

Keiland W. Cooper

Graduate Scholar
Department of Neurobiology and Behavior
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EDUCATION

University of California, Irvine

Ph.D., Neuroscience

Advisor: Dr. Norbert Fortin

In progress

Indiana University, Bloomington

B.S., Cognitive Science, *with Honors*

Computation specialization

Certificate in Neuroscience; Minor in Psychology

Advisors: Dr. Ehren Newman, Dr. Mike Jones

May 4th 2019

AWARDS

Graduate Research Fellowship (GRFP)	<i>National Science Foundation</i>	2021
DTEI Pedagogical Fellowship	<i>UC Irvine</i>	2020
UC Irvine Recruitment Fellowship	<i>UC Irvine</i>	2019
Cognitive Science Outstanding Research	<i>Indiana University</i>	2019
GRFP (Honorable Mention)	<i>National Science Foundation</i>	2018
Ewing Prize in Philosophy	<i>Indiana University</i>	2018
Outstanding Contribution in Cognitive Science	<i>Indiana University</i>	2018
Cognitive Science Research Project Award	<i>Indiana University</i>	2018
Cognitive Science Research Project Award	<i>Indiana University</i>	2017

PREPRINTS

- [10] **Avalanche: an End-to-End Library for Continual Learning**
Vincenzo Lomonaco, Lorenzo Pellegrini, Andrea Cossu, Antonio Carta, Gabriele Graffieti, ... Keiland Cooper, ... Davide Bacciu, Davide Maltoni. (2021) arXiv preprint
- [9] **Hippocampal ensembles represent sequential relationships among discrete nonspatial events**
Shahbaba, B., Li, L., Agostinelli, F., Saraf, M., Elias, G. A., Cooper, K. W., Baldi, P., Fortin, N. J.. (2021) Under Review

PUBLISHED

- [8] **Recent smell loss is the best predictor of COVID-19 among individuals with recent respiratory symptoms.**
Gerkin, R. C., Ohla, K., Veldhuizen, M. G., Joseph, P. V., Kelly, C. E., Bakke, A. J., ... Cooper, K.W. ... and Baguma, M. . (2020) Chemical senses
- [7] **Smell and taste changes are early indicators of the COVID-19 pandemic and political decision effectiveness.**
Pierron, D., Pereda-Loth, V., Mantel, M., Moranges, M., Bignon, E., Alva, O., Cooper, K. W., ... Dinnella, C. . (2020) Nature Communications

• #4 of Top 100 Nature Communications papers of 2020

- [6] COVID-19 and the chemical senses: supporting players take center stage.
Cooper, K. W., Brann, D.H., Farruggia, M.C., Bhutani, S., Pellegrino, R., Tsukahara, T., Weinreb, C., Joseph, P.V., Larson, E.D., Parma, V. and Albers, M.W., (2020) Neuron
• Top ten Neuron papers of 2020
- [5] More than smell—COVID-19 is associated with severe impairment of smell, taste, and chemesthesis.
Parma, V., Ohla, K., Veldhuizen, M. G., Niv, M. Y., Kelly, C. E., Bakke, A. J., Cooper, K. W., ..., Hayes, J. E.. (2020) Chemical Senses
- [4] Coronaviruses and the chemical senses: past, present, and future
Pellegrino, R., Cooper, K. W., Di Pizio, A., Joseph, P. V., Bhutani, S., and Parma, V. . (2020) Chemical senses
- [3] Medial entorhinal cortex activates in a traveling wave in the rat
Hernandez-Perez, J. J., Cooper, K. W., Newman, E. L.. (2020) eLife
- [2] Can the Machine Understand: An Evidence Based Approach to the Chinese Room
Cooper, K. W.. (2018) IU Journal of Undergraduate Research

THESIS

- [1] Cholinergic modulation may explain hippocampal encoding and retrieval mode switching
Cooper K. W.. (2019) Indiana University, Bloomington Undergraduate Thesis

SELECTED ABSTRACTS + TALKS

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- [15] Hippocampal theta oscillations support nonspatial sequence coding in hippocampal neurons
Cooper, K. W., Shahbaba, B., Li, L., Agostinelli, F., Saraf, M., Elias, G. A., Bornstein, A., Baldi, P., Fortin, N. J.. (2021) SFN Global Connectome.
 - [14] The neuroscience and AI feedback loop: Catastrophic Forgetting and Sequences
Cooper K. W.. (2020) UCI AGS Symposium.
 - [13] The Art of Email
Cooper K. W.. (2020) UCI GPS-STEM.
 - [12] Dual processes of hippocampal mode switching
Cooper K. W.. (2020) Neuromatch online Conference.
 - [11] Continual Learning: neuroscience + AI.
Cooper K. W.. (2020) Continual AI Meetup.
 - [10] Cholinergic abolition disrupts encoding and retrieval mode switching
Cooper K. W.. (2020) 11th Annual Emerging Scientists Symposium.
 - [9] The neuroscience and AI feedback loop
Cooper K. W.. (2019) UCI Brain.
 - [8] On neuroscience and AI
Cooper K. W.. (2019) IUJUR Research Slam.
 - [7] Is theta a traveling wave in the medial entorhinal cortex?
Hernández J, Cooper K. W., Newman E.L.. (2018) Program No. 330.10. Society for Neuroscience.

- [6] Consequences of Catastrophic Forgetting on Semantic Representations Learned by Deep Neural Embedding Models
Cooper K. W., Dachapally P.R, Jones M.N. (2018) Midwest CogSci.
• *Best poster award*
- [5] Is theta in the Medial Entorhinal Cortex a Traveling Wave?
Cooper K. W., Hernández J, Newman E.L.. (2018) Society for Neuroscience, Greater Indiana Chapter.
- [4] 3D Brain Model Extraction and Virtual Applications
Cooper K. W.. (2018) (Panelist) Media School Graduate Association Conference.
- [3] FlapAI: Genetically Evolved Neural Networks
Cooper K. W.. (2018) Midwest Undergraduate Cognitive Science Conference.
- [2] Bridging the Gap: Natural Computation and Neural Systems
Cooper K. W.. (2017) Indiana University Undergraduate Research Conference.
- [1] Downstream Hippocampal Activity Prediction with Neural Networks
Cooper K. W., Osborn Z.. (2016) Midwest Undergraduate Cognitive Science Conference.

TEACHING

Autonomous Robotics	<i>Co-instructor</i>	<i>Indiana University</i>	2019
Programming in Cognitive Sciences	<i>Co-instructor</i>	<i>Indiana University</i>	2018
Mind, Memory, and the Brain	Teaching Assistant	<i>UC Irvine</i>	2021
Neurobiology and Behavior Lab	Teaching Assistant	<i>UC Irvine</i>	2020
Brain and Behavior	Teaching Assistant	<i>UC Irvine</i>	2020
Cognitive Psychology	Teaching Assistant	<i>Indiana University</i>	2018
Introduction to Neuroscience	Teaching Assistant	<i>Indiana University</i>	2017

NETWORKS

Cognitive Science Society	Psi Chi	ContinualAI (<i>co-founder</i>)
Society for Neuroscience	Sigma Xi	Carboncopies Foundation
Indiana Academy of Science	Sigma Alpha Pi	AI for People

SciCOMM + OUTREACH

AskANeuroscientist	<i>Founder; Live Q/A via in class video-chat (>400 students) and newsletter</i>
UCI End Racism	<i>Working group contributor addressing systemic racism</i>
Hoosier STARS	<i>Co-founder; K-12 class neuro demos (reached >300 students)</i>
Quora Writer	<i>Answers to neuroscience and AI questions (800k+ views)</i>
CNLM Ambassadors	<i>Co-chair; SoCal Learning and memory outreach</i>
The Boys and Girls Club	<i>Taught primary school aged students about the brain</i>
IU Science Fest	<i>Led a booth where people held and learned about sheep brains</i>
Celebrate Science Indiana	<i>Large scale outreach event, led an EEG and sheep brain booth</i>
Kirkwood Observatory Guide	<i>Volunteer astronomical guide at the Bloomington observatory</i>

TRAININGS + WORKSHOPS	Estes Cognitive Electrophysiology Workshop	University of Pennsylvania	2020
	NIH Grant Writing Workshop	UC Irvine	2020
	HHMI Productivity Workshop	UC Irvine	2020
	Nonlinear Dynamics: Math. and Comp. Approaches	Santa Fe Institute	2019
	Complexity Science	Santa Fe Institute	2018
	Science Communication Workshop	Indiana University	2017
	High Performance / Supercomputing Workshop	Indiana University	2017
	Aseptic Surgery: Proper Practice Training	Indiana University	2016
	Animal Handling and Animal Care Training	Indiana University	2016
	IUNI Network Science Workshop	Indiana University	2016
	Pediatric Neurosurgery Shadowing	Riley Hospital	2014

- ESSAYS
- [7] The Art of Email
Keiland Cooper. (February 18, 2020) GPS-STEM
 - [6] The Psychology of Risky Business
Keiland Cooper. (July 23, 2018) Medium
 - [5] Save Money, Close Deals, Clip Coupons: the Science of Decision Making
Keiland Cooper. (July 11, 2018) Medium
 - [4] The <Art> of Biting your Tongue
Keiland Cooper. (October 19, 2017) LinkedIn Publishing
 - [3] What Is Undergraduate Research And Why Is It Important?
Keiland Cooper. (September 7, 2017) We Are IU
 - [2] The Silent Battle for the Web May Change Everything as We Know It.
Keiland Cooper. (December 5, 2016) Medium
 - [1] The What's and Why's of Schools App
Keiland Cooper. (August 5, 2015) We Are IU
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- PRESS
- [16] Kyle Wiggers (April 9, 2021) *AI Weekly: Continual learning offers a path toward more humanlike AI.* VentureBeat
 - [15] Bob Curley (July 7, 2020) *Lifestyle Changes You Can Make to Help Lower the 19 Risk Factors for Alzheimer's.* Healthline
 - [14] Salynn Boyles (July 6, 2020) *Majority of Patients with Mild Covid-19 Experience Altered Smell/Taste.* Physicians Weekly
 - [13] Katie Boateng (June 15, 2020) *Episode 64 - An Interview with Some of the Authors.* The Smell Podcast
 - [12] Leslie Kay (June 13, 2020) *Why COVID-19 Makes People Lose Their Sense of Smell.* Scientific American
 - [11] John E Hayes, Valentina Parma (June 4, 2020) *COVID-19, smell and taste – how is COVID-19 different from other respiratory diseases? .* The Conversation

- [10] Anthony Cusumano (February 2, 2020) *What a difference a decade makes..* Katalys Tech
 - [9] Kevin Casey (September 30, 2019) *5 AI fears and how to address them..* The Enterprisers Project
 - [8] Kevin Casey (September 17, 2019) *How to explain natural language processing (NLP) in plain English.* The Enterprisers Project
 - [7] David Roe (August 27, 2019) *Is Augmented Artificial Intelligence Already Disrupting Artificial Intelligence?.* CMS Wire
 - [6] Kristine Fellizar (August 7, 2019) *Why Is My Arm Asleep? 6 Reasons Your Limbs Go Numb When You're Sleeping.* Bustle
 - [5] Lauren Wellbank (August 1, 2019) *Neuralink Update: How far off is Elon Musk's high tech vision for our brains?.* Parentology
 - [4] Tina Arnoldi (July 19, 2019) *Ready for Amazon to Read Human Emotions?.* Theravive
 - [3] Ann Lewandowski (September 28th, 2018) *IU undergraduates practice science outreach at Indiana high schools.* IDS
 - [2] Alexandra Moussa-Tooks (August 14, 2018) *The art of dissemination part 3: Care to share?.* ScIU
 - [1] Liz Rosdeitcher (2017) *Community Partnerships..* Psyugrad
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ERDÖS N=4

as of 2021:

Paul Erdős → Noga Alon → Nicolò Cesa-Bianchi → Fabio Cuzzolin

as of 2019:

Paul Erdős → Ronald L. Graham → Feng Zhou → Michael J. Kahana → Ehren L. Newman