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Dav Clark

Curriculum Vitae

Education

2007–present *PhD in Psychology, UC Berkeley (expected Spring 2013)*
Thesis committee: Rich Ivry (co-chair), Michael Ranney (co-chair), Sonia Bishop and John Canny
Thesis: Climate change and conceptual change
Qualifying committee: John Kihlstrom (chair), Jack Gallant, Rich Ivry, and Michael Ranney
Exam topics: Automaticity, Skill Learning, Brain Imaging Methods
RCME Fellow (Full support / stipend for 2 years)

1999–2002 *MS in Cognitive Neuroscience, MIT*
Supervised by Anthony Wagner
Thesis: Neurocognitive circuitry supporting neoword learning
NSF Graduate Student Fellowship
Jacob Javits Fellowship (declined)

1995–1999 *Bachelor's degrees at U of MD, College Park*
BA with honors in Linguistics
BS in Computer Science
BS with high honors in Mathematics
Thesis: Modeling Language Change with Markov Models
Magna Cum Laude
Banneker/Key Scholarship (Full support / stipend for 4 years)
Arts and Humanities Senior Scholar
University Honors Citation
Omicron Delta Kappa leadership honors fraternity

Publications

Clark, D., Ranney, M. A., & Felipe, J., (2013, in press). Knowledge Helps: Mechanistic Information and Numeric Evidence as Cognitive Levers to Overcome Stasis and Build Public Consensus on Climate Change. *Proceedings of the 35th Annual Conference of the Cognitive Science Society*.

Ranney, M. A., **Clark, D.**, Reinholz, D. L., & Cohen, S. (2012). Changing Global Warming Beliefs with Scientific Information: Knowledge, Attitudes, and RTMD (Reinforced Theistic Manifest Destiny Theory). In N. Miyake, D. Peebles, & R.P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 2228-2233). Austin, TX: Cognitive Science Society.

Clark, D., Reinholz, D. L., Cohen, S., & Ranney, M. A. (2012). Improving Americans Modest Global Warming Knowledge in the Light of RTMD (Reinforced Theistic Manifest Destiny) Theory. In J. van Aalst, K. Thompson, M. M. Jacobson, & P. Reimann (Eds.), *The Future of Learning: Proceedings of the Tenth International Conference of the Learning Sciences,* Volume 2 (pp. 2-481 to 2-482). International Society of the Learning Sciences, Inc.

Gorgolewski, K., Burns, C. D., Madison, C., **Clark, D.**, Halchenko, Y. O., Waskom, M. L., & Ghosh, S. S. (2011). Nipype: a flexible, lightweight and extensible neuroimaging data processing framework in python. *Frontiers in Neuroinformatics, 5,* 13. doi:10.3389/fninf.2011.00013

Clark, D., & Ranney, M. A. (2010). Known knowns and unknown knowns: Multiple memory routes to improved numerical estimation. In K. Gomez, L. Lyons, & J. Randinsky (Eds.), *Learning in the Disciplines: Proceedings of the Ninth International Conference of the Learning Sciences, Vol. 1-Full Papers (pp. 460-467).* International Society of the Learning Sciences, Inc.

Clark, D., & Ivry, R. B. (2010). Multiple systems for motor skill learning. *Wiley Interdisciplinary Reviews: Cognitive Science, 1*(4), 461-467. doi:10.1002/wcs.56

Hasson, U., Furman, O., **Clark, D.**, Dudai, Y., and Davachi, L. (2008). Enhanced intersubject correlations during movie viewing correlate with successful episodic encoding. *Neuron, 57*(3), 452-462. [Note: First 3 authors contributed equally]

Kahn, I., Pascual-Leone, A., Theoret, H., Fregni, F., **Clark, D.**, & Wagner, A. D. (2005). Transient disruption of ventrolateral prefrontal cortex during verbal encoding affects subsequent memory performance. *Journal of Neurophysiology, 94,* 688-698.

Clark, D., & Wagner, A. D. (2003). Assembling and encoding word representations: fMRI subsequent memory effects implicate a role for phonological control. *Neuropsychologia, 41,* 304-317.

Presentations

Clark, D., Stoloff, R., & Ivry, R. B. (2011, September). *The neural signature of free vs. forced hand choice.* Poster session presented at the 41st annual meeting of the Society for Neuroscience, Washington, DC.

Clark, D., Reinholz, D., Cohen, S., Walket, B., & Ranney, M. A. (2011, August). *Overcoming Climate Change Biases by Teaching the Goldilocks Asymmetry of Energy Transfer Rates: A Cognitive-Strategy Attempt to Save Us Organisms.* Paper presented at the Eighteenth Annual Meeting of the Cognitive Science Association for Interdisciplinary Learning, Hood River, OR.

Clark, D., Reinholz, D., Goldwasser, L., & Ranney, M. A. (2011, April) *Can Teaching the "Goldilocks Asymmetry" About Energy Transfer Rates Save Us Organisms? An Experiment on Climate Change Instruction.* Paper presented at the Graduate School of Education (GSE) Research Day, Berkeley, CA.

Ghosh, S., Burns, C., **Clark, D.**, Gorgolewski, K., Halchenko, Y., Madison, C., Tungaraza R., & Millman J. (2010). *Nipype: Opensource platform for unified and replicable interaction with existing neuroimaging tools.* Poster session presented at the 16th Annual Meeting of the Organization for Human Brain Mapping.

Clark, D. (2010, April). *Surprising Feedback And Fallible Metacognition: Beliefs Versus Facts in Real-World Numerical Estimation and Recall.* Paper presented at the Graduate School of Eduction (GSE) Research Day, Berkeley, CA.

Clark, D., Ivry, R.B. (2009). *Hemispheric Asymmetry in fMRI Activation with Direct or Indirect Cueing of Sequential Movements.* Poster session presented at the 19th Annual Meeting of the Neural Control of Movement Abstracts, Waikiloa, HI.

Furman, O., Hasson, U., **Clark, D.**, Dudai, Y., Davachi, L. (2006). *Neural correlates of long-term memory formation under continuous real-life viewing conditions.* Poster session presented at the 12th Annual Meeting of the Organization for Human Brain Mapping.

O'Kane, G., **Clark, D.**, Insler, R., & Wagner, A. D. (2003). Generalized semantic repetition priming in left inferior prefrontal cortex. *Abstracts of the Cognitive Neuroscience Society, 10,* 73.

Clark, D., Rhee, J., & Wagner, A. D. (2001). Prefrontal activation during phonological encoding predicts subsequent memory. *Abstracts of the Cognitive Neuroscience Society, 8,* 58.

Presentations (continued)

Rhee, J., **Clark, D.**, Casasanto, D., Ullman, M., Wagner, A., & Pinker, S. (2001). Neural substrates of English past tense generation. *Abstracts of the Cognitive Neuroscience Society, 8,* 131.

Clark, D., & Wagner, A. D. (2001). A role for phonological working memory: Building representations for novel word stimuli. *Society for Neuroscience Abstracts, 27.*

Invited Talks

Clark, D., Reinholz, D., Farjadi, R., Cohen, S., and Ranney, M.A. (2011, Oct). *Understanding and Changing Cognitions and Behaviors About Global Warming* Seminar presented to UC Berkeley DeCal: Behavioral Change + Technology, Berkeley, CA.

Ranney, M. A., **Clark, D.**, and Reinholz, D. (2011, Oct). *"Rick Perry, methane, & an early hominid enter a saloon…": Climate change, evolution, (anti-)knowledge, math, and geopolitics.* Invited colloquium for the Institute of Cognitive and Brain Sciences, University of California, Berkeley.

Clark, D., Reinholz, D., Farjadi, R., and Ranney, M. A. (2011, Sept). *Towards an informed populace: two approaches for addressing faulty prior knowledge.* Seminar presented to the UC Berkeley Cognitive Coalition (CoCoa), Berkeley, CA.

Clark, D., Reinholz, D., Felipe, J., Cain, A., Beale, M., Lazaris, A., Qi, H., Fong, J., Farjadi, R., & Ranney, M. A. (2011, April). *The Goldilocks Asymmetry of Energy Transfer Rates: An Experimental Intervention Toward Saving Us from Global Warming.* Research in Cognition and Mathematics Education (RCME) proseminar, Berkeley, CA.

Clark, D. (2009, Oct). *Python data discussion (HDF5, R, Numpy)*. UC Berkeley Python 4 Science seminar, Berkeley, CA.

Clark, D. (2009, April). *Learning numerical information: A memory systems approach to educational strategy.* USF Undergraduate Neuroscience Seminar, San Francisco, CA.

Clark, D. (2001, April). *More is better: Predicting word memory with prefrontal activation.* MIT Speech Communication Group Seminar Series, Cambridge, MA.

Reviewing Service

- Cognition and Instruction
- Journal of Cognitive Neuroscience

Reviewing Service (continued)

- International Conference for the Learning Sciences
- Annual Conference of the Cognitive Science Society

Techical Skills

Professional-level programming competence

- R (a free dialect of the S language for Statistics, similar to S-Plus)
- Python, including many scientific libraries
- Web application programming (Ruby on Rails, Javascript, Amazon Web Services)

Brain Imaging

- fMRI data collection and analysis
- MEG/EEG data collection and analysis
- NiPype – analysis pipelines for reproducible research (co-author)

Other

- Statistics: including classical, non-parametric, SEM, Monte Carlo methods
- Data visualization: including interactive, multipanel and 3D plots
- Reproducible research
- Revision control / team project management (Subversion and Git)
- Basic electronics (e.g., implemented contol electronics for vibrating button boxes)

Other Experience

2012–present *Chief Scientist, Oroeco*
Ruby on Rails project to scaffold climate-relevant behavioral change. Responsible for components of the web application, and developing approaches to systematically analyze user behaviors—in particular the results of interventions.

Other Experience (continued)

2007–present *Feldenkrais Teacher, Consultant*
Hands-on and verbal instruction to improve students' movement abilities, often in a rehabilitative context. Completed 4-year training. Weekly class at YMCA from 2007–2011. Various dance workshops in 2012. Full day FGNA conference presentation in 2012.

2004–present *Web Service Developer, Contractor / KeepOpen.com*
Using technologies like HDF5, Zope and Google Maps to implement services for community events management, small businesses, resource sharing, etc. Patent development.

2006–2007 *Principal Scientist, Entrieva*
Developed multiple reporting frameworks using relational database and hierarchical HDF5 design. Analysis and reduction of code to basic mathematical notation. Domain expert in computational linguistics and semantic web technology. Primary responsibility: "Do good stuff."

2006 *Programmer, Wandell Lab / Stanford*
Developing a brain imaging repository from scratch using REST design and HDF5 data storage using PyTables. Clients include a Matlab / Java program, a web browser and mounting via WebDAV. Server written using mod_python. NumPy used for matrix operations.

2005–2006 *Programmer/Analyst, Davachi Lab / NYU*
Variety of novel analyses of subsequent memory fMRI data collected during free viewing of a movie. Working with an undergraduate researcher in developing analysis of associated eye-tracking data. Duties also include development, automation and technical support of other analyses being done in the lab.

2003–2004 *Various Independent Activities*

- Business plan competitions: MIT Sloan (semi-finalist) and Harvard (runner up, $4000 as in-kind services).
- Classical opera and contemporary performance art.
- Real estate agent.
- Extensive travel.
- Organic farming, straw bale and mud brick house construction.
- Organizer and attendee for various holistic bodywork training sessions.

Other Experience (continued)

2002 *Programmer/Analyst, Massachusetts General Hospital*
Supported complex analyses in a flagship brain imaging research center. Included implementing novel techniques for statistics and visualization, integrating fMRI, sMRI and MEG.

Teaching, Service, and Extracurricular Activities

2004 *Producer, Advanced Feldenkrais Training with Paul Doron-Doroftei*
Working with children with severe cases of spastic paralysis (e.g. Cerebral Palsy).

2003 *Brewmaster, Oni Gallery Collective*
Organized all or part of various artistic events. 10 Gal Beer / week.

2001-2003 *Producer, The Voice Institute*
Various workshops and retreats – styles ranging from Gypsy to Tuvan throat singing to Modern Chamber.

2003 *Technical director & cast, Harvard's Lowell House Opera*
Managed large, untrained teams of actors in building the entire stage.

At UC Berkeley

2012 Teaching Assistant for Intro. to Cognitive Science
2010–1012 Proseminar committee, social committee – RCME fellows program
2007 Teaching Assistant for Cognitive Neuroscience

At MIT

2001–2002 President, Graduate Student Volunteer Corps
2001–2002 The Ptolemy Players (Bass vocals)
2001 Graduate Student Council Departmental Representative
2000 Teaching Assistant for Introduction to Psychology

At U of MD

1996–1999 President & Founder, Juggling Club

Teaching, Service, and Extracurricular Activities (continued)

1996–1997 Aaron Strauss Teaching Assistant for Calculus I & II

Undergraduates Supervised

Jimmy Zhang
Naomi Sulzer
Janice Chen (now a graduate student with Anthony Wagner)
Benjamin Miron
Konstantin Tomashevsky
Tawny Tsang (Selected as one of 20 Haas Scholars across all departments at UC Berkeley, $12,600 in stipend and budget)
Jeff Lai
Si Wang
Benjamin Walklet (Post-bac RA)

References

UC Berkeley – Prof. Michael Ranney (ranney@berkeley.edu)
UC Berkeley – Prof. Rich Ivry (ivry@berkeley.edu)
NYU – Prof. Lila Davachi (lila.davachi@nyu.edu)
NYU / Weizmann – Prof. Yadin Dudai (yadin.dudai@weizmann.ac.il)
Stanford / MIT – Prof. Anthony Wagner (wagner@psych.stanford.edu)