

# Keiland W. Cooper

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Graduate Scholar  
Department of Neurobiology and Behavior  
University of California, Irvine  
*CV last updated April 23, 2021*

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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*

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## PREPRINTS

- [1] Lomonaco V., Pellegrini L., Cossu A., Carta A., Graffieti G., ... Cooper K. W., ... Bacciu D., Maltoni D. (2021) Avalanche: an End-to-End Library for Continual Learning arXiv preprint 2104.00405 <http://arxiv.org/abs/2104.00405>
- [2] 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)

## REFEREED PUBLICATIONS

- [1] Gerkin, R. C., Ohla, K., Veldhuizen, M. G., Joseph, P. V., Kelly, C. E., Bakke, A. J., ... Cooper, K. W. ..., Baguma, M. (2020). Recent smell loss is the best predictor of COVID-19 among individuals with recent respiratory symptoms. *Chemical senses*, 46.
- [2] 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.
  - #4 of Top 2020 *Nature Communications* papers
- [3] 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
- [4] Parma, V., Ohla, K., Veldhuizen, M. G., Niv, M. Y., Kelly, C. E., Bakke, A. J., Cooper K. W. ..., Hayes, J. E. (2020). More than smell- COVID-19 is associated with severe impairment of smell, taste, and chemesthesis. *Chemical Senses*, 45(7), 609-622.
- [5] Pellegrino, R., Cooper, K. W., Di Pizio, A., Joseph, P. V., Bhutani, S., Parma, V. (2020). Coronaviruses and the chemical senses: past, present, and future. *Chemical senses*, 45(6), 415-422.

- [6] Hernandez-Perez, J. J., Cooper, K. W., Newman, E. L. (2020). Medial entorhinal cortex activates in a traveling wave in the rat. *eLife*, 9
- [7] 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

#### THESIS

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

#### SELECTED ABSTRACTS + TALKS

- [1] Cooper, K. W., Shahbaba, B., Li, L., Agostinelli, F., Saraf, M., Elias, G. A., Bornstein, A., Baldi, P., Fortin, N. J. (2021). Hippocampal theta oscillations support nonspatial sequence coding in hippocampal neurons. *Society for Neuroscience Global Connectome*
- [2] Cooper K. W. (2020) The neuroscience / AI feedback loop: Catastrophic Forgetting and Sequences. *UCI AGS Symposium*
- [3] Cooper K. W. (2020) Dual processes of hippocampal mode switching. *Neuromatch Conference*
- [4] Cooper K. W. (2020) Cholinergic abolition disrupts encoding and retrieval mode switching. *11th Annual Emerging Scientists Symposium*
- [5] Hernandez 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*
- [6] Cooper K. W, Dachapally P.R, Jones M.N (2018) Consequences of Catastrophic Forgetting on Semantic Representations Learned by Deep Neural Embedding Models, *Midwest Cognitive Science Conference*
- [7] Cooper K. W. (2017) Bridging the Gap: Natural Computation and Neural Systems. *Indiana University Undergraduate Research Conference*.

#### AWARDS

|  |                             |      |
|--|-----------------------------|------|
| Graduate Research Fellow                     | National Science Foundation | 2021 |
| Pedagogical Fellow                           | UC Irvine DTEI              | 2020 |
| UC Irvine Recruitment Fellowship             | UC Irvine                   | 2020 |
| Graduate Research Fellow, Honorable Mention  | National Science Foundation | 2021 |
| Cognitive Science Outstanding Research Award | Indiana University          | 2021 |
| Ewing Prize in Philosophy                    | Indiana University          | 2021 |
| Cognitive Science Outstanding Research Award | Indiana University          | 2021 |

#### 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 |

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|--------------------------|---|--|--------------------------|--|
| SCI COMM +<br>OUTREACH   | AskANeuroscientist  | Founder; K-12 class Q/A (reached >400 students)            |                          |  |
|                          | Hoosier STARS   | Co-founder; K-12 class neuro demos (reached >300 students) |                          |  |
|                          | CNLM Ambassadors  | Co-chair; SoCal Learning and memory outreach               |                          |  |
|                          | UCI End Racism  | Working group contributor addressing systemic racism       |                          |  |
|                          | Quora Writer  | Answers to neuroscience and AI questions; 800k+ views      |                          |  |
|                          | Peer reviewer   | Physiological Reviews; CVPR                                |                          |  |
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| NETWORKS                 | Cognitive Science Society   | Psi Chi  | ContinualAI (co-founder) |  |
|                          | Society for Neuroscience  | Sigma Xi   | Carboncopies Foundation  |  |
|                          | Indiana Academy of Science  | Sigma Alpha Pi   | AI for People            |  |
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| REFeree<br>SERVICE       | Physiological Reviews   |  |                          |  |
|                          | CVPR  |  |                          |  |
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| TRAININGS +<br>WORKSHOPS | Estes Cognitive Electrophysiology Workshop  | University of Pennsylvania                                 | 2021                     |  |
|                          | NIH Grant Writing Workshop  | UC Irvine  | 2020                     |  |
|                          | HHMI Productivity Workshop  | UC Irvine  | 2020                     |  |
|                          | Nonlinear Dynamics: Math and Comp Approaches  | Santa Fe Institute   | 2021                     |  |
|                          | Cognitive Science Outstanding Research Award  | Indiana University   | 2021                     |  |
|                          | Ewing Prize in Philosophy   | Indiana University   | 2021                     |  |
|                          | Cognitive Science Outstanding Research Award  | Indiana University   | 2021                     |  |
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| PRESS                    | [1] Cooper, K. W., Shahbaba, B., Li, L., Agostinelli, F., Saraf, M., Elias, G. A., Bornstein, A., Baldi, P., Fortin, N. J. (2021). Hippocampal theta oscillations support nonspatial sequence coding in hippocampal neurons. Society for Neuroscience Global Connectome |  |                          |  |
|                          | [2] Cooper K. W. (2020) The neuroscience / AI feedback loop: Catastrophic Forgetting and Sequences. UCI AGS Symposium   |  |                          |  |
|                          | [3] Cooper K. W. (2020) Dual processes of hippocampal mode switching. Neuromatch Conference   |  |                          |  |
|                          | [4] Cooper K. W. (2020) Cholinergic abolition disrupts encoding and retrieval mode switching. 11th Annual Emerging Scientists Symposium   |  |                          |  |
|                          | [5] Hernandez 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   |  |                          |  |
|                          | [6] Cooper K. W, Dachapally P.R, Jones M.N (2018) Consequences of Catastrophic Forgetting on Semantic Representations Learned by Deep Neural Embedding Models, Midwest Cognitive Science Conference   |  |                          |  |

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