Justin Paul Skycak

Experience

Current — Aug 2016
Cognitive Neuroimaging Research Assistant @ Rose Lab (Cognitive Neuroscience Lab at University of Notre Dame)
› Using machine learning methods (e.g. multi-voxel pattern analysis) to analyze neuroimaging data in cognitive neuroscience experiments.
› Managing lab website

Current — Jan 2016
Data Science Intern @ Aunalytics (Data Science Consulting/Software Startup)
› 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 — Mar 2013
Mathematics Instructor @ Mathnasium of Granger (Math Tutoring Franchise)
Teaching math to students of all grades (elementary through college) and occasionally ran the center.

Aug 2015 — May 2015
Machine Learning Research Intern @ New Mexico Consortium (Engineering Lab in Los Alamos, NM)
› 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

March 2014 — June 2013
Physics Research Intern @ QuarkNet (Particle Detection Lab at University of Notre Dame)
› 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 — Sept 2012
Physics Research Intern @ Levine Lab (Particle Detection Lab at Indiana University South Bend)
› 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 — 2011
Camp Counselor @ Children's Dispensary (Special-needs Nonprofit in South Bend, IN)
›Taught, supervised, and assisted special-needs children.
›Created promotional media CDs.

Education

Current | B.S. in Honors Mathematics @ University of Notre Dame
Aug 2014 | › 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

May 2014 | Valedictorian @ Marian High School (Mishawaka, IN)
Aug 2010 | › 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