CURRICULUM VITAE

Derrik E. Asher
University of California, Irvine
Department of Cognitive Sciences
Cognitive Anteater Robotics Laboratory (CARL)
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Research Interests

Computational modeling of biologically inspired systems (function and behavior)
Neural based computation of navigation and task sequences
Evolutionary computation and genetic algorithms for understanding complex systems
Learning algorithms attributed to intelligence, decision making, and action execution
Human robot/computer interactions (i.e., cooperation, competition, and explore/exploit)
Embodiment of neural/computational models (onto robotic platforms or into physical systems)
Neural network models of neuromodulatory, sensory, and motor systems
Integration of sensory systems (simulation and applied)
Biophysical attributes associated with cognitive states

Research Experience

07/2009-Present : Computational modeling (UCI, Computational Neuroscience)
07/2009-09/2013: Evolutionary computation (UCI, Computational Neuroscience)
07/2009-11/2013: Human-Robot Interactions (UCI, Cognitive Neuroscience & Cognitive Robotics)
08/2008-06/2010: fMRI data collection and analysis (UCI, Visual Neuroscience)
08/2007-07/2008: fMRI research assistant (UCSD, Neuroscience)
08/2007-07/2008: EEG research assistant (UCSD, Cognitive Sciences)
05/2005-05/2006: Chemistry research assistant (UCSD, Inorganic Chemistry)
05/2003-07/2003: Polymer research (NIST, Material Sciences)
03/2001-04/2003: NMR lab assistant (SMC, Organic Chemistry)

Education

Ph.D. - University of California, Irvine (Psychology-Computational Neuroscience) *2014*
M.S. - University of California, Irvine (Cognitive Neuroscience) *2012*
B.S. - University of California, San Diego (Chemical Physics) *2006*
A.A. - Santa Monica College (General Science, Honors) *2003*
Diploma - Birmingham High School (General Education, Honors) *1998*

Publications

Asher DE, Oros N, Krichmar JL (2015) The Importance of Lateral Connections in the Parietal Cortex for Generating Motor Plans. PLoS ONE 10(8): e0134669. doi:10.1371/journal.pone.0134669

Asher DE, Krichmar JL, Oros N (2014). The importance of lateral connections in the parietal cortex for coping with sensory delays and generating motor plans. Vancouver, BC, Canada, Genetic and Evolutionary Computation Conference (GECCO-2014).

Asher DE, Craig AB, Zaldivar A, Brewer AA and Krichmar JL (2013). A dynamic, embodied paradigm to investigate the role of serotonin in cost and action selection. *Front. Integr. Neurosci.* 7:78. doi: 10.3389/fnint.2013.00078

Alexis B Craig, **Derrik E Asher**, Nicolas Oros, Alyssa A Brewer, and Jeffrey L Krichmar Social contracts and human–computer interaction with simulated adapting agents Adaptive Behavior October 2013 21: 371-387, first published on July 29, 2013 doi:10.1177/1059712313491612

Asher, Derrik E., Shunan Zhang, Andrew Zaldivar, Michael D. Lee, and Jeffrey L. Krichmar. "Modeling individual differences in socioeconomic game playing." Conference Proceedings, CogSci 2012, Saporo, Japan.

Derrik E. Asher, Andrew Zaldivar, Brian Barton, Alyssa A. Brewer, Jeffrey L. Krichmar: Reciprocity and Retaliation in Social Games With Adaptive Agents. IEEE T. Autonomous Mental Development 4(3): 226-238 (2012)

Asher, Derrik E., Andrew Zaldivar, and Jeffrey L. Krichmar. "Effect of neuromodulation on performance in game playing: A modeling study." In*Development and Learning (ICDL), 2010 IEEE 9th International Conference on*, pp. 155-160. IEEE, 2010.

Zaldivar, Andrew, **Derrik E. Asher**, and Jeffrey L. Krichmar. "Simulation of how neuromodulation influences cooperative behavior." In *From Animals to Animats 11*, pp. 649-660. Springer Berlin Heidelberg, 2010.

Published Abstracts

Hemispheric Differences of Color Responses in Human Ventral Visual Cortex: ***Derrik E. Asher**, Alyssa A. Brewer Department of Cognitive Sciences, University of California, Irvine; 2009 Journal of Vision; Volume 9, Number 8, Abstract 776, Page 776a*

Rod Signals in Human Ventral Visual Cortex: *Alyssa A. Brewer, Brian Barton, **Derrik E. Asher**, Ling Lin, Dantian T. Liu 2009 Journal of Vision; Volume 9, Number 8, Abstract 777, Page 777a*

Alteration of Visuomotor Processing Following Left-Right Prism Adaptation: *Brian Barton, Ling Lin, **Derrik E. Asher**, Alyssa A. Brewer 2009 Journal of Vision Volume 9, Number 8, Abstract 763, Page 763a*

Visual Field Mapping of Visuomotor Adaptation to Prisms: *Ling Lin, Brian Barton, **Derrik E. Asher**, Alyssa A. Brewer 2009 Journal of Vision Volume 9, Number 8, Abstract 762, Page 762a*

Electrophysiological Analysis of Empathy and Theory of Mind Function in Children with Autism Spectrum Disorder: *Jai-Min Bai, **Derrik Asher**, Oriana Aragon, Tom Gamage, Yasmin Ghochani, Stephen Johnson, Steve Gilmore, Matt Erhart, Heather Pelton, Ernesto Enrique, Dane Chambers, Jaime Pineda; Department of Cognitive Science, UCSD, Neuroscience Department, UCSD, Cal State University, San Marcos, San Diego State University, University of Illinois, Champaign-Urbana, 6Virginia Commonwealth University; 2008*

Posters

A Dynamic and Embodied Environment to Probe the Neural Correlates of Action selection and Social Signaling: *A. A. Brewer, **D. E. Asher**, A. B. Craig, N. Oros, J. L. Krichmar; Dynamical Neuroscience Satellite Symposium XX 2012, New Orleans, LA*

Effects of Neuromodulation and Adaptive Behavior on Reciprocity During Human-Robot Interactions: ***D. E. Asher**, A. Zaldivar, B. Barton, A. A. Brewer, J. L. Krichmar; Society for Neuroscience 2011, Washington, D.C.*

Pinwheel cartography: Novel visual field map cluster within human ventro-lateral occipital cortex: ***D. E. Asher**, S. A. Drew, B. Barton, A. A. Brewer; Society for Neuroscience 2010, San Diego, CA*

Pinwheel cartography: Novel visual field map cluster in the human posterior parahippocampal complex: *S. A. Drew, **D. E. Asher**, B. Barton, A. A. Brewer; Society for Neuroscience 2010, San Diego, CA*

Effect of neuromodulation on performance in game playing: A modeling study: ***Asher, D.E.**, Zaldivar, A., Krichmar, J.L.; 2010 IEEE 9th International Conference on Development and Learning (ICDL)*

Simulation of How Neuromodulation Influences Cooperative Behavior: *Andrew Zaldivar, **Derrik E. Asher**, Jeffrey L. Krichmar; The 11th International Conference on Simulation of Adaptive Behavior, SAB2010 From Animals to Animats 11*

Simulation of How Neuromodulation Influences Behavior: *Andrew Zaldivar, **Derrik E. Asher**, Jeffrey L. Krichmar; The 17th Joint Symposium on Neural Computation (JSNC2010)*

Novel foveal representations in human ventro-lateral cortex: ***Derrik E. Asher**, Brian Barton, Alyssa A. Brewer; Society for Neuroscience 2009, Chicago, IL*

Hemispheric differences of color responses in human ventral visual cortex: ***Derrik E. Asher**, Alyssa A. Brewer; Vision Science Society 2009, Naples, Florida*

Rod signals in human ventral visual cortex: *Alyssa A. Brewer, Brian Barton, **Derrik E. Asher**, Ling Lin, Dantian T. Liu; Vision Science Society 2009, Naples, Florida*

Alteration of visuomotor processing following left-right prism adaptation: *Brian Barton, Ling Lin, **Derrik E. Asher**, Alyssa A. Brewer; Vision Science Society 2009, Naples, Florida*

Visual field mapping of visuomotor adaptation to prisms: *Ling Lin, Brian Barton, **Derrik E. Asher**, Alyssa A. Brewer; Vision Science Society 2009, Naples, Florida*

Projections of rod pathways in human visual cortex: *Alyssa A. Brewer, Brian Barton, **Derrik E. Asher**; Society for Neuroscience 2009, Chicago, IL*

Presentations

The Evolution of Biologically Plausible Neural Networks Performing a Visually Guided Reaching Task: **Asher, D. E.**, Vancouver, BC, Canada, *Genetic and Evolutionary Computation Conference (GECCO-2014), 07-14-2014*

The Evolution of Sensorimotor Transformations in the Posterior Parietal Cortex: **Asher, D. E.**, University of California, Irvine, Irvine California, USA, *Cognitive Sciences Department Colloquium Series, 4-30-2014*

Modeling individual differences in socioeconomic game playing: ***Asher, D. E.**, Zhang, S., Zaldivar, A., Lee, M. D., & Krichmar, J. L, CogSci 2012, Saporo, Japan.*

Invited guest speaker for Biological Psychology course at Orange Coast College (OCC) EEG lecture (03/2011) *Staff: Stephanie Drew, Ph.D.*

The Effects of Neuromodulation on Human-Robot Interaction in Games of Conflict and Cooperation: ***Derrik Asher**, Andrew Zaldivar, Brian Barton, Alyssa Brewer and Jeffrey Krichmar; International Joint Conference on Neural Networks 2011, San Jose, CA*

Rod Pathway Projections in Human Visual Cortex: *Brian Barton, **Derrik E. Asher**, Alyssa A. Brewer; Ophthalmological Science of America 2009, University of Washington Department of Ophthalmology*

Visual field mapping of visuomotor adaptation to reversing prisms: *Ling Lin, Brian Barton, **Derrik E. Asher**, Alyssa A. Brewer; Society for Neuroscience 2009, Chicago, IL*

Electrophysiological Analysis of Empathy and Theory of Mind Function in Children with Autism Spectrum Disorder: *Jai-Min Bai1, **Derrik Asher** , Oriana Aragon1, Tom Gamage, Yasmin Ghochani, Stephen Johnson, Steve Gilmore, Matt Erhart, Heather Pelton, Ernesto Enrique, Dane Chambers, Jaime Pineda1;Department of Cognitive Science, UCSD, Neuroscience Department, UCSD, Cal State University, San Marcos, San Diego State University, University of Illinois, Champaign-Urbana, 6Virginia Commonwealth University; 2008*

Programming Experience

C/C++, html/xml, Bash (Linux/Unix), MatLab, R, Python, and RobotC

Funded Research

-Office of Naval Research Grant -- ONR (11/2009-06/2012)
-National Science Foundation -- NSF (07/2012-06/2013)
-Intelligence Advanced Research Projects Activity -- IARPA (07/2013-07/2014)

Awards and Honors

-Falmagne Research Fellowship (06/2013-08/2013)
-Associate Dean's Fellowship (01/2013-03/2013)
-Order of Merit (honorable mention) for Outstanding Service (06/2012)
-Dynes and Hellman Scholarship for research at UCSD (05/2005-05/2006)
-SURF at NIST in Maryland (05/2003-07/2003)

Leadership

-Teaching Assistant (09/2008-04/2014)
-Graduate Liaison (05/2010-08/2013)
-Summer Academic Enrichment Program (SAEP) panelist (08/2013)
-Center for Cognitive Neuroscience Executive Committee (05/2010-06/2012)
-Summer Academic Enrichment Program (SAEP) panelist (08/2011)

Journals Reviewed

-International Journal of Humanoid Robotics (IJHR)
-Autonomous Mental Development, IEEE Transactions on (TAMD)
-International Conference on Intelligent Robots and Systems (IROS 2015)

References

-Jeffrey L. Krichmar (UCI, Cognitive Sciences) jkrichma@uci.edu
-Charlie Chubb (UCI, Cognitive Sciences) cfchubb@uci.edu
-Michael Lee (UCI, Cognitive Sciences) mdlee@uci.edu
-Ramesh Srinivasan (UCI, Cognitive Sciences) r.srinivasan@uci.edu
-Alyssa A. Brewer (UCI, Cognitive Sciences) aabrewer@uci.edu
-Emily D. Grossman (UCI, Cognitive Sciences) grossman@uci.edu
-Nikil Dutt (UCI, Computer Science) dutt@uci.edu