Benjamin James

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PROFILE

- My primary research interests are focused on information processing within the early visual system, primarily as it pertains to optimal coding and compression in the retina.

MASTERS THESIS

Building a Model of the Inner Plexiform Layer Newcastle University, 2016

I am creating a model of the IPL, paying special attention to Amacrine Cell circuity, in order to determine the ways that biological wiring give rise to specific computations seen in Retinal Ganglion Cells.

EDUCATION

Newcastle University Newcastle Upon Tyne, England

MSc Computational Neuroscience and Neuroinformatics 2016

University of Louisville Louisville, KY, USA

BS Psychology, Minors in Mathematics and Biology 2015

EXPERIENCE

University of Louisville Louisville, KY, USA

Research Assistant: Department of Ophthalmology and Visual Sciences 2011-2013

- Performed surgery on and recorded from mouse and rat optic nerve and superior colliculus
- Analyzed electrophysiological data
- Designed custom stochastic algorithms

Research Assistant: Department of Psychological and Brain Sciences 2013-2014

- Designed custom stochastic algorithm for cross-categorizing data sets in order to model human categorization of continuous data-type objects

Research Assistant: Developmental Neuropsychology 2010 – 2011

- Recorded electroencephalographic data from toddlers and premature babies
- Analyzed data from a NASA research grant for statistical significance

AWARDS

University of Louisville Summer Research Grant 2012

Molfese Neuropsychology Research Grant 2011

United States National Merit Finalist 2008

POSTERS AND PUBLICATIONS

University of Louisville Louisville, KY, USA

- James B; Peachey N, & McCall, MO. The TVRM27-/- genotype: a new animal model of complete congenital stationary night blindness. University of Louisville Summer Research Opportunity Program. (2012).
- James B, David N, & Molfese DL. The effects of minor sleep loss on speech processing in adults. International Neuropsychology Society Conference (2011).
- David N, James B, & Molfese DL. The effects of minor sleep loss and simulated weightlessness on speech processing in adults. International Neuropsychology Society Conference (2011).

SKILLS

Software

- MATLAB, Python (including BioPython and NEST neuron simulator), R, Spike2, VBA, Microsoft Office Suite

Analysis

- Classical hypothesis tests, Time Series Analysis, Cluster Analysis, Bayesian and Stochastic Algorithms including MCMC, Hidden Markov Models, and Infinite Mixture Models