian process model of human electrocorticographic data. *Invited presentation to Dr. Robert Knight's lab meeting*. Berkeley, California. Virtually presented.

**Owen LLW** (2020, June) Understanding interactivity of brain patterns through higher-order correlations. *Invited presentation to Drs. Olaf Sporns and Richard Betzel's joint lab meeting*. Bloomington, Indiana. Virtually presented. [Link to video](#).

**Owen LLW** (2020, May) Decoding complexity from neural data. *Cognitive Brown Bag*, virtually presented.

**Owen LLW** (2020, April) A Gaussian process model of human electrocorticographic data. *Cognitive Neuroscience Society Meeting*. Virtually presented. [Link to video](#).

**Owen LLW** (2019, August) Introduction to Docker. *Methods in Neuroscience at Dartmouth*, Hanover, NH. [Link to video](#).

**Owen LLW** (2019, July) Data Blitz. *EPSCoR Womens' Conference*, Pray, MT.

**Owen LLW** (2019, March) Decrypting the neural code. *Cognitive Brown Bag*, Lebanon, NH.

**Owen LLW** (2019, March) Seizure tracking using Supereeg. *Dartmouth Hitchcock Medical Center*, Lebanon, NH.

- Owen LLW**, Heusser AC, Sperling M, Lega B, Worrell G, Gross R, Jobst B, Davis K, Zaghloul KA, Sheth S, Stein J, Das S, Gorniak R, Manning JR (2018, November) Fast timescale network dynamics underlying episodic encoding and retrieval. *Society for Neuroscience annual meeting*, San Diego, CA.
- Owen LLW** (2018, October) Fast timescale network dynamics underlying episodic encoding and retrieval using SuperEEG. *Dartmouth Hitchcock Medical Center*, Lebanon, NH.
- Owen LLW** (2018, October) Timecorr: Dynamic correlations and higher order correlations. *Contextual Dynamics Lab meeting*, Hanover, NH.
- Owen LLW**, Goldstien A (2018, August) Audio correlations with predicted ECoG activity. *Methods in Neuroscience at Dartmouth*, Hanover, NH.
- Owen LLW** (2018, August) Introduction to Docker. *Methods in Neuroscience at Dartmouth*, Hanover, NH. [Link to video](#).
- Owen LLW** (2018, July) Data Blitz. *EPSCoR Womens' Conference*, Providence, RI.
- Owen LLW** (2018, May) Pycharm: Debugging, and Docker Integration. *Contextual Dynamics Lab meeting*, Hanover, NH.
- Owen LLW** (2018, April) Specialist departmental presentation. *Department of Psychological and Brain Sciences, Dartmouth College*, Hanover, NH.
- Owen LLW** (2018, April) Lecture: Memory. *Psychology I, Dartmouth College*, Hanover, NH.
- Owen LLW** (2018, March) Lecture: Learning. *Psychology I, Dartmouth College*, Hanover, NH.
- Owen LLW** (2018, March) Testing and Continuous Integration in Python. *Contextual Dynamics Lab meeting*, Hanover, NH.
- Owen LLW** (2017, October) Lecture: Memory. *Psychology I, Dartmouth College*, Hanover, NH.
- Owen LLW** (2017, September) Lecture: Learning. *Psychology I, Dartmouth College*, Hanover, NH.
- Owen LLW** (2018, September) SuperEEG updates. *Contextual Dynamics Lab meeting*, Hanover, NH.
- Owen LLW** (2017, June) Towards human SuperEEG. *Dartmouth Hitchcock Medical Center*, Lebanon, NH.

## POSTER PRESENTATIONS

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- Muntianu TA **Owen LLW** Manning JR (2020, April). A Gaussian process model of human electrocorticographic data. *Cognitive Neuroscience Society Meeting*, virtually presented.
- Owen LLW** Manning JR (2020, April). Understanding brain pattern complexity and interactivity in naturalistic processing. *Cognitive Neuroscience Society Meeting*, virtually presented. [Link to video](#).
- Owen LLW** Manning JR (2019, October). Understanding complexity and interactivity of brain patterns in naturalistic processing. *Society for Neuroscience annual meeting*, Chicago, IL.
- Owen LLW** Manning JR (2019, May). An examination of the higher-order dynamic interactions underlying multi-dimensional timeseries data. *Network NetSci Conference*, Burlington, VT.
- Owen LLW** Manning JR (2017, November). A Gaussian process model of human ECoG data. *Society for Neuroscience annual meeting*, Washington, DC.
- Heusser AC, Ziman K, **Owen LLW**, Manning JR (2017, November). HyperTools: A python toolbox for gaining geometric insights into high-dimensional data. *Society for Neuroscience annual meeting*, Washington, DC.
- Owen LLW**, Manning JR (2017, May) Towards human Super EEG. *Context and Episodic Memory Symposium*, Philadelphia, PA.

Heusser AC, Ziman K, **Owen LLW**, Manning JR (2017, May) HyperTools: A Python toolbox for visualizing and manipulating high-dimensional data. *Context and Episodic Memory Symposium*, Philadelphia, PA.

**Owen LLW**, Manning JR (2017, April) Towards human Super EEG. *Graduate student poster session*, Dartmouth College, Hanover, NH.

**Owen LLW**, Sharp ME, Shohamy D (2016, April) Acquisition and consolidation of motor sequence learning in Parkinsons disease. *Cognitive Neuroscience Society Meeting*, New York, NY.

Gordon P, Kim S, Paz ML, Reddick E, **Owen LLW** (2014, April) The neural basis of parallel individuation and numerical estimation. *Cognitive Neuroscience Society Meeting*, Boston, MA.

Kim S, **Owen LLW**, Levinson H, Paz ML, Gordon P (2014, April) Functional links of neural correlates of word meaning: Behavioral and Neurophysiological Evidence. *Cognitive Neuroscience Society Meeting*, Boston, MA.

## SOFTWARE

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**aePsych**. A Python toolbox for adaptive experimentation in psychophysics and perception research, built on top of gpytorch and botorch. [Link to toolbox](#)

**Timecorr**. A Python toolbox for calculating dynamic correlations and exploring higher order correlations. [Link to toolbox](#)

**SuperEEG**. A Python toolbox for inferring whole-brain activity from sparse ECoG recordings. [Link to toolbox](#)

**HyperTools**. A python toolbox for gaining geometric insights into high-dimensional data. [Link to toolbox](#)

## SERVICE

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**Kavli Summer institute** Summer, 2019  
*Attendee.*

**MIND Summer School** Summer, 2019  
*Teaching assistant.*

**EPSCoR Womens conference** Summer, 2019  
*Attendee.*

**Graduate representative, cognitive area** 2018 - 2020  
*Liaison between graduate students and faculty as well as host for prospective graduate students.*

**EPSCoR Womens conference** Summer, 2018  
*Attendee.*

## TEACHING EXPERIENCE

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**Teaching Assistant** Spring, 2019  
*Dartmouth College, Experimental Psychology*  
*Course taught by Dr. Catherine Cramer*

**Teaching Assistant** Spring, 2018  
*Dartmouth College, Psychology I*  
*Course taught by Drs. Thalia Wheatly and Brad Duchaine*

**Teaching Assistant**

Fall, 2017

*Dartmouth College, Psychology I*

*Course taught by Drs. Thalia Wheatly and Brad Duchaine*

**Teaching Assistant**

Summer, 2017

*Dartmouth College, Experimental Psychology*

*Course taught by Dr. Jeremy Manning*

**Teaching Assistant**

Spring, 2014

*Columbia University, Teachers College, Brain and Behavior II*

*Course taught by Dr. Peter Gordon*