

# Keiland W. Cooper

🏠 kwcooper.xyz | ✉ kwcooper@uci.edu | 🌐 kwcooper | 🐦 @kw\_cooper

🆔 0000-0002-0358-9645 | Last updated October 21, 2020

## Education

**University of California, Irvine**  
Neurobiology and Behavior, Ph.D.

In progress

**Indiana University, Bloomington**  
Cognitive Science B.S. *Honors*; Neuroscience Cert.

May the Fourth, 2019

Thesis: Cholinergic modulation may explain hippocampal encoding and retrieval mode switching

## Publications

### Preprints

Shahbaba, B., Li, L., Agostinelli, F., Saraf, M., Elias, G. A., Cooper, K. W., Baldi, P., Fortin, N. J. (2020). Hippocampal ensembles represent sequential relationships among discrete nonspatial events. (Under review at Nature Communications)

Gerkin, R. C., Ohla, K., Veldhuizen, M. G., Joseph, P. V., Kelly, C. E., Bakke, A. J., Cooper, K. W., ... Bouysset, C. (2020). The best COVID-19 predictor is recent smell loss: a cross-sectional study. medRxiv

### Published

Pierron, D., Pereda-Loth, V., Mantel, M., Moranges, M., Bignon, E., Alva, O., Cooper, K. W., ... Dinnella, C. (2020). Smell and taste changes are early indicators of the COVID-19 pandemic and political decision effectiveness. *Nature Communications*, 11(1), 1-8.

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. COVID-19 and the chemical senses: supporting players take center stage. *Neuron*. 107(2), 219-233

Valentina Parma, Kathrin Ohla, Maria G Veldhuizen, Masha Y Niv, Christine E Kelly, Alyssa J Bakke, Keiland W Cooper, GCCR Consortium (2020). More than just smell- COVID-19 is associated with severe impairment of smell, taste, and chemesthesis. *Chemical Senses*

Robert Pellegrino, Keiland W Cooper, Antonella Di Pizio, Paule V Joseph, Surabhi Bhutani, Valentina Parma (2020). Coronaviruses and the chemical senses: past, present, and future. *Chemical Senses*

Hernandez-Perez, J. J., Cooper, K. W., Newman, E. L. (2020). Medial entorhinal cortex activates in a traveling wave in the rat. *eLife*, 9

Cooper, K. W. (2018). Can the Machine Understand: An Evidence Based Approach to the Chinese Room. *IU Journal of Undergraduate Research*, 4(1), 82-85

## Abstracts + Talks

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Cooper K. W. (2020) The neuroscience & AI feedback loop: Catastrophic Forgetting and Sequences. UCI AGS Symposium

Cooper K. W. (2020) The Art of Email. UCI GPS-STEM

Cooper K. W. (2020) Dual processes of hippocampal mode switching. Neuromatch online Conference

Cooper K. W. (2020) Continual Learning: neuroscience + AI. Continual AI Meetup

Cooper K. W. (2020) Cholinergic abolition disrupts encoding and retrieval mode switching. 11th Annual Emerging Scientists Symposium

Cooper K. W. (2019) The neuroscience & AI feedback loop. UCI Brain

Cooper K. W. (2019) On neuroscience and AI. IUJUR Research Slam

Hernández J, Cooper K. W., Newman E.L. (2018) Is theta a traveling wave in the medial entorhinal cortex? Program No. 330.10. Society for Neuroscience

Cooper K. W, Dachapally P.R, Jones M.N (2018) Consequences of Catastrophic Forgetting on Semantic Representations Learned by Deep Neural Embedding Models, Midwest CogSci

Cooper K. W., Hernández J, Newman E.L. (2018) Is theta in the Medial Entorhinal Cortex a Traveling Wave? Society for Neuroscience, Greater Indiana Chapter.

Cooper K. W. (2018) 3D Brain Model Extraction and Virtual Applications. (Panelist) Media School Graduate Association Conference.

Cooper K. W. (2018) FlapAI: Genetically Evolved Neural Networks. Midwest Undergraduate Cognitive Science Conference

Cooper K. W. (2017) Bridging the Gap: Natural Computation and Neural Systems. Indiana University Undergraduate Research Conference.

Cooper K. W., Osborn Z. (2016) Downstream Hippocampal Activity Prediction with Neural Networks. Midwest Undergraduate Cognitive Science Conference.

## Awards

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

## Higher Education + Pedagogy

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### *Co-Instructor*

Autonomous Robotics	Indiana University	Sp 2019
Programming in Cognitive and Info Sciences	Indiana University	Sp 2018

### *Teaching Assistant*

Neurobiology and Behavior Laboratory	UC Irvine	Fa 2020
Brain and Behavior	UC Irvine	Fa 2020
Cognitive Psychology	Indiana University	Fa 2018
Introduction to Neuroscience	Indiana University	Fa 2017

### *Committee*

Education Policy Committee	Indiana University
Faculty Council	Indiana University

## Networks

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### *Professional Societies*

Society for Neuroscience  
Indiana Academy of Science  
Psi Chi  
Sigma Xi  
Sigma Alpha Pi

### *Other*

Continual AI *co-founder*  
Continual Learning AI Research (CLAIR)  
Carboncopies *volunteer researcher*  
AI for People  
Internet Society  
IU Student Organization for Cognitive Science, President  
ADAPT Consulting, VP of Project Management

### *Conference Committee*

Learning: Fast, Deep, and Shallow  
Midwest Undergraduate Cognitive Science Conference

## Outreach + Service

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AskANeuroscientist *Founder; Live Q/A via in class video-chat (>400 students) and newsletter*  
Hoosier STARS *Co-founding Director; K-12 science outreach reaching >300 students*  
Quora Writer *Answers to neuroscience and AI questions; 600k views*  
CNLM Ambassadors *Co-chair; Learning and memory outreach to Southern California*  
Brain Club @ The Boys and Girls Club *Taught primary school aged students about the brain*  
IU Science Fest *Led a booth where people held and learned about sheep brains*  
Celebrate Science Indiana *Large scale outreach event, led an EEG and sheep brain booth*  
Kirkwood Observatory Guide *Volunteer astronomical guide at the Bloomington observatory*

## Trainings, Workshops, etc.

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Estes Cognitive Electrophysiology Workshop	<i>UPenn</i>
NIH Grant Writing Workshop	<i>UC Irvine</i>
HHMI Productivity Workshop	<i>UC Irvine</i>
Nonlinear Dynamics: Mathematical and Computational Approaches	<i>Santa Fe Institute</i>
Complexity Science	<i>Santa Fe Institute</i>
Science Communication Workshop	<i>Indiana University</i>
High Performance Computing and Supercomputing Workshop, UITS	<i>Indiana University</i>
Aseptic Surgery: Proper Practice Training	<i>Indiana University</i>
Animal Handling and Animal Care Training	<i>Indiana University</i>
IUNI Network Science Workshop	<i>Indiana University</i>
Pediatric Neurosurgery Shadowing	<i>Riley Hospital</i>

## Press

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- Bob Curley (July 7, 2020) Lifestyle Changes You Can Make to Help Lower the 19 Risk Factors for Alzheimer's. Healthline ([Link](#))
- Salynn Boyles (July 6, 2020) Majority of Patients with Mild Covid-19 Experience Altered Smell/Taste. Physicians Weekly ([Link](#))
- Katie Boateng (June 15, 2020) Episode 64 - An Interview with Some of the Authors. The Smell Podcast ([Link](#))
- Leslie Kay (June 13, 2020) Why COVID-19 Makes People Lose Their Sense of Smell. Scientific American ([Link](#))
- John E Hayes, Valentina Parma (June 4, 2020) COVID-19, smell and taste – how is COVID-19 different from other respiratory diseases? The Conversation ([Link](#))
- Anthony Cusumano (February 2, 2020) What a difference a decade makes. Katalys Tech ([Link](#))
- Kevin Casey (September 30, 2019) 5 AI fears and how to address them. The Enterprisers Project ([Link](#))
- Kevin Casey (September 17, 2019) How to explain natural language processing (NLP) in plain English. The Enterprisers Project ([Link](#))
- David Roe (August 27, 2019) Is Augmented Artificial Intelligence Already Disrupting Artificial Intelligence? CMS Wire ([Link](#))
- Kristine Fellizar (August 7, 2019) Why Is My Arm Asleep? 6 Reasons Your Limbs Go Numb When You're Sleeping. Bustle ([Link](#))
- Lauren Wellbank (August 1, 2019) Neuralink Update: How far off is Elon Musk's high tech vision for our brains? Parentology ([Link](#))
- Tina Arnoldi (July 19, 2019) Ready for Amazon to Read Human Emotions? Theravive ([Link](#))
- Ann Lewandowski (September 28th, 2018) IU undergraduates practice science outreach at Indiana high schools. IDS ([Link](#))
- Alexandra Moussa-Tooks (August 14, 2018) The art of dissemination part 3: Care to share? SciU ([Link](#))
- Liz Rosdeitcher (2017) Community Partnerships. Psyugrad ([Link](#))

## Erdős Number: 5

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