

Keiland W. Cooper

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last updated November 1, 2018

Education

Indiana University Bloomington

COGNITIVE SCIENCE B.S CONCENTRATION: COMPUTATION, NEUROSCIENCE CERT.

exp. May 2019

Thesis: Hippocampal modes: the role of acetylcholine and theta (In progress)

Research Projects

WITH DR. MIKE JONES: COMPUTATIONAL COGNITIVE SCIENCE, ARTIFICIAL INTELLIGENCE

2018 - Present

Overcoming Catastrophic forgetting in connectionist embedding models.

WITH DR. FREDRIC SCHMITT: PHILOSOPHY OF MIND

2018

Can the Machine Think? An evidence based approach .

WITH DR. AMIT HAGAR: HISTORY AND PHILOSOPHY OF SCIENCE; QUANTUM COMPUTING

2017 - 2018

The Natural Computation of the Brain

WITH DR. EHREN NEWMAN: NEURAL CORRELATES OF LEARNING AND MEMORY

2015 - Present

Hippocampal Mode Switching computational model

Traveling Theta Wave in the Entorhinal Cortex

CA1 Assembly Fluorescence Imaging

Optic Flow and Theta Modulation

WITH RESSL LAB: BIOCHEMICAL STRUCTURE OF PROTEINS IN SYNAPTIC CONNECTIVITY

2015

Investigating the Structure of Membrane Protein YejM

INDEPENDANT

2016 - Present

Predicting Hippocampal CA1 activity with machine learning

Evolving neural networks to play games

AS PART OF PROGRAM

fMRI Data analysis - with Dr. Tom James, Dr. Josh Brown

Autonomous Robotics - with Dr. Randall Beer

Human EEG - with Dr. Ben Ramsden

Networks

PROFESSIONAL SOCIETIES

Indiana Academy of Science

Psi Chi

OTHER

ContinualAI.org, co-founder

Carboncopies, volunteer researcher

Student Organization for Cognitive Science, President

ADAPT Consulting, VP of Project Management

CONFERENCE COMMITTEE

Midwest Undergraduate Cognitive Science Conference

Learning: Fast, Deep, and Shallow

Pedagogy & Higher Education

UNDERGRADUATE CO-INSTRUCTOR

Programming in the Cognitive & Info Sciences (COGS-Q 260) Spring 2018
Computation in Cognitive Science (COGS-Q 320) Spring 2018

UNDERGRADUATE TEACHING ASSISTANT

Introduction to Neuroscience (PSY-P 346), Dr. Ehren Newman - Fall 2017
Cognitive Psychology (PSY-P 335), Dr. Franco Pestilli - Fall 2018

COMMITTEE SEATS

Education Policy Committee
Bloomington Faculty Council

Awards

SUBMITTED

NSF GRFP

FUNDED

2018	Ewing Prize
2018	Cognitive Science Outstanding Contribution Award
2017, 2018	Cognitive Science Research Award

Trainings, Workshops, etc.

Complexity Science Certificate, Santa Fe Institute
Science Communication Workshop
High Performance Computing and Supercomputing Workshop
Aseptic Surgery: Proper Practice Training
Viral Handling, Animal Handling, Institutional Animal Care Training
FERPA, Data Protection and Privacy, Title IX Trainings
IUNI Network Science Workshop
Neurosurgery Shadowing, Riley Hospital

Outreach and Service (Selected)

Hoosier STARS, (co-founder, director)
Brain Club at the Boys and Girls Club
IU Science Fest
Kirkwood Observatory Guide
Celebrate Science Indiana

Publications

IN PREPERATION

Hernandez, J., Cooper, K.W., Newman, E.L. () Waveform changes of theta oscillations account for wide proportion of phase shift attributed to traveling waves in medial entorhinal cortex in behaving rats.

PUBLISHED

Cooper K.W. (2018) Can the Machine Understand: An Evidence Based Approach to the Chinese Room. IUJUR 4(1) 22-24

SELECTED ABSTRACTS/PRESENTATIONS

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., Hernandez 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. (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.