Andrew Kyle Lampinen

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Education

Ph.D. Psychology, Stanford University, Fall 2015-Present
- Advisor: James L. McClelland.
- Area: Cognitive.
- Center for Mind, Brain, and Computation Trainee.

B.A. Mathematics, Physics, UC Berkeley, May 2014
- Highest honors in mathematics, high distinction in general scholarship.
- GPA: 4.0 Math, 3.9 Physics, 3.9 cumulative.
- Study Abroad Internship, A*STAR IHPC Singapore, Summer 2012. (See Research Experience.)

Honors

National Science Foundation Graduate Research Fellowship, Fall 2015-Present
Percy Lionel Davis Award for Excellence in Scholarship in Mathematics, May 2014
Berkeley Physics Olsen Scholar 2013-2014
Berkeley Letters & Science Dean's List 2012-2014
Berkeley Physics Undergraduate Research Scholar, Spring & Fall 2012

Research Experience

Graduate Student Researcher, Stanford University Department of Psychology, August 2015 - Present
- Research on the effects of training neural networks compositionally.
- Research on curriculum learning in neural networks.
- Experiments to investigate the effects of presentations of concepts on learning of related concepts in mathematical cognition.

Associate Professional Staff I, Johns Hopkins University Applied Physics Laboratory, June 2014 - July 2015
- Worked on image classification using convolutional neural networks.
- Developed models and simulations of sensor systems, shipping and transportation, and autoimmune diseases.
- Devised metrics for assessing sensors.
- Worked on methods for classifying software as malicious based on features of its performance.

Student Research Associate, Lawrence Berkeley National Laboratories, January - May 2012 & August - December 2012
- Developed simulations of processes in nuclear physics.
- Engineered software and hardware for efficiently collecting & analyzing data.

Summer Research Intern, A*STAR Institute of High Performance Computing, Singapore, June - August 2012
- Wrote and adapted simulations of crystallization processes in super-cooled metals.
- Developed software for analyzing and visualizing the structure of crystals.

Research Assistant, UC Davis Plant Sciences, June - August 2011
- Developed procedures and software for testing the physical attributes of fruit.

Publications

Two presentations of a mathematical system: complementary advantages that can be combined, Andrew Lampinen & James L. McClelland, submitted

Presentations

Fast and sparse learning with compositional concept training, 15th Neural Computation and Psychology Workshop, August 2016

Cherenkov Radiation Based False Positive Detection for Rare Decays, Berkeley Undergraduate Physics Spring Poster Session, May 2012

Teaching Experience

Teaching Assistant, Stanford University Department of Psychology, Fall 2016

- Planned and taught discussion sections for graduate introdution to statistics course.
- Held office hours.

Undergraduate Student Instructor, UC Berkeley Mathematics, Spring, Fall 2013, & Spring 2014

- Planned and taught discussion sections.
- Held office hours.
- Wrote and graded quizzes and midterms.

Teaching Assistant, UC Berkeley Early Academic Outreach Program, June-July 2013

- Held office hours.
- Substitute taught classes.

Other Work Experience

Statistics Consultant, Stanford University Department of Psychology, Fall 2016-Present

- Advised graduate students on technical aspects of data collection and data analysis.

Technical Skills

Computer science: Experienced with both theory and practice.

- Graduate coursework in machine learning, neural networks, and probabilistic models & algorithms.
- Experienced user of Python, C, C++, Matlab, R, some knowledge of Mathematica, Macaulay2, Haskell.
- Used many common libraries for these languages, e.g. numpy, scipy, matplotlib, Caffe, Matlab Computer Vision Toolbox, FFTW.
- Experienced with *NIX operating systems.

Mathematics: Knowledge across many domains, with applications.

- Algebraic geometry, linear & non-linear optimization, abstract algebra & category theory, etc.
- Practical applications to machine learning, computer vision, neural coding, etc.

Statistics: Significant experience with standard data analysis techniques.

- Linear modeling, hierarchical modeling, etc.
- Fitting algorithms & goodness-of-fit tests.

Physics: Experienced in a wide variety of applied and experimental contexts.

- Statistical mechanics, biophysics, analytic mechanics, etc.
- Experimentation ranging from NMR to quantum entanglement.

Modeling & Simulation: Developed models and simulations for a variety of phenomena

- Developed both from published methods and directly from physical principles.

Laboratory Equipment: Competent with most common laboratory equipment.

- Oscilloscopes, standard & lock-in amplifiers, signal generators, etc.

Other Activities

Carillon: Carilloneur member of the Guild of Carilloneurs in North America (`www.gcna.org`).

Rock climbing: Bouldering, top rope, and sport.