August 21, 2017

Nathaniel V. Powell

Contact Information

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Education

Rensselaer Polytechnic Institute (2016 - present)

Doctoral Student in Cognitive Science (Fall 2016-present)
Advisor: Brett Fajen
Secondary Advisor: Wayne Gray

University of Vermont (2014 - 2016)

Master of Science in Statistics (2016)
Advisor: Josh Bongard
Committee: Jeff Buzas and Ruth Mickey
Thesis: The role of Uncertainty in Categorical Perception Utilizing Statistical Learning in Robots

Binghamton University (2011 - 2014)

Bachelor of Arts in Psychology (2014)

Bachelor of Arts in Philosophy (2014)

Research Interests

Complex Adaptive Systems, Statistical Modeling, Predictive Coding, Uncertainty, Perception and Action, Cognitive Robotics

Peer-Reviewed Conference Publications

N Powell & JC Bongard (2016) Exploring uncertainty and movement in categorical perception using robots. Procs of the Parallel Problem Solving from Nature (PPSN) Conference, Edinburgh, UK.

Poster Presentations

N Powell & JC Bongard (2016) Exploring uncertainty and movement in categorical perception using robots. Procs of the Parallel Problem Solving from Nature (PPSN) Conference, Edinburgh, UK. (September 20, 2016)

Conference Abstacts

Nate Powell, Scott Steinmetz, Oliver W. Layton & Brett Fajen. Choosing actions that maintain sprint ability during repeated target interception tasks. Vision Science Society.

Scott Steinmetz, Nate Powell, Oliver Layton, & Brett Fajen. Bayes meets Gibson: Affordance-based control of target interception in the face of uncertainty. Vision Science Society.

Talks/Lectures

Choosing actions that maintain energy level during repeated target interception tasks. Rensselaer Polytechnic Institute, Department of Cognitive Science. March 29th, 2017.

Reseach Experience

Perception and Action Laboratory (2016 - Present)

Principal Investigator: Dr. Brett Fajen (Rensselaer Polytechnic Institute)
Current Research: The basic underpinnings of perception and action as they relate to the reduction of uncertainty. Projects include psychophysical studies, as well as theoretical and computer models of complex decisions intelligent agents make based off of sensory information.

Morphology, Evolution, and Cognition Laboratory (2015 - Present)

Principal Investigator: Dr. Josh Bongard (University of Vermont)
Current Research: Determined how uncertainty affects an artificially evolved robot's ability to actively categorize objects. Reduction in uncertainty allows for a basic relationship between perception and action to form. This has applications to machine learning as well as developmental psychology.

Computational Genetics Lab (2015-2016)

Principal Investigator: Dr. Dawei Li (University of Vermont)
Area of Research: Developed novel polygenic risk score estimation method using genetic variants and a wide range of clinically relevant phenotypes. Utilized predictive power of both rare and common variants in combination with clinically relevant features to correctly predict substance abuse phenotypes

Learning and Representation in Cognition Lab (2012 - 2014)

Principal Investigator: Dr. Kenneth Kurtz (Binghamton University)
Area of Research: Helped establish a novel method for teaching abstract concepts, like evolution, to middle school students through the task of sorting. This project utilized categorization techniques such as similarity and analogical reasoning.

Employment

Rensselaer Polytechnic Institute

Graduate Research Assistant under Brett Fajen (Fall 2016 - Present)

University of Vermont (January 2015 - May 2015, January 2016 - May 2016)
Served as a Graduate Teaching Assistant for:

Applied Probability

Applied Multivariate Methods

Basic Statistical Methods

Probability with Statistics

Organizations

Vision Science Society (2016 - present)
Statistics Students Association (Fall 2014 - Spring 2016, UVM)
American Statistical Association (Fall 2014 - 2016)
American Association for the Advancement of Science (Fall 2014-present)
Cognitive Science Society (Winter 2013 - Winter 2014)

Awards

Distinguished Work in Philosophy as a Freshman (2010, Siena College)

Programming/ Computer Experience

Python, MATLAB, R, C/C++, JMP, SAS, SPSS, LaTeX, Tensorflow