Josh Mōller-Mara

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Contact Information

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Research Interests

Neuroeconomics, Bayesian statistics, probabilistic models of cognition, rationality, game theory, data visualization, machine learning, artificial intelligence

Education

New York University, New York City/Shanghai **2015 – Present**

Pursuing a Ph.D. in Neural Science

University of California, Berkeley, Berkeley, California USA **2009 – 2013**

B.A. in Computer Science, Cognitive Science, and Statistics

- Recipient of High Honors in Cognitive Science

Research Experience

Neuroeconomics Lab, University of California, Berkeley

Junior Specialist **March 2013 – May 2015**

Investigating the neural basis of social learning using an informational cascade paradigm and fMRI.

Undergraduate Research Assistant **Spring 2011 – December 2013**

Preprocessing and analysis of MRI data, using FreeSurfer, R, and Linux shell scripts to find correlations of cortical thickness with behavioral variables. Coded economic games using z-Tree, Adobe Flash, and Python/Pygame. Designed and coded multiplayer networked games using HTML5, Javascript, and node.js. Designed and carried out behavioral experiments related to social cognition. Obtained MRI scanner operating privileges and assisted in MRI scans. Performed analysis of functional MRI data using tools in AFNI. Performed data visualization using R, ggplot2, and d3.js. Worked under the direction of Dr. Ming Hsu, Assistant Professor in the Haas School of Business and Helen Wills Neuroscience Institute.

Teaching Experience

University of California, Berkeley, Berkeley, California, USA

Teaching Assistant **June 2012 – December 2012, August 2013 – May 2014**

Teaching assistant for Statistics 133, "Concepts in Computing with Data". Taught data visualization, basic machine learning techniques such as k-Nearest Neighbors (implemented in R), web scraping and data mining, and basic UNIX.

Professional Experience

ResComp, Student Affairs IT, University of California, Berkeley

Unix Systems Administrator **June 2012 – December 2013**

Implemented a Two-Factor Authentication system using YubiKey; set up a redundant pair of validation servers with a sync pool using PHP, PostgreSQL, and Apache on RedHat Enterprise Linux Systems. Wrote several scripts for internal authentication using OpenSSL. Set up and maintenance of FreeBSD and Red Hat Enterprise Linux systems. Experience with PostgreSQL, Postfix, Apache, BIND, Nagios, SVN, Git, VMware.

Honors/Awards

High Honors in Cognitive Science **December 2013**

Research topic: "Uncertainty, Herding, and Information Cascades in the Brain"

Modeled subjective probability updating for agents with theory of mind in situations where information cascades may form. Wrote a networked multiplayer urn-guessing task to observe behavior and information cascade formation across differing levels of private signal informativeness. Currently working on fMRI paradigm.

Summer Undergraduate Research Fellowship L&S Pergo Fellow **Summer 2013**

Banatao Family Filipino American Education Fund College Scholarship **2009-2013**

Presentations

Moller-Mara, J., Saez, I., Griffiths, T., and Hsu, M. (2014) Computation in Social Learning with Information Cascades. Poster presented at *UC Berkeley Neuroscience Annual Retreat*, Watsonville, CA.

Related Courses and Projects

Bayesian Statistics (Stat 157)
Predicted the 2012 presidential election using Gibbs sampling with R and JAGS. Modeled state elections using random walks, weighting likelihood with poll data.

Computing Skills

Data analysis and visualization: R, JAGS, Python, Octave, ggobi, d3.js, OpenGL/WebGL

Interpreted languages: R, Python, Bash, Octave, SQL, Javascript, CSS, Lisp (Scheme, Emacs Lisp, Church, librep), Max/MSP, Csound
Some PHP, Perl, Lua

Applications: GNU Emacs, Blender, AFNI, FreeSurfer, VirtualBox, git and Subversion, Apache, LaTeX, PGF/Ti*k*Z

Compiled languages: C/C++, Java, some x86 assembly

Operating systems: Unix-like: Debian GNU/Linux, Ubuntu, Redhat, FreeBSD
Mac OS X, Windows XP