

Justin Paul SKYCAK

EXPERIENCE

Current	Cognitive Neuroimaging Research Assistant @ ROSE LAB (Cognitive Neuroscience Lab at University of Notre Dame)
AUG 2016	<ul style="list-style-type: none">› Using machine learning methods (e.g. multi-voxel pattern analysis) to analyze neuroimaging data in cognitive neuroscience experiments.› Managing lab website
Current	Data Science Intern @ AUNALYTICS (Data Science Consulting/Software Startup)
JAN 2016	<ul style="list-style-type: none">› Using R and Python to mine proprietary big datasets involving financial, geolocation, demographic, and clickstream information and spanning multiple levels of scale/granularity. Working with a team to create slide decks and written reports and present them to clients.› Creating customized analysis methods, building tools to implement/abstract them, and working with a team to automate parts of the data science workflow.
Current	Mathematics Instructor @ MATHNASIUM OF GRANGER (Math Tutoring Franchise)
MAR 2013	Teaching math to students of all grades (elementary through college) and occasionally ran the center.
AUG 2015	Machine Learning Research Intern @ NEW MEXICO CONSORTIUM (Engineering Lab in Los Alamos, NM)
MAY 2015	<ul style="list-style-type: none">› Attempted to generate synchronous spike-rate oscillations using the PetaVision library for brain-based deep convolutional neural network supercomputing.› Successfully implemented spiking neurons but unable to demonstrate spike-rate oscillations› Notre Dame Summer Research Grant: apx \$3,000
JULY 2013	Physics Research Intern @ QUARKNET (Particle Detection Lab at University of Notre Dame)
MAY 2013	<ul style="list-style-type: none">› Tested and analyzed efficacy of light generation/transmission materials› Results sent to decision-makers of material upgrades in the CMS particle detector at CERN.› Presented project at regional (NIRSEF) and state (HSEF) science fairs under name "Optimizing Scintillation and Light Transmission for Use in a High-Energy Particle Detector"› IAS Junior Research grant: \$300
MAY 2013	Volunteer Physics Researcher @ LEVINE LAB (Particle Detection Lab at Indiana University South Bend)
SEPT 2012	<ul style="list-style-type: none">› Designed and created a material to improve acoustic sensors in the COUPP dark matter detector› Presented project at regional (NIRSEF), state (HSEF, INJSHS, IAS Talent Search), and international (ISEF) science fairs under name "Making a Matching Layer for Acoustic Sensors in a COUPP Dark Matter Detector"› IAS Junior Research Grant: apx \$50
2013	Camp Counselor @ CHILDREN'S DISPENSARY (Special-needs Nonprofit in South Bend, IN)
2011	<ul style="list-style-type: none">› Taught, supervised, and assisted special-needs children.› Created promotional media CDs.

EDUCATION

<i>Current</i> AUG 2014	B.S. in Honors Mathematics @ UNIVERSITY OF NOTRE DAME <ul style="list-style-type: none">› Eli Lilly Scholarship Recipient (4 yrs full tuition) and Glynn Honors Scholar› Grad-level courses in applied math, computational neuroscience, and game theory› Presented comp neuro project "Network Motif-Inspired Evolution of Hodgkin-Huxley Neuronal Networks with Spike-Timing Dependent Plasticity" at ND COS-JAM 2015. Found rules describing the final states of STDP neural networks in terms of cycle lengths and stimulus locations/frequencies, provided that the cycles are sufficiently small.› Published math project "Numerical Investigation of the $3n+1$ Problem and its Continuous Extension" in Scientia, ND's journal of undergrad research, & served 2 yrs as math section editor
<i>May 2014</i> AUG 2010	Valedictorian @ MARIAN HIGH SCHOOL (Mishawaka, IN) <ul style="list-style-type: none">› National Merit Finalist› National AP Scholar› 2x Chem Olympiad regional finalist

COMPUTER LANGUAGES/SOFTWARE

PROFESSIONAL WORKING PROFICIENCY: R, Python, Matlab
BASIC: C, Javascript, html, CSS, php, Tableau, Git, SQL