

# Keiland W. Cooper

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| EDUCATION | <b>University of California, Irvine</b><br>Ph.D., Neuroscience<br>Advisor: Dr. Norbert Fortin   | In progress  |
|           | <b>Indiana University, Bloomington</b><br>B.S., Cognitive Science, <i>with Honors</i><br>Computation specialization<br>Certificate in Neuroscience; Minor in Psychology<br>Advisors: Dr. Ehren Newman, Dr. Mike Jones | May 4th 2019 |

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|-----------------------|--|
| THESIS                | [1] Cooper K. W. (2019) Cholinergic modulation may explain hippocampal encoding and retrieval mode switching. Indiana University, Bloomington Undergraduate Thesis.  |
| PREPRINTS             | [2] 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 <a href="http://arxiv.org/abs/2104.00405">http://arxiv.org/abs/2104.00405</a> |
|                       | [3] 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 | [4] 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. <i>Chemical senses</i> , 46.            |
|                       | [5] 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. <i>Nature Communications</i> , 11(1), 1-8.     |
|                       | [6] 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. <i>Neuron</i> . 107(2), 219-233      |
|                       | [7] 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. <i>Chemical Senses</i> , 45(7), 609-622.                |
|                       | [8] 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. <i>Chemical senses</i> , 45(6), 415-422.  |

- [9] Hernandez-Perez, J. J., Cooper, K. W., Newman, E. L. (2020). Medial entorhinal cortex activates in a traveling wave in the rat. *eLife*, 9
- [10] 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

#### 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*.

#### TEACHING

|                                   |                    |                           |      |
|-----------------------------------|--------------------|---------------------------|------|
| Autonomous Robotics               | Co-instructor      | <i>Indiana University</i> | 2019 |
| Programming in Cognitive Sciences | Co-instructor      | <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 |

#### SELECTED OUTREACH + SERVICE

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|--------------------|--|
| AskANeuroscientist | <i>Founder; K-12 class Q/A (reached &gt;400 students)</i>            |
| Hoosier STARS      | <i>Co-founder; K-12 class neuro demos (reached &gt;300 students)</i> |
| CNLM Ambassadors   | <i>Co-chair; SoCal Learning and memory outreach</i>                  |
| UCI End Racism     | <i>Working group contributor addressing systemic racism</i>          |
| Quora Writer       | <i>Answers to neuroscience and AI questions; 800k+ views</i>         |
| Peer reviewer      | <i>Physiological Reviews; CVPR</i>                                   |

#### 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 |

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| 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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## 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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## 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