

# Keiland W. Cooper

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Graduate Scholar  
Department of Neurobiology and Behavior  
University of California, Irvine  
*cv last updated May 20, 2021*

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## EDUCATION

### University of California, Irvine

Ph.D., Neuroscience

*In progress*

*Advisors: Dr. Norbert Fortin*

### Indiana University, Bloomington

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

*May the Fourth, 2019*

Computation specialization

Certificate in Neuroscience; Minor in Psychology

*Advisors: Dr. Ehren Newman, Dr. Mike Jones*

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## AWARDS

Norman Weinberger Award	UC Irvine CNLM	2021
Graduate Research Fellowship (GRFP)	National Science Foundation	2021
Best International AI Research Organization	Wealth & Finance	2020
DTEI Pedagogical Fellowship	UC Irvine	2020
UC Irvine Recruitment Fellowship	UC Irvine	2019
Cognitive Science Outstanding Research	Indiana University	2019
GRFP (Honorable Mention)	National Science Foundation	2018
Ewing Prize in Philosophy	Indiana University	2018
Outstanding Contribution in Cognitive Science	Indiana University	2018
Cognitive Science Research Project Award	Indiana University	2018
Cognitive Science Research Project Award	Indiana University	2017

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## 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*

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#### SELECTED ABSTRACTS + TALKS

- [16] Avalanche: an End-to-End Library for Continual Learning  
Cooper K.W., Lomonaco, V., Pellegrini, L., Carta, A., Cossu, A., Graffieti, G.. (2021) *ContinualAI Meetup*.
- [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) *Contiual 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.

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#### TEACHING

<i>as Co-Instructor:</i>		<i>enrollment:</i>	
Autonomous Robotics	<i>Indiana Univ.</i>	18	<i>Sp</i> 2019
Programming in Cognitive Sciences	<i>Indiana Univ.</i>	27	<i>Sp</i> 2018
<i>as Teaching Assistant:</i>		<i>enrollment:</i>	
Mind, Memory, and the Brain	<i>UC Irvine</i>	142	<i>Sp</i> 2021
Neurobiology and Behavior Laboratory	<i>UC Irvine</i>	196	<i>Wt</i> 2020
Neurobiology and Behavior Laboratory	<i>UC Irvine</i>	93	<i>Fa</i> 2020
Brain and Behavior	<i>UC Irvine</i>	366	<i>Fa</i> 2020
Cognitive Psychology	<i>Indiana Univ.</i>	80	<i>Fa</i> 2018
Introduction to Neuroscience	<i>Indiana Univ.</i>	106	<i>Fa</i> 2017

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#### MENTORED STUDENTS

Chelsea Pan *now Zendesk*  
Troy Good *now Amazon*

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## NETWORKS

### *Present:*

Cognitive Science Society  
Continual AI (co-founder)  
Psi Chi  
Sigma Alpha Pi  
AI for People

Society for Neuroscience  
Indiana Academy of Science  
Sigma Xi  
Carboncopies Foundation  
Internet Society

### *Past:*

IU Student Org. for Cog Sci (President)

ADAPT Consulting (VP)

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## SCI COMM + OUTREACH

AskANeuroscientist

*Founder; Live Q/A via in class video-chat (>400 students)*

Hoosier STARS

*Co-founder; K-12 neuro demos reaching >300 students*

Quora Writer

*Answers to neuroscience and AI questions (800k+ views)*

CNLM Ambassadors

*Co-chair; SoCal Learning and memory outreach*

The Boys and Girls Club

*Taught primary school aged students about the brain*

IU Science Fest

*Led a booth with hands on sheep brain interaction*

Celebrate Science Indiana

*Led an EEG and brain booth > 500 people*

Observatory Guide

*Volunteer astronomical guide at the Kirkwood Observatory*

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## UNIVERSITY SERVICE

End Racism Initiative

*University of California, Irvine*

*2020 -*

Education Policy Committee

*Indiana University*

*2016 - 2017*

Faculty Council

*Indiana University*

*2016 - 2017*

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## REFeree SERVICE

Physiological Reviews

Computer Vision and Pattern Recognition

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## TRAININGS + WORKSHOPS

FFASt Workshop on Scientific Leadership

UC Irvine

*2021*

Certified Peer Reviewer Course

Elsevier

*2020*

Computational Psychiatry Course

University of Zurich

*2020*

The Meaning and History of the Constitution

Hillsdale College

*2020*

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*

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OPEN  
DATASETS

- [2] GCCR COVID-19 Questionnaire (2020) OSF
  - [1] Extracellular recordings from across the dorsoventral axis of the medial entorhinal cortex of the rat. hc-27 (2020) CRCNS
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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 Whats and Whys of Schools App  
Keiland Cooper. (August 5, 2015) We Are IU
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PRESS

- [22] John Desmond (April 15, 2021) *Scientists Working on Continual Learning to Overcome Catastrophic Forgetting*. AI Trends
- [21] Kyle Wiggers (April 9, 2021) *AI Weekly: Continual learning offers a path toward more humanlike AI*. VentureBeat
- [20] Grace Hauck (January 31, 2021) *Millions of COVID-19 survivors have lost senses of smell and taste. Researchers don't know if they'll come back*. USA Today
- [19] Brooke Jarvis (January 28, 2021) *What Can Covid-19 Teach Us About the Mysteries of Smell?*. The New York Times Magazine
- [18] Misha Gajewski (December 9, 2020) *Is Losing Your Sense Of Smell And Taste The First Sign Of Covid-19? More Research Says Yes*. Forbs
- [17] Vincent Racaniello (October 18, 2020) *TWiV 673: Wake up and smell the pandemic. This Week In Virology*
- [16] Sara Harrison (August 5, 2020) *Many COVID-19 patients lost their sense of smell. Will they get it back?*. National Geographic

- [15] Bob Curley (July 7, 2020) *Lifestyle Changes You Can Make to Help Lower the 19 Risk Factors for Alzheimers*. 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 Musks 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?*. SclU
- [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