# Andrew Kyle Lampinen

**Address**
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**Education**

**Ph.D. Psychology,** Stanford University, Fall 2015-Present
- Advisor: James L. McClelland
- 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.)

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**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

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**Research Experience**

**Graduate Student Researcher,** Stanford University Department of Psychology, August 2015 - Present
- Research on learning compositional functions with neural networks.
- Research on active approaches to curriculum learning in neural networks.
- Experiments to investigate the effects of example choice on concept learning in abstract algebra.

**Associate Professional Staff I,** Johns Hopkins University Applied Physics Laboratory, June 2014 - July 2015
- Developed models and simulations of sensor systems, shipping and transportation, and autoimmune diseases.
- Worked on image classification, by neural network methods.
- Devised metrics for assessing sensors.

**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.

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**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.

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**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.

**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, physics, etc.

**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.

**Data Analysis:** Significant experience with standard data analysis techniques.
- Linear & non-linear fitting algorithms & goodness-of-fit tests.

**Laboratory Equipment:** Competent with most common laboratory equipment.
- Oscilloscopes, standard & lock-in amplifiers, signal generators, etc.

**Computer** Experienced with various operating systems and software applications.
- Windows and Linux systems.
- Office, Photoshop & Illustrator.
- HTML & LaTeX.

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**Other Activities**

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

**Rock climbing:** Bouldering, top rope, and sport.