CURRICULUM VITAE

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EDUCATION

1991 - 1997	Doctor of Philosophy in Computational Science and Informatics Computational Biology and Neuroscience Track Dissertation: "A Computational Model of Cerebellar Saccadic Control." Dissertation Defense: May 1, 1997. George Mason University, Fairfax, Virginia
1989 - 1991	Master's of Science in Computer Science The George Washington University, Washington, DC.
1981 - 1983	Bachelor's of Science in Computer Science University of Massachusetts, Amherst, Massachusetts
1979 - 1981	Brandeis University, Waltham, Massachusetts

TEACHING EXPERIENCE

2008 – Present	Department of Cognitive Science, University of California, Irvine Courses taught: Cognitive Neuroscience Cognitive Robotics Computational Neuroscience Perceptual Neuroscience
1997 - 1999	Assistant Professor Bioinformatics, Computational Neuroscience Department of Computational Science and Informatics

George Mason University, Fairfax, Virginia
Courses taught:
Bioinformatics
Computational Neuroscience Systems

1990 - 1991 Graduate Teaching Assistant
Senior Microprocessor Laboratory
Department of Electrical Engineering and Computer Science
George Washington University, Washington, D.C.

1989 - 1990 Graduate Teaching Assistant
Senior Computer Project Laboratory
Department of Electrical Engineering and Computer Science
George Washington University, Washington, D.C.

EMPLOYMENT

2008 - Present Professor
Department of Cognitive Sciences
Department of Computer Science
University of California, Irvine
Irvine, CA

2011 - 2007 Senior Fellow
Theoretical Neurobiology
The Neurosciences Institute
San Diego, CA

1999 - 2011 Postdoctoral Fellow
Theoretical Neurobiology
The Neurosciences Institute
San Diego, CA

1999- 2003 Consultant
Generation and Description of Dendritic Morphology
Human Brain Project / Neuroinformatics Research Grant
National Institute of Neurological Disorders and Stroke /
National Institute of Mental Health
Grant Number: R01-NS39600-01

1996 - 1999 Research Professor
Krasnow Institute for Advanced Study
George Mason University
Fairfax, VA

1997 - Assistant Professor

1999	Department of Computational Science and Informatics George Mason University, Fairfax, VA
1994 - 1999	Chief Scientist Fatigue and Drug Detection - Oculomotor Measurements Eye Tracking Software Development Fitness Impairment Testing Pulse Medical Instruments, Incorporated, Rockville, MD
1997 - 1999	Consultant Police Executive Research Forum U.S. Department of Justice's National Institute of Justice Grant Number: 96-IJ-CS-0046
1993 - 1994	Software Engineer System Services Software FAA Air Traffic Control Advanced Automation System Loral Corporation, Rockville, MD
1991 - 1993	Software Engineer System Services Common Code Software FAA Air Traffic Control Advanced Automation System IBM Corporation - Federal Systems Company, Rockville, MD
1989	Software Engineer Infrared guided Missile Seeker software. Raytheon Corporation, Bedford, MA
1988 - 1989	Consultant to Japanese Defense Army Command and Control software for the PATRIOT Missile System Mitsubishi Heavy Industries, Nagoya, Japan
1984 - 1989	Software Engineer Training and Simulation software for the PATRIOT Missile system. Infrared guided Missile Seeker software. Communications software for the PATRIOT Missile system Input/Output Processor software for Continuous Wave Radar Raytheon Corporation, Bedford, MA

PUBLICATIONS

Reprints of publications can be found at: http://www.socsci.uci.edu/~jkrichma/publications.html
Google Scholar Citations:
https://scholar.google.com/citations?user=ErpbA8wAAAAJ&hl=en&oi=sra

EDITED BOOKS

1. Krichmar, J.L., and Wagatsuma, H., eds. (2011). Neuromorphic and Brain-Based Robots (Cambridge University Press).

JOURNAL ARTICLES

1. Hwu, T., Wang, A.Y., Oros, N., and Krichmar, J.L. (2018). Adaptive Robot Path Planning Using a Spiking Neuron Algorithm With Axonal Delays. IEEE Transactions on Cognitive and Developmental Systems 10, 126-137.
2. Rounds, E.L., Alexander, A.S., Nitz, D.A., and Krichmar, J.L. (2018). Conjunctive coding in an evolved spiking model of retrosplenial cortex. Behav Neuroscience. DOI: 10.1037/bne0000236
3. Tang, H., Huang, T., Krichmar, J.L., Orchard, G., and Basu, A. (2018). Guest Editorial Special Issue on Neuromorphic Computing and Cognitive Systems. IEEE Transactions on Cognitive and Developmental Systems 10, 122-125.
4. Venkadesh, S., Komendantov, A.O., Listopad, S., Scott, E.O., De Jong, K., Krichmar, J.L., and Ascoli, G.A. (2018). Evolving Simple Models of Diverse Intrinsic Dynamics in Hippocampal Neuron Types. Frontiers in Neuroinformatics 12.
5. Das, A., Pradhapan, P., Groenendaal, W., Adiraju, P., Rajan, R.T., Catthoor, F., Schaafsma, S., Krichmar, J.L., Dutt, N., and Van Hoof, C. (2018). Unsupervised heart-rate estimation in wearables with Liquid states and a probabilistic readout. Neural Netw 99, 134-147.
6. Avery, M.C., and Krichmar, J.L. (2017). Neuromodulatory Systems and Their Interactions: A Review of Models, Theories, and Experiments. Frontiers in Neural Circuits 11.
7. Beyeler, M., Rounds, E.L., Carlson, K.D., Dutt, N., and Krichmar, J.L. (2017). Sparse coding and dimensionality reduction in cortex. bioRxiv, DOI: 10.1101/149880
8. Craig, A.B., Grossman, E., and Krichmar, J.L. (2017). Investigation of autistic traits through strategic decision-making in games with adaptive agents. Scientific Reports 7, 5533, DOI:10.1038/s41598-017-05933-6.
9. Oess, T., Krichmar, J.L., and Röhrbein, F. (2017). A Computational Model for Spatial Navigation Based on Reference Frames in the Hippocampus, Retrosplenial Cortex and Posterior Parietal Cortex. Frontiers in neurorobotics.
10. Hwu, T., Isbell, J., Oros, N., and Krichmar, J. (2016). A Self-Driving Robot Using Deep Convolutional Neural Networks on Neuromorphic Hardware. arXiv arXiv:1611.01235 [cs.NE].
11. Beyeler, M., Dutt, N., and Krichmar, J.L. (2016). 3D Visual Response Properties of MSTd Emerge from an Efficient, Sparse Population Code. The Journal of Neuroscience 36, 8399-8415.

12. Craig, A.B., Phillips, M.E., Zaldivar, A., Bhattacharyya, R., and Krichmar, J.L. (2016). Investigation of biases and compensatory strategies using a probabilistic variant of the Wisconsin Card Sorting Test. Frontiers in Psychology *7:17*.
13. Krichmar, J.L., Conradt, J., and Asada, M. (2015). Neurobiologically Inspired Robotics: Enhanced Autonomy through Neuromorphic Cognition. Neural Networks, 72, 1-2.
14. Beyeler, M., Oros, N., Dutt, N., and Krichmar, J.L. (2015). A GPU-accelerated cortical neural network model for visually guided robot navigation. Neural Networks, 72, 75-87.
15. Asher, D.E., Oros, N., and Krichmar, J.L. (2015). The Importance of Lateral Connections in the Parietal Cortex for Generating Motor Plans. PLoS ONE *10*, e0134669.
16. Chou, T.-S., Bucci, L.D., and Krichmar, J.L. (2015). Learning Touch Preferences with a Tactile Robot Using Dopamine Modulated STDP in a Model of Insular Cortex. Frontiers in Neurorobotics 9.
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18. Krichmar, J.L., Coussy, P., and Dutt, N. (2015). Large-Scale Spiking Neural Networks using Neuromorphic Hardware Compatible Models. ACM Journal on Emerging Technologies in Computing Systems, Vol. 11, No. 4, Article 36, 1-18.
19. Zaldivar, A., and Krichmar, J.L. (2014). Allen Brain Atlas-Driven Visualizations: A Web-Based Gene Expression Energy Visualization Tool. Frontiers in Neuroinformatics *8*.
20. Carlson, K.D., Nageswaran, J.M., Dutt, N., and Krichmar, J.L. (2014). An efficient automated parameter tuning framework for spiking neural networks. Frontiers in Neuroscience *8*.
21. Beyeler, M., Richert, M., Dutt, N.D., and Krichmar, J.L. (2014). Efficient Spiking Neural Network Model of Pattern Motion Selectivity in Visual Cortex. Neuroinformatics.
22. Avery, M.C., Dutt, N., and Krichmar, J.L. (2014). Mechanisms underlying the basal forebrain enhancement of top-down and bottom-up attention. The European journal of neuroscience *39*, 852-865.
23. Oros, N., Chiba, A.A., Nitz, D.A., and Krichmar, J.L. (2014). Learning to ignore: A modeling study of a decremental cholinergic pathway and its influence on attention and learning. Learning & Memory *21*, 105-118.
24. Asher, D.E., Craig, A.B., Zaldivar, A., Brewer, A.A., and Krichmar, J.L. (2013). A dynamic, embodied paradigm to investigate the role of serotonin in cost and decision-making. Frontiers in Integrative Neuroscience *7*.
25. Avery, M., Dutt, N., and Krichmar, J.L. (2013). A large-scale neural network model of the influence of neuromodulatory levels on working memory and behavior. Frontiers in Computational Neuroscience *7*.
26. Zaldivar, A., and Krichmar, J.L. (2013). Interactions between the neuromodulatory systems and the amygdala: exploratory survey using the Allen Mouse Brain Atlas. Brain structure & function *218*, 1513-1530.
27. Krichmar, J.L., and Röhrbein, F. (2013). Value and Reward Based Learning in Neurorobots. Frontiers in neurorobotics *7*.
28. Beyeler, M., Dutt, N.D., and Krichmar, J.L. (2013). Categorization and decision-making in a neurobiologically plausible spiking network using a STDP-like learning rule. Neural Networks *48*, 109-124.

29. Craig, A.B., Asher, D.E., Oros, N., Brewer, A.A., and Krichmar, J.L. (2013). Social contracts and human–computer interaction with simulated adapting agents. Adaptive Behavior *21*, 371-387.
30. Krichmar, J.L. (2013). A neurorobotic platform to test the influence of neuromodulatory signaling on anxious and curious behavior. Frontiers in neurorobotics *7*:1, 1-17.
31. Asher, D.E., Zaldivar, A., Barton, B., Brewer, A.A., and Krichmar, J.L. (2012). Reciprocity and Retaliation in Social Games With Adaptive Agents. IEEE Transactions on Autonomous Mental Development *4*, 226-238.
32. Krichmar, J.L. (2012). Design principles for biologically inspired cognitive robotics. Biologically Inspired Cognitive Architectures 1, 73-81.
33. Avery, M.C., Nitz, D.A., Chiba, A.A., and Krichmar, J.L. (2012). Simulation of Cholinergic and Noradrenergic Modulation of Behavior in Uncertain Environments. Frontiers in Computational Neuroscience *6*, 1-16.
34. Richert, M., Nageswaran, J.M., Dutt, N., and Krichmar, J.L. (2011). An efficient simulation environment for modeling large-scale cortical processing. Frontiers in Neuroinformatics *5*, 1-15.
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36. Browne, W., Kawamura, K., Krichmar, J., Harwin, W., and Wagatsuma, H. (2009). Cognitive robotics: new insights into robot and human intelligence by reverse engineering brain functions. IEEE Robotics and Automation Magazine *16*, 17-18.
37. Nageswaran, J.M., Dutt, N., Krichmar, J.L., Nicolau, A., and Veidenbaum, A.V. (2009). A configurable simulation environment for the efficient simulation of large-scale spiking neural networks on graphics processors. Neural Networks *22*, 791-800.
38. Krichmar, J.L. (2008). The Neuromodulatory System – A Framework for Survival and Adaptive Behavior in a Challenging World. Adaptive Behavior, *16*, 385-399.
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41. Fleischer, J.G., and Krichmar, J.L. (2007). Sensory integration and remapping in a model of the medial temporal lobe during maze navigation by a brain-based device. J Integr Neurosci *6*, 403-431.
42. Fleischer, J. G., Gally, J. A., Edelman, G. M., and Krichmar, J. L. (2007). *Retrospective and prospective responses arising in a modeled hippocampus during maze navigation by a brain-based device.* Proc Natl Acad Sci USA, *104*, 3556-3561.
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45. Krichmar, J. L., Seth, A. K., Nitz, D. A., Fleischer, J. G., and Edelman, G. M. (2005) *Spatial navigation and causal analysis in a brain-based device having detailed cortical-hippocampal interactions.* Neuroinformatics, 3: 197-222.
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47. Krichmar, J. L., Nitz, D. A., Gally, J. A., and Edelman, G. M. (2005) *Characterizing functional hippocampal pathways in a brain-based device as it solves a spatial memory task.* Proceedings of the National Academy of Sciences USA, 2005: *102*, 2111-2116.
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51. Seth, A.K., J.L. McKinstry, G.M. Edelman, and J.L. Krichmar, *Active sensing of visual and tactile stimuli by brain-based devices.* International Journal of Robotics and Automation, 2004: 19:4, p. 222-238.
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54. Krichmar, J.L., S.N. Nasuto, R. Scorcioni, S.D. Washington, and G.A. Ascoli, *Effects of Dendritic Morphology on CA3 Pyramidal Cell Electrophysiology: A Simulation Study.* Brain Research, 2002. **941**: p. 11-28.
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56. Ascoli, G.A., J.L. Krichmar, R. Scorcioni, S.J. Nasuto, and S.L. Senft, *Computer generation and quantitative morphometric analysis of virtual neurons.* Anat Embryol, 2001. **204**: p. 283-301.
57. Krichmar, J.L., *Evolving Intelligent Robots: review of "Evolutionary Robotics: The biology, Intelligence, And Technology of Self-Organizing Machines" by S. Nolfi and D. Floreano.* Complexity, 2001. **6**(3): p. 51-53.
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59. Nasuto, S.J., R. Scorcioni, J.L. Krichmar, and G.A. Ascoli, *Algorithmic statistical analysis of electrophysiological data for the investigation of structure-activity relationship in single neurons.* InterJournal of Complex Systems, 2001. **Report 389**.

60. Ascoli, G.A. and J.L. Krichmar, *L-neuron: A modeling tool for the efficient generation and parsimonious description of dendritic morphology.* Neurocomputing, 2000. **32-33**: p. 1003-1011.
61. Washington, S.D., G.A. Ascoli, and J.L. Krichmar, *A statistical analysis of dendritic morphology's effect on neuron electrophysiology of CA3 pyramidal cells.* Neurocomputing, 2000. **32-33**: p. 261-269.
62. Krichmar, J.L., *Review of "Neuronal Ensembles: Strategies for Recording and Decoding.", Eichenbaum, H.B., Davis, J.L. (Eds).* Quarterly Review of Biology, 1999. **74**(2).
63. Krichmar, J.L., K.T. Blackwell , G.S. Barbour, A.B. Golovan, and T.P. Vogl, *A Solution to the Feature Correspondence Problem Inspired by Visual Scanpaths.* Neurocomputing, 1999. **26-27**: p. 769-778.
64. Krichmar, J.L., G.A. Ascoli, L. Hunter, and J.L. Olds, *A Model of Cerebellar Saccadic Motor Learning using Qualitative Reasoning.* Lecture Notes in Computer Science, Artificial and Natural Neural Networks, 1997. **1240**: p. 134-145.

CONFERENCE PROCEEDINGS

1. Chou, T.-S., Kashyap, H.J., Xing, J., Listopad, S., Rounds, E.L., Beyeler, M., Dutt, N., and Krichmar, J.L. (2018). CARLsim 4: An Open Source Library for Large Scale, Biologically Detailed Spiking Neural Network Simulation using Heterogeneous Clusters. Paper presented at: International Joint Conference on Neural Networks (IJCNN) (Rio De Janeiro: IEEE Explore).
2. Kashyap, H.J., Detorakis, G., Dutt, N., Krichmar, J.L., and Neftci, E. (2018). A Recurrent Neural Network Based Model of Predictive Smooth Pursuit Eye Movement in Primates. Paper presented at: International Joint Conference on Neural Networks (IJCNN) (Rio De Janeiro: IEEE Explore).
3. Krichmar, J.L., and Chou, T.-S. (2018). A Tactile Robot for Developmental Disorder Therapy. Paper presented at: Technology, Mind, and Society (Washington, DC: ACM).
4. Hwu, T., Isbell, J., Oros, N., and Krichmar, J. (2017a). A Self-Driving Robot Using Deep Convolutional Neural Networks on Neuromorphic Hardware. Paper presented at: IEEE International Joint Conference on Neural Networks (Anchorage, AK).
5. Hwu, T., Krichmar, J.L., and Zou, X. (2017b). A Complete Neuromorphic Solution to Outdoor Navigation and Path Planning. Paper presented at: IEEE International Symposium on Circuits & Systems (ISCAS) (Baltimore, MD).
6. Rounds, E.L., Scott, E.O., Alexander, A.S., De Jong, K.A., Nitz, D.A., and Krichmar, J.L. (2016). An Evolutionary Framework for Replicating Neurophysiological Data with Spiking Neural Networks. Paper to be presented at the 14th International Conference of Parallel Problem Solving from Nature (PPSN). Edinburgh, Scotland.
7. Krichmar, J.L. (2016). Path Planning using a Spiking Neuron Algorithm with Axonal Delays. Paper Presented at the 2016 IEEE Congress on Evolutionary Computation. Vancouver. pp. 1219-1226.
8. Beyeler, M.*, Carlson, K.D.*, Chou, T.-S.*, Dutt, N., and Krichmar, J.L. (2015). CARLsim 3: A User-Friendly and Highly Optimized Library for the Creation of Neurobiologically Detailed Spiking Neural Networks. Paper presented at: International

Joint Conference on Neural Networks (Killarney, Ireland: IEEE Explore). (*co-first authors).
9. Asher, D.E., Krichmar, J.L., and Oros, N. (2014). Evolution of Biological Plausible Neural Networks Performing a Visually Guided Reaching Task. Paper presented at: Genetic and Evolutionary Computation Conference (GECCO) (Vancouver: ACM).
10. Bucci, L.D., Chou, T.S., and Krichmar, J.L. (2014). Tactile Sensory Decoding in a Neuromorphic Interactive Robot. Paper presented at: 2014 IEEE Conference on Robotics and Automation (Hong Kong).
11. Carlson, K.D., Beyeler, M., Dutt, N., and Krichmar, J.L. (2014). GPGPU Accelerated Simulation and Parameter Tuning for Neuromorphic Applications. . Paper presented at: Proceedings of the 19th Asia and South Pacific Design Automation Conference (ASP-DAC'14) (Singapore: IEEE).
12. Oros, N., and Krichmar, J.L. (2013). Smartphone Based Robotics: Powerful, Flexible and Inexpensive Robots for Hobbyists, Educators, Students and Researchers (Center for Embedded Computer Systems, University of California, Irvine), pp. 1-11.
13. Carlson, K.D., Richert, M., Dutt, N., and Krichmar, J.L. (2013). Biologically Plausible Models of Homeostasis and STDP: Stability and Learning in Spiking Neural Networks. Paper presented at: International Joint Conference on Neural Networks (Dallas, TX: IEEE Explore).
14. Oros, N., and Krichmar, J.L. (2012). Neuromodulation, Attention and Localization Using a Novel Android™ Robotic Platform. In ICDL-EpiRob 2012 : IEEE Conference on Development and Learning and Epigenetic Robotics (San Diego, CA: IEEE Explore).
15. Chelian, S.E., Oros, N., Zaldivar, A., Krichmar, J., and Bhattacharyya, R. (2012). Model of the interactions between neuromodulators and prefrontal cortex during a resource allocation task. Paper presented at: IEEE International Conference on Development and Learning and Epigenetic Robotics (San Diego, CA: IEEE Explore).
16. Asher, D.E., Zhang, S., Zaldivar, A., Lee, M.D., and Krichmar, J.L. (2012). Modeling individual differences in socioeconomic game playing. Paper presented at: COGSCI 2012 - The Annual Meeting of the Cognitive Science Society (Sapporo, Japan).
17. Avery, M., Krichmar, J.L., and Dutt, N. (2012). Spiking Neuron Model of Basal Forebrain Enhancement of Visual Attention. Paper presented at: IEEE World Congress on Computational Intelligence (Brisbane, Australia).
18. Krichmar, J.L. (2012). A Biologically Inspired Action Selection Algorithm Based on Principles of Neuromodulation. Paper presented at: IEEE World Congress on Computational Intelligence (Brisbane, Australia).
19. Krichmar, J.L., Dutt, N., Nageswaran, J.M., and Richert, M. (2011). Neuromorphic Modeling Abstractions and Simulation of Large-Scale Cortical Networks. Paper presented at: IEEE/ACM International Conference on Computer-Aided Design (ICCAD) (San Jose, CA).
20. Krichmar, J.L., and Wagatsuma, H. (2011). Neuromorphic and Brain-Based Robots. In Biologically Inspired Cognitive Architectures, A.V. Samsonovich, and K.R. Jóhannsdóttir, eds. (IOS Press), pp. 209-214.
21. Moorkanikara Nageswaran, J., Richert, M., Dutt, N., and Krichmar, J.L. (2010). Towards Reverse Engineering The Brain: Modeling Abstractions and Simulation Frameworks. In 18th IEEE/IFIP International Conference on VLSI and System on Chip (VLSI-SOC) (Madrid, Spain, IEEE Explore).

22. Asher, D.E., Zaldivar, A., and Krichmar, J.L. (2010). Effect of Neuromodulation on Performance in Game Playing: A Modeling Study. Paper presented at: International Conference on Development and Learning (Ann Arbor, Michigan, IEEE Xplore).

23. Zaldivar, A., Asher, D.E., and Krichmar, J.L. (2010). Simulation of How Neuromodulation Influences Cooperative Behavior Paper presented at: Simulation of Adaptive Behavior: From Animals to Animats (Paris, France, Springer Lecture Notes on Artificial Intelligence).

24. Moorkanikara Nageswaran, J., Dutt, N., Krichmar, J.L., Nicolau, A., and Veidenbaum, A. (2009). "Efficient Simulation of Large-Scale Spiking Neural Networks Using CUDA Graphics Processors." Paper presented at: IJCNN (Atlanta, GA).

25. Krichmar J.L. (2008), Neuromodulation and Time-Dependent Plasticity in a Model of Foraging Behavior, IEEE 7th International Conference on Development and Learning, Monterey, CA.

26. Krichmar, J.L., and Edelman, G.M. (2007). Design Principles and Constraints Underlying the Construction of Brain-Based Devices. In Lecture Notes in Computer Science: Neural Information Processing (Berlin, Springer-Verlag).

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28. Fleischer, J.G., Szatmary, B., Hutson, D., Moore, D.A., Snook, J.A., Edelman, G.M., and Krichmar, J.L. (2006). *A neurally controlled robot competes and cooperates with humans in Segway soccer*, IEEE International Conference on Robotics and Automation (Orlando, FL).

29. Krichmar, J.L., D.A. Nitz, and G.M. Edelman. *Object recognition, Adaptive Behavior and Learning in Brain-Based Devices*. in *Third International Conference on Development and Learning*. 2004. La Jolla, CA.

30. Seth, A.K., J.L. McKinstry, G.M. Edelman, and J.L. Krichmar, *Texture discrimination by an autonomous mobile brain-based device with whiskers*, in *IEEE International Conference on Robotics and Automation*. 2004: New Orleans, LA. p. 4925-4930.

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32. Krichmar, J.L. and G.M. Edelman, *Brain-Based Devices: Intelligent Systems Based on Principles of the Nervous System*, in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. 2003: Las Vegas, NV. p. 940-945.

33. Krichmar, J.L. and J.A. Snook, *A neural approach to adaptive behavior and multi-sensor action selection in a mobile device*, in *IEEE Conference on Robotics and Automation*. 2002: Washington, D.C. p. 3864-3869.

34. Nasuto, S.J., R. Scorcioni, J.L. Krichmar, and G.A. Ascoli, *Algorithmic statistical analysis of electrophysiological data for the investigation of structure-activity relationship in single neurons.* InterJournal of Complex Systems, 2001. **Report 389**.
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37. Krichmar, J.L., G.A. Ascoli, L. Hunter, and J.L. Olds, *Qualitative reasoning as a modeling tool for computational neuroscience*, in *Computational Neuroscience: Trends in Research*, J.M. Bower, Editor. 1998, Plenum Press: New York.
38. Vandersluis, J.P., J.D. Cooke, G.A. Ascoli, J.L. Krichmar, G.S. Michaels, M. Montgomery, J. Symanzik, and B. Vitucci, *Exploratory Statistical Graphics for an Initial Motion Control Experiment.* Computing Science and Statistics, 1998. **30**: p. 482-487.
39. Hunter, L., J.L. Krichmar, and J.L. Olds. *Qualitative reasoning as a tool for computational neuroscience*. in *Proceedings of the 11th International Workshop on Qualitative Reasoning*. 1997. Pavia, Italy: Instituto di Analisi Numerica C.N.R.
40. Krichmar, J.L., *Qualitative Reasoning in Neural Modeling: Hodgkin-Huxley Revisited*, in *Intelligent Engineering Through Artificial Neural Networks*, C.H. Dagli, F. B.R., G. J., and K. R.T., Editors. 1994, ASME Press: New York. p. 567-572.
41. Greene, H.J. and J.L. Krichmar, *A Case Study in Data Management in the Air Traffic Control Advanced Automation System*, in *Studies in Computer and Communications Systems*, W.J. Taylor, Editor. 1992, IOS Press: London. p. 85-103.

BOOK CHAPTERS

1. Avery, M.C. and Krichmar, J.L. (2017), *Models of Neuromodulation* in *Computational Models of Brain and Behavior*, A. Moustafa, Editor, John Wiley & Sons Limited.
2. Krichmar, J.L., and Wagatsuma, H. (2011). History and potential of neuromorphic robotics. In Neuromorphic and Brain-Based Robots, J.L. Krichmar, and H. Wagatsuma, eds. (Cambridge University Press), pp. 3-7.
3. Krichmar, J.L. and S.J. Nasuto, *The relationship between neuronal shape and neuronal activity*, in *Computational Neuroanatomy: Principles and Methods*, G.A. Ascoli, Editor. 2002, Humana Press Inc. p. 105-125.
4. Krichmar, J. L., and Reeke, G. N. (2005). The Darwin Brain-Based Automata: Synthetic Neural Models and Real-World Devices, In *Modeling in the Neurosciences: From Biological Systems to Neuromimetic Robotics*, G. N. Reeke, R. R. Poznanski, K. A. Lindsay, J. R. Rosenberg, and O. Sporns, eds. (Boca Raton: Taylor & Francis), pp. 613-638.

PATENTS

1. Bucci, L.D., Chou, T.-S., Krichmar, J.L., “Tactile, interactive neuromorphic robots”, 9,975,038, 5/22/2018.
2. Snook, J.A., Hutson, D.B., Krichmar, J.L., “Special purpose processor implementing a synthetic neural model of the human brain”, 8,126,828, 2/28/12.
3. Fleischer, J.G., Szatmary, B., Hutson, D.B., Moore, D.A., Snook, J.A., Edelman, G.M., Krichmar; J.L., “Hybrid Control Device”, 7,765,029, 7/27/10.
4. Snook, J.A., Hutson, D.B., Krichmar, J.L, “Neural Modeling and Brain-Based Devices Using Special Purpose Processor”, 7,533,071, 5/12/09.
5. Edelman, G.M, Krichmar, J.L., Nitz, D.A., “Mobile brain-based device having a simulated nervous system based on the hippocampus”, Patent Number: 7,467,115, Issue Date: 12/16/2008.
6. Seth, A.K. McKinstry, J.L., Edelman, G.M., Krichmar, J.L., “Mobile brain-based device for use in a real world environment”, 7,519,452, Issue Date: 4/14/2009.
7. McKinstry, J.L., Edelman; G.M., Krichmar, J.L., “Brain-based device having a cerebellar model for predictive motor control”, 7,827,124, Issue Date: November 2, 2010.
8. Rafal, M., Krichmar, J.L., Starin, E., “Pupil Detection System”, Patent Number: 5610673, Issue Date: 3/11/1997.

INVITED TALKS

1. “Efficient Coding, Prediction and Mental Imagery for Intelligent, Cognitive Behavior in Robots”, Contextual Robotics Institute, University of California, San Diego, February 2018.
2. “Efficient Coding, Prediction and Mental Imagery for Intelligent, Cognitive Behavior in Robots”, Keynote at The Second IEEE International Conference on Robotic Computing, Laguna Hills, CA, February 2018.
3. “Sensory Integration Therapy for ASD in a Touch Based Assistive Robot”, Brain Institute, Vanderbilt University, Nashville, TN, December 2017.
4. “Efficient, Predictive Coding and Thermodynamic Computing”, Keynote at the Intelligent Cognitive Assistants Workshop IBM Research-Almaden, San Jose, California, November 2017.
5. “Sparse Coding, Dimensionality Reduction, and Synaptic Plasticity: Evolving and Validating Biologically Realistic Models”, Institute of Neural Computation, University of California, San Diego, June 2017.
6. “Sparse Coding, Dimensionality Reduction, and Synaptic Plasticity: Evolving and Validating Biologically Realistic Models”, Institute of Neural Computation, Sandia National Laboratories, Albuquerque, NM, June 2017.
7. “Neurorobots – Understanding the Brain and Creating More Intelligent Machines”, Tufts University, Medford Massachusetts, March 2017.
8. "A Socially Assistive Robot That Interacts With People Through Tactile And Bi-

Directional Learning", Workshop on Body Map and Touch Perception in Brains, Robots and Babies, Maison de la Recherche (MIR) de l'universite de Cergy-Pontoise, Neuville.

9. “Adaptive Robot Path Planning Using a Spiking Neuron Algorithm with Axonal Delays”, University of Cergy-Pontoise, Cergy, France, December 2016.
10. “Towards a Modeling Framework for the Efficient Creation, Simulation and Analysis of Brain Functions”, 2016 International Symposium on Neuromorphic Cognitive Computing and Robotics, Chengdu, China, September 2016.
11. “Towards a modeling framework for the efficient creation, simulation and analysis of brain functions”. Keynote speaker at the 2016 INCF Neuroinformatics meeting, Reading, UK, September 2016.
12. “A Framework for Replicating Neurophysiological Data that Leverages Evolutionary Algorithms and GPU Acceleration”, Workshop on “Evolution in Cognition” at the Genetic and Evolutionary Computation Conference (GECCO), Denver, CO, July 2016.
13. “Neurorobotics and Neuromorphic Engineering: A Brain Inspired Approach to Developing Robot Control Systems.” Mechanical and Aerospace Dynamics Control Seminar, University of California, San Diego, May 2016.
14. “Brain-Based Robots: A Means to Creating More Intelligent Machines.” Academic Business Officer Group (ABOG) Conference, Irvine CA, April 2016.
15. “Value Systems: Precursor to Emotion?” Emotions as Feedback Signals workshop at the Lorentz Center, Leiden, Netherlands, April 2016.
16. “Brain-Based Robots A Means to Creating More Intelligent Machines”, Upward Bound, University of California, Riverside, January 2016.
17. “A Cortical Neural Network Model for Visually Guided Robot Navigation”, at the IJCNN 2015 Workshop on Spatial Representations in Biology and Robots, Killarney, Ireland, July 2015.
18. “Large-Scale, Biologically Detailed Neuromorphic Networks: Taming the Beast”, Northrop-Grumman, Redondo Beach, CA, February 2015.
19. “CARL-SJR: A Tactile, Interactive Robot for Developmental Disorder Therapy”, Temporal Dynamics of Learning Center, University of California, San Diego, February 2015.
20. “CARL-SJR: A Socially Assistive Robot with Rich Tactile Sensory Interaction”, Institute for Neural Computation, University of California, San Diego, October 2014.
21. Combining Neuromorphic Applications With Neurorobotics: A Large-Scale Cortical Model For Visually Guided Navigation, Institut für Informatik der Technischen Universität München, Munich, Germany, October 2014.
22. “GPGPU Accelerated Simulation and parameter tuning for Neuromorphic Applications”, Neuro-Inspired Computing Elements workshop, Albuquerque, NM, February 2014.
23. “Neuromodulation and Neurorobots”, Qualcomm Research Center, Qualcomm Incorporated, San Diego, CA, July 2013.
24. “Brain principles and modeling abstractions”, International Workshop on Neuromorphic and Brain-Based Computing Systems, Design Automation Test in Europe, Grenoble, France, March 2013.
25. “Neuromorphic modeling abstractions and simulations of large-scale cortical networks”, Dynamics of multifunction brain networks MURI Winter School, San Diego, CA, January 2013.
26. “Design Principles for Biologically Inspired Cognitive Robotics”, Dynamics of

multifunction brain networks MURI Winter School, San Diego, CA, January 2013.

27. "Design Principles for Biologically Inspired Cognitive Robotics", Graduate School of Engineering, Osaka University, Japan, August 2012.
28. "Neuromodulation as a Robot Controller: A Brain-Inspired Strategy for Controlling Autonomous Robots and Studying Decision-Making", Queensland University of Technology, Brisbane Australia, June 2012.
29. "Design principles for biologically inspired cognitive robotics." Sixteenth International Conference On Cognitive And Neural Systems, Boston University, Boston, MA, May 2012.
30. "Brain-Based Robots and Neuromorphic Engineering, Computer Science Seminar", University of California, Irvine, January 2012.
31. "Neuromorphic Modeling Abstractions and Simulation of Large-Scale Cortical Networks." IEEE/ACM International Conference on Computer-Aided Design (ICCAD), San Jose, CA, November 2011.
32. "Neuromorphic and Brain-Based Robots", International Conference on Biologically Inspired Cognitive Architectures, Washington, DC, November 2011.
33. "Neuromodulation as a Brain-Inspired Strategy for Controlling Autonomous Robots and a Means to Investigate Social Cognition during Human-Robot Interactions", Dynamics of Brain-Body-Environment Systems colloquium, Indiana University, Bloomington, IN, October 2011.
34. "Understanding Cognition Through Building Brain-Inspired Robots", INSIDE UCI Series, Summer Session 2011, University of California, Irvine, August, 2011.
35. "Computational Approaches in Cognitive Neuroscience: Case studies in neurobotics and large-scale cortical modeling", National Brain Research Centre, Manesar, Haryana, India, July 2011.
36. "Computational Approaches in Cognitive Neuroscience", Brain and Cognition Workshop, The Centre for Neuroscience, Indian Institute of Science, Bangalore, India, July, 2011.
37. "Building Brain-Inspired Robots (SC 215)", Osher Life Long Learning Institute, Irvine, CA, December 2010.
38. "Understanding Cognition through Building Brain-Inspired Robots", The Inside Edge Foundation for Education, Irvine, CA, November 2010.
39. "Effect of Neuromodulation on Human-Robot Interactions and Game Playing", Electrical Engineering and Computer Science Technical Seminar Series, University of California, Merced, October 2010.
40. "Effect of Neuromodulation on Cooperative Behavior: A Human-Neurorobot Interaction Study", at the Beyond Brain Machine Interfaces workshop, 2010 Neural Interfaces Conference, Long Beach, CA, June 2010.
41. "Understanding Cognition through Building Brain Inspired Robots" at the Chief Executive Roundtable Retreat, Cavallo Point in Sausalito, California, May 2010.
42. "Neurorobotics and Modeling Cognitive Function" at the Expert Speaker Series for the School of Social Sciences, University of California, Irvine, February 2010.
43. "Neurorobotics and Modeling Cognitive Function" at the Chancellor's Club, University

of California, Irvine, October 2009.

44. “Using neurally inspired robots to study brain function: Principles and mechanisms” at the Artificial Intelligence Laboratory, University of Zurich, Zurich, Switzerland, September 2009.
45. “Using neurally inspired robots to study brain function: Principles and mechanisms” at the Laboratory of Intelligent Systems, Ecole Polyechnique Federal de Lausanne, Lausanne, Switzerland, August 2009.
46. "Using neurally inspired robots to study brain function: Principles and mechanisms” at the symposium on *Models of vision and decision-making: From features to behavior and perceptual robotics* in the 32nd European Conference on Visual Perception (ECVP'09), Regensburg, Germany, August 2009.
47. “Neurorobotics, Brain-Based Devices, and Modeling Cognitive Function”, Nour Foundation-Georgetown University Symposium on The Paradox of Neurotechnology, Georgetown University, Washington, DC, May 2009.
48. “Neurorobotics, Neuromodulation, and Modeling Cognitive Function”, Sloan-Swartz Center for Theoretical Neurobiology at the Salk Institute, La Jolla, CA, April 2009.
49. “Cognitive Robotics: Studying Cognitive Functions with Embodied Models of the Nervous System”, at the Artificial Intelligence and Machine Learning Seminar, Center for Machine Learning and Artificial Intelligence, University of California, Irvine, January 2009.
50. “Neurorobotics and Modeling Cognitive Function” at the Decade of the Mind IV Conference, Santa Ana Pueblo, NM, January 2009.
51. “Cognitive Robotics: Studying Cognitive Functions with Embodied Models of the Nervous System”, at the Brain and Technology Summer School, Barcelona, Spain, September 2008.
52. “Neuromodulation and Time-Dependent Plasticity in a Model of Foraging Behavior”, *15th Annual Joint Symposium on Neural Computation*, University of California, Irvine, May 2008.
53. “Design Principles and Constraints Underlying the Construction of Brain-Based Devices”, RIKEN Brain Science Institute, Saitama, Japan, November 19, 2007.
54. “Brain-Based Devices: Studying Brain Function by Developing Embodied Models of the Nervous System”, Mechanical and Aerospace Engineering Department, Cornell University, Ithaca, NY, October 2007.
55. “Brain-Based Devices: Studying Brain Function by Developing Embodied Models of the Nervous System”, at the College of Architecture, Art, and Planning, Cornell University, Ithaca, NY, October 2007.
56. “Brain-Based Devices: Studying Brain Function by Developing Embodied Models of the Nervous System”, at Hughes Research Laboratories, Malibu, CA, September 2007.

57. Brain-based Devices: Studying Cognitive Functions with Embodied Models of the Nervous System, euCognition the European Network for the Advancement of Artificial Cognitive Systems' Third Six-Monthly Meeting, Munich Airport, 29 June 2007.
58. "Computational Neuroscience", at the Workshop in Cognitive Neuroscience. Centros de Neurosciencias de Cuba, Havana Cuba, June 4-8, 2007.
59. "Brain-based Devices: Studying brain function by developing embodied models of the nervous system", at the Center for Intelligent Systems, Vanderbilt University, April 2007.
60. "Causal Analysis of Large-Scale Embodied Models of the Hippocampus and Cerebellum: Tracing Back Through Time" at the Interdisciplinary Program in Neuroscience Seminar at Georgetown University, November 2006
61. "Principles Underlying the Construction of Brain-Based Devices", by Jeffrey Krichmar at the Applied Neural Computing workshop, Engineering and Medicine in Biology Conference (EMBC), August 2006, New York, NY.
62. "Principles Underlying the Construction of Brain-Based Devices", by Jeffrey Krichmar at the Cognitive Robotics, Intelligence, and Control (CogRIC) workshop, August 2006, Windsor, UK.
63. "Principles Underlying the Construction of Brain-Based Devices", by Jeffrey Krichmar at the Orange County IEEE/ACM Society chapter meeting, July 2006, Irvine, CA.
64. "The Brain as a Complex System: Tools to Analyze Simulated and Real Nervous Systems", by Jeffrey Krichmar at the DARPA Complex Systems Architectures Workshop, Arlington, Virginia, June 2006.
65. "Analysis of Large-Scale Embodied Neural Models by Tracing Back Through Time", by Jeffrey Krichmar at the Artificial Life conference workshop on *Neurodynamic Methods for analysis and control of cognitive behaviors*, Bloomington, Indiana, June 2006.
66. "Principles Underlying the Construction of Brain-Based Devices", by Jeffrey Krichmar at the Adaptation in Artificial and Biological Systems symposium on "GC5: Architecture of Brain and Mind," Bristol UK, April 2006
67. "Brain-Based Devices for the Study of Nervous Systems and the Development of Intelligent Machines", by Jeffrey Krichmar at the California State Summer School at University of California at San Diego, July 2005.
68. "Brain-Based Devices for the Study of Nervous Systems and the Development of Intelligent Machines", by Jeffrey Krichmar at the Robotics/Computer/Computational Intelligence Societies Chapter Meeting, San Diego, CA, May 2005.
69. "Characterizing Hippocampal Pathways in a Brain-Based Device during a Spatial Memory Task", by Jeffrey Krichmar at the *Ninth International Conference On Cognitive And Neural Systems* in Boston, May 2005.
70. "Object recognition, Adaptive Behavior and Learning in Brain-Based Devices" presented by Jeffrey Krichmar at the *Third International Conference on Development and Learning* in La Jolla, CA, October 2004.

71. “Brain-Based Devices for the Study of Nervous Systems and the Development of Intelligent Machines”, presented by Jeffrey Krichmar at the *Potomac Institute for Policy Studies* in Washington, DC, September 2004.
72. “Engineering of brain-based devices”, presented by Jeffrey Krichmar at the *Information Science and Technology Study Group* in Woods Hole, MA, August 2004.
73. “Spatial and Episodic Memory in a Real-World Device Containing a Model of Hippocampal-Cortical Interactions”, presented by Jeffrey Krichmar at the *Neurorobotic Models in Neuroscience and Neuroinformatics* workshop in Los Angeles, CA, July 2004.
74. “Texture discrimination by an autonomous mobile brain-based device with whiskers”, presented by Jeffrey Krichmar at the *IEEE International Conference on Robotics and Automation* in New Orleans, LA, April 2004.
75. “Brain-Based Devices: Studying the Nervous System and Developing Intelligent Machines Based on Neurobiological Principles”, by Jeffrey Krichmar at the *Mobile Autonomous Robot Software (MARS) PI Meeting* in New Orleans LA, April, 2004.
76. “Brain-Based Devices for the Study of Nervous Systems and the Development of Intelligent Machines”, by Jeffrey Krichmar at the *Augmented Cognition PI Meeting* in Orlando FL, January, 2004.
77. “Visual Binding Through Reentrant Connectivity And Synchronization In A Brain-Based Device”, by Jeffrey Krichmar at the *Seventh International Conference On Cognitive And Neural Systems* in Boston, May 2003.
78. “Machine Psychology: Autonomous behavior, perceptual categorization, and conditioning in a brain-based device”, by Jeffrey Krichmar at the *International Interdisciplinary Seminar On New Robotics, Evolution And Embodied Cognition* in Lisbon, Portugal. November 2002.
79. “Machine Psychology: Experience-Dependent Perceptual Categorization and Learning in a Brain-Based Device, by Jeffrey Krichmar at the “Experience and Developing Brain Symposium” at the Jean Piaget Society Annual Meeting in Philadelphia, PA. June 2002.
80. “A Neural Approach to Adaptive Behavior and Multi-Sensor Action Selection in a Mobile Device”, presented by Jeffrey Krichmar at the 2002 IEEE International Conference on Robotics & Automation, Washington, DC. May 2002.
81. “Categorization And Value Systems As A Means Toward Action Selection In A Brain-Based Device”, by J. Krichmar at the Modulation and Modification of Sensor-Motor Coupling workshop in Stirling U.K. February 2002.
82. “Categorization And Value Systems As A Means Toward Action Selection In A Brain-Based Device”, by J. Krichmar at the Department of Cybernetic, Reading University, Reading U.K. February 2002.
83. “Visual and Auditory Categorization In A Behaving Real-World Device”, by J. Krichmar at the Workshop on Visual and Auditory Categorization In A Behaving Real-World Device, IEEE International Symposium on Computational Intelligence in Robotics and Automation, Banff, Alberta, Canada. July 2001.

84. “Machine psychology: Studying behavior and the brain with devices that explore a real world environment” by J. Krichmar at the Krasnow Institute for Advanced Study at George Mason University, Fairfax, VA. April 2001.
85. “Brain-Based Devices: Studying Behavior and the Nervous System with Devices that Explore a Real World Environment”, by J. Krichmar at the 68th Meeting of the Neurosciences Research Program, The Neurosciences Institute, San Diego, CA. March 2001.
86. “Experience-dependent Perceptual Categorization in a Behaving Real-World Device”, by J. Krichmar at the Sixth International Conference on Simulation of Adaptive Behavior, Paris, France. September 2000.
87. “The Need for Computational Neuroanatomy: Neuromorphology's Shaping of Neurophysiology.”, Computational Neuroanatomy Symposium: Experimental Biology Meeting, April 2000, San Diego, CA.
88. “Oculomotor Indicators of Fatigue and Impairment.”, Psychophysiology in Ergonomics Symposium: ANS and CNS Indices of Attention, Workload, and Fatigue. 38th Annual Meeting of the Society for Psychophysiological Research, 1998.
89. “Hippocampus – Larger than Life: Constructing a Large-Scale Model”, April 1998, Laboratory of Neural Control, NINDS, National Institute of Health, Washington, DC.
90. “Hippocampus – Larger than Life: Constructing a Large-Scale Model.”, February 1998, Krasnow Institute for Advanced Study, George Mason University, Fairfax, VA.
91. “Qualitative reasoning as a modeling tool for computational neuroscience.”, June 1997, Mathematical Branch, NIDDK, National Institute of Health, Washington, DC.

RESEARCH INTERESTS

Autonomous Robots

Neurorobotics

Neuromorphic Engineering

Machine Psychology: Understanding the brain by using real-world behaving devices.

Biologically plausible computer models of learning and memory.

Large-scale computational models of the hippocampus and cerebellum.

Motor control in the oculomotor system.

Fatigue and drug detection.

PREVIOUS FUNDING

W.M. Keck Foundation

Defense Advanced Research Projects Agency (DARPA)

- Systems of Neuromorphic Adaptive Plastic Scalable Electronics (SyNAPSE)
- Mobile Autonomous Robot Software (MARS)

Intelligence Advanced Research Projects Activity (IARPA)

- Integrated Cognitive-Neuroscience Architectures for Understanding Sensemaking (ICArUS)

Office of Naval Research

National Science Foundation

- Emerging Models and Technologies for Computation
- Robust Intelligence

Qualcomm Incorporated

Northrop Grumman Aerospace Systems

UCI Applied Innovation

CURRENT FUNDING

Defense Advanced Projects Agency (DARPA)

Intel Corporation

National Science Foundation

Toyota Motors North America

WORKSHOPS AND MEETINGS ORGANIZED

Steering Committee, 2018 conference on "Technology, Mind & Society", American Psychological Association, Washington DC.

Session Chair, "Advanced Unmanned Systems: Requirements and Groundwork for the Next Generation of Robotics Systems", The 8th International Conference on Applied Human Factors and Ergonomics (AHFE 2017).

Session Chair, "Neuromorphic Circuits & Systems for Robotics", IEEE International Symposium on Circuits and Systems. May 2017.

Organizer of the workshop on *Interacting With Robots Through Touch*, University of California, Irvine, September 2016.

Topic Area leader for "Neuromorphic Path Planning for Robots in a Disaster Response Scenario" at the *Telluride Neuromorphic Cognition Engineering* workshop, July 2016.

Organizer of the IEEE International Conference of Robotics and Automation Workshop on Neurobiologically Inspired Robotics, Hong Kong, June 2014.

Organizer of the 21st *Joint Symposium on Neural Computation*, University of California, Irvine, May 2014.

Co-Organizer of the *15th Annual Joint Symposium on Neural Computation*, University of California, Irvine, May 2008.

Co-Organizer of *Brain-style Robotics: Trends and Perspectives* at The 14th International Conference on Neural Information Processing, Kitakyushu Japan, November 2007.

Organizing committee of the International Workshop on Cognitive Robotics, Intelligence and Control (CogRIC) in Windsor UK, August 2006.

Co-chair of the Segway League at the RoboCup US Open in Atlanta, GA, May 2005.

Co-Organized the *Neurorobotic Models in Neuroscience and Neuroinformatics* workshop at the Eighth International Conference on the Simulation of Adaptive Behavior in Los Angeles, CA, July 2004.

PROGRAM COMMITTEES

External Review Panel, Sandia National Laboratories.

Chairman, Decade of the Mind Initiative Steering Committee.

7th International Conference on Development and Learning (ICDL-08).

Area Chair, 8th International Conference on Development and Learning (ICDL-09).

SAB 2008 - Simulation of Adaptive Behavior 2008.

ECAL2007 - 9th European Conference on Artificial Life.

EDITING AND REVIEWING

Managing Editor, Special Issue on "Neurobiologically Inspired Robotics: Enhanced Autonomy Through Neuromorphic Cognition" for *Neural Networks.*

Associate Editor, 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems.

Academic Editor, *PLOS One*.

Academic Editor, *International Journal of Humanoid Robotics*

Academic Editor, *Frontiers in Neurorobotics*

Action Editor, *Neural Networks*

Guest Editor, Special Issue on Cognitive Robotics in *IEEE Robotics and Automation Magazine*. 2009.

Editor, Special issue of the journal *Neuroinformatics* on "Neurorobotic Models in Neuroscience and Neuroinformatics, Fall 2005.

Reviewer, *Adaptive Behavior*.

Reviewer, *Artificial Life*.

Reviewer, *Cognitive Systems Research*

Reviewer, *Frontiers in Neural Circuits*

Reviewer, *Frontiers in Neuroinformatics*

Reviewer, *Frontiers in Psychology*

Reviewer, *Hippocampus*

Reviewer, *IEEE Computational Intelligence*.

Reviewer, *IEEE Transactions on Neural Networks*.

Reviewer, *Journal of Cognitive Neuroscience*

Reviewer, *Journal of Integrative Neuroscience*

Reviewer, *Journal of Neuroscience*

Reviewer, *Journal of Neuroscience Methods*

Reviewer, *Neurocomputing*.

Reviewer, *Neural Networks*.
Reviewer, *Public Library of Science (PLOS)*
Reviewer, *Public Library of Science (PLOS) Computational Biology*

COMMUNITY SERVICE

2017	California Alliance for Minority Participation
2016	Upward Bound, UC Riverside.
2013-Present	The National Academy of Sciences - Science & Entertainment Exchange.
2013-Present	Director, Center for Cognitive Neuroscience and Engineering.
2012	Stonegate elementary school, Irvine CA.
2011-2012	Mathobotix
2009	Chancellors Club – University of California, Irvine
2009	Falmagne Award Committee
2008	Robotics Club, Torrey Hills School
2008	California Forum for Diversity in Graduate Education
2004-2012	FIRST Lego League Robotics. Awarded for outstanding service as a volunteer.
2003-2009	*Expanding Your Horizons (EYH) Conference* at the University of California, San Diego (UCSD). Ran workshops on Robotics and Learning to increase the interest of young women in math and science through fun, hands-on learning opportunities.
2002-2007	*Botball Robotics Mentor/Judge* - a hands-on learning experience in robotics designed to engage students in learning the practical applications of science, technology, engineering and math.
2007	Rancho Santa Fe Discovery Day
2006	California State 4-H Leadership Conference, Ran workshop on robotics.
2005-2009	California State Summer School for Mathematics and Science (COSMOS)
2005	Community Day, La Jolla Country Day School.

2004-2006 San Diego Science Alliance RoboExpo – Demonstrated Brain-Based Robotics to Junior High School and High School students and teachers.

SOCIETIES

2011 - Present	Biologically Inspired Cognitive Architectures (BICA) Society
1994 - Present	Society for Neuroscience
1996 - 1999	Association for Research in Vision and Ophthalmology
2000 - Present	Society for Adaptive Behavior
2000 - Present	IEEE Robotics and Automation

HONORS AND AWARDS

1979-80	Varsity Letters in Cross Country, Indoor Track and Outdoor Track
1983	Dean's List
1990	Passed Comprehensive Examination with Distinction
1990	3.7 GPA at The George Washington University
1996	Passed Ph.D. Candidacy Examination in Computational Sciences and Informatics at George Mason University
1997	3.9 GPA at George Mason University
1998	President, Potomac Chapter of the Society for Neuroscience
2018	Entrepreneurial Leader of the Year Nominee, UCI Applied Innovation