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Curriculum Vitae

Professional Preparation

University of Houston	Classical Studies	BA *summa cum laude*	1995
The University of Texas at Austin	Computer Sciences	MSCS	1999
The University of Texas at Austin	Computer Sciences	PhD Advisor: Risto Miikkulainen	2006

Appointments

Assistant Professor	University of Nevada, Reno	2006–2014
UNR Technical Point of Contact	Cyber Conflict Research Consortium (CCRC)	2008–2010

Laboratories

Director, Neuroevolution and Behavior Laboratory (NEBL)	2007–2014
Director, CCRC Agent Modeling Laboratory (CAML)	2008–2010
Associate, Brain Computation Laboratory	2011–present

Publications

Journal Papers

Laurence Christine Jayet Bray, Corey M. Thibeault, Jeff A. Dorrity, Bobby D. Bryant, Frederick C. Harris, and Philip H. Goodman (*in review*). A Microcircuitry of Hippocampal, Entorhinal, and Prefrontal Loop Dynamics during Sequential Learning.

Laurence Jayet Bray, Frederick Harris, Emily Barker, Gareth Ferneyhough, Roger Hoang, Bobby Bryant, and Sergiu Dascalu (2012). Goal-Related Navigation of a Neuromorphic Virtual Robot. *BMC Neuroscience* 2012, **13**(Suppl 1):O3.
http://www.biomedcentral.com/1471-2202/13/S1/O3

Jayet Bray, L. C., Anumandla, S. R., Thibeault, C. M., Hoang, R. V., Goodman, P. H., Dascalu, S.-M., Bryant, B. D., and Harris, F. C. (2012). Real-Time Human-Robot Interaction Underlying Neurorobotic Trust and Intent Recognition. *Neural Networks*, Vol. 32, pp. 130–137. New York: Elsevier.
http://www.sciencedirect.com/science/article/pii/S0893608012000585

Matt Parker and Bobby D. Bryant (2012). Neurovisual Control in the *Quake II* Environment. *IEEE Transactions on Computational Intelligence and AI in Games*, Vol. 4, No. 1, pp. 44–54. Piscataway, NJ: IEEE.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=6129491
http://www.cse.unr.edu/~bdbryant/papers/parker-2012-tciaig.pdf

Jennifer Mahon, Bobby Bryant, Ben Brown, and Miran Kim (2010). Using Second Life to Enhance Classroom Management Practice in Teacher Education. *Educational Media International (EMI)*, Vol. 47, No. 2, pp. 121–134. London, UK: Routledge.
http://www.tandfonline.com/doi/abs/10.1080/09523987.2010.492677

Kenneth O. Stanley, Bobby D. Bryant, and Risto Miikkulainen (2005). Real-time Neuroevolution in the NERO Video Game. *IEEE Transactions on Evolutionary Computation*, Vol. 9, No. 6, pp. 653-668. Piscataway, NJ: IEEE.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1545941
http://www.cse.unr.edu/~bdbryant/papers/stanley.ieeetec05.pdf

Book Chapters

Risto Miikkulainen, Bobby D. Bryant, Ryan Cornelius, Igor V. Karpov, Kenneth O. Stanley, and Chern Han Yong (2006). Computational Intelligence in Games. In Gary Y. Yen and David B. Fogel (editors), *Computational Intelligence: Principles and Practice*, pp. 155–191. IEEE Computational Intelligence Society. Piscataway, NJ: IEEE.
http://www.cse.unr.edu/~bdbryant/papers/miikkulainen.wcci06.pdf

Peer Reviewed Conference Papers (Full-Paper Reviews)

Bobby D. Bryant (2010). Virtual Bagging for an Evolved Agent Controller. *Proceedings of the 2010 IEEE Conference on Computational Intelligence in Games (CIG'10)*, pp. 99–106. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpla/abs_all.jsp?arnumber=5593365
http://www.cse.unr.edu/~bdbryant/papers/bryant-2010-cig.pdf

Mukesh C. Motwani, Bobby D. Bryant, Sergiu M. Dascalu, and Frederick C. Harris Jr. (2010). 3D Multimedia Protection Using Artificial Neural Network. *Proceedings of the 2010 7th IEEE Consumer Communications and Networking Conference (CCNC)*, pp. 1–5. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5421700
http://www.cse.unr.edu/~bdbryant/papers/motwani-2010-ccnc.pdf

Rakhi C. Motwani, Mukesh C. Motwani, Bobby D. Bryant, Frederick C. Harris Jr., and Akshata S. Agarwal (2010). Watermark Embedder Optimization for 3D Mesh Objects using Classification Based Approach. *Proceedings of the 2010 International Conference on Signal Acquisition and Processing (ICSAP 2010)*, pp. 125–129. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5432678
http://www.cse.unr.edu/~bdbryant/papers/motwani-2010-icsap.pdf

Matt Parker and Bobby D. Bryant (2009). Backpropagation without Human Supervision for Visual Control in Quake II. *Proceedings of the 2009 IEEE Symposium on Computational Intelligence and Games (CIG'09)*, pp. 287–293. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5286462
http://www.cse.unr.edu/~bdbryant/papers/parker-2009-cig.pdf

Matt Parker and Bobby D. Bryant (2009). Lamarckian Neuroevolution for Visual Control in the Quake II Environment. *Proceedings of the 2009 IEEE Congress on Evolutionary Computation (CEC 2009)*, pp. 2630–2637. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4983272
http://www.cse.unr.edu/~bdbryant/papers/parker-2009-cec.pdf

Matt Parker and Bobby D. Bryant (2008). Visual Control in Quake II with a Cyclic Controller. *Proceedings of the 2008 IEEE Symposium on Computational Intelligence and Games (CIG'08)*, pp. 151–158. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5035634
http://www.cse.unr.edu/~bdbryant/papers/parker-2009-cec.pdf

Matt Parker and Bobby D. Bryant (2008). Neuro-visual Control in the Quake II Game Engine. *Proceedings of the 2008 International Joint Conference on Neural Networks (IJCNN 2008)*, pp. 3827–3832. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4634348
http://www.cse.unr.edu/~bdbryant/papers/parker-2008-ijcnn.pdf

Nathan A. Penrod, David Carr, Sushil Louis, and Bobby D. Bryant (2008). Neuro-evolving Maintain-Station Behavior for Realistically Simulated Boats. *Proceedings of the 2008 IEEE Congress on Evolutionary Computation (CEC 2008)*, pp. 3326–3332. Piscataway, NJ: IEEE Press.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4631248
http://www.cse.unr.edu/~bdbryant/papers/penrod-2008-cec.pdf

Bobby D. Bryant and Risto Miikkulainen (2007). Acquiring Visibly Intelligent Behavior with Example-Guided Neuroevolution. *Proceedings of the Twenty-Second National Conference on Artificial Intelligence (AAAI-07)*, pp. 801–808. Meno Park, CA: AAAI Press.
http://dl.acm.org/citation.cfm?id=1619774
http://www.cse.unr.edu/~bdbryant/papers/bryant.aaai07.pdf

Bobby D. Bryant and Risto Miikkulainen (2006). Evolving Stochastic Controller Networks for Intelligent Game Agents. *Proceedings of the 2006 Congress on Evolutionary Computation (CEC 2006)*, pp. 1007–1014. Piscataway, NJ: IEEE.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1688419
http://www.cse.unr.edu/~bdbryant/papers/bryant.cec06.pdf

Bobby D. Bryant and Risto Miikkulainen (2006). Exploiting Sensor Symmetries in Example-based Training for Intelligent Agents. *Proceedings of the 2006 IEEE Symposium on Computational Intelligence and Games (CIG'06)*, pp. 90–97. Piscataway, NJ: IEEE.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4100113
http://www.cse.unr.edu/~bdbryant/papers/bryant.cig06.pdf

Kenneth O. Stanley, Bobby D. Bryant, Igor Karpov, Risto Miikkulainen (2006). Real-Time Evolution of Neural Networks in the NERO Video Game. *Proceedings of the Twenty-First National Conference on Artificial Intelligence (AAAI-06)*, pp. 1671–1674. Menlo Park, CA: AAAI Press.
http://dl.acm.org/citation.cfm?id=1597468
http://www.cse.unr.edu/∼bdbryant/papers/stanley.aaai06.pdf

Kenneth O. Stanley, Bobby D. Bryant, and Risto Miikkulainen (2005). Evolving Neural Network Agents in the NERO Video Game. *Proceedings of the IEEE 2005 Symposium on Computational Intelligence and Games (CIG'05)*, pp. 182–189. Piscataway, NJ: IEEE.
http://www.cse.unr.edu/∼bdbryant/papers/stanley.cig05.pdf

Bobby D. Bryant and Risto Miikkulainen (2003). Neuroevolution for Adaptive Teams. *Proceedings of the 2003 Congress on Evolutionary Computation (CEC'03)*, pp. 2194–2201. Piscataway, NJ: IEEE.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1299944
http://www.cse.unr.edu/∼bdbryant/papers/bryant.cec03.pdf

Kenneth O. Stanley, Bobby D. Bryant, and Risto Miikkulainen (2003). Evolving Adaptive Neural Networks with and without Adaptive Synapses. *Proceedings of the 2003 IEEE Congress on Evolutionary Computation (CEC'03)*, Vol. 4, pp. 2557–2564. Piscataway, NJ: IEEE.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1299410
http://www.cse.unr.edu/∼bdbryant/papers/stanley.cec03.pdf

Thesis and Technical Reports

Bryant, Bobby D. (2006). *Evolving Visibly Intelligent Behavior for Embedded Game Agents*. PhD thesis, Department of Computer Sciences, The University of Texas at Austin. Austin, TX.
http://repositories.lib.utexas.edu/handle/2152/2824
http://www.cse.unr.edu/∼bdbryant/papers/bryant.utcstr06.pdf

Bobby D. Bryant and Risto Miikkulainen (2001). From Word Stream to Gestalt: A Direct Semantic Parse for Complex Sentences. AI Technical Report TR-AI98-274, Department of Computer Sciences, The University of Texas at Austin. Austin, TX.
http://www.cse.unr.edu/∼bdbryant/papers/bryant.utcstr98.pdf

Invited Talks

"Visibly Intelligent Agents for Games and Simulators: Creating Adaptive Teams with Example-Guided Evolution". University of Nevada, Reno (May 2006).

"Neuroevolution for Adaptive Teams: Learning Heterogeneous Behavior in Homogeneous Multi-Agent Systems". Digital Media Collaboratory *GameDev* Conference (August 2003)

Tutorials

"Inductive Agent Modeling in Games". IEEE Symposium on Computational Intelligence in Games (December 2008).

Other Talks

"A 'Second Life' in Classroom Management Training? Enhancing Culturally Relevant Classroom Management Knowledge in the Virtual World of Second Life". Symposium on Gaming and Virtual Worlds, 2009 Annual Meeting of the American Educational Research Association (April 2009). Co-presentation with Jennifer Mahon, Department of Curriculum, Teaching, and Learning, University of Nevada, Reno.

Funding

DECIDE
PI: Bobby D. Bryant
$786,000
Federal Earmark Sponsored by DHS [via NUARI subcontract], 2008–2010.

Nevada Educational Game Laboratory Upgrade
PI: Bobby D. Bryant
Co-PIs: Dwight Egbert, Eelke Folmer, Sushil Louis, Yaakov Varol
$26,500 + $10,000 matching funds from Department and College
Sponsored by UNR IT, 2008.

Co-Evolving Competent Strategies for Training and Decision Support
PI: Sushil Louis
Co-PIs: Bobby D. Bryant, Ramona Houmanfar (Psychology), Jennifer Mahon (Education)
$620,709 + $126,078 NSHE matching funds
Sponsored by DOD/DON (DEPSCoR), 2008–2011.

Exploration of Research Directions to Provide Solutions for Improving Quality Assurance at Bally Technologies
PI: Sergiu Dascalu
Co-PIs: Bobby D. Bryant, Dwight Egbert, Eelke Folmer
$62,972 + $35,714 ARI matching funds
Sponsored by Bally Technologies, Inc., 2007-2008.

Workshop: Behavior Analysis in Artificial and Simulated Agents
PI: Bobby D. Bryant
Co-PIs: M. Sami Fadali (EE), Linda Parrott Hayes (Psychology)
$3,635
Sponsored by NSF (via Nevada EPSCoR), 2007.

The Excitement of the Arcade
PI: Dwight Egbert
Co-PIs: Bobby D. Bryant, Eelke Folmer
$1,650
UNR Instructional Enhancement Grant, 2007.

Ring-True III Task 24 (24 cluster nodes)
PI: Bobby D. Bryant
$120,000
Sponsored by NSF (via Nevada EPSCoR), 2006.

Pending Proposals

RI: Medium: Collaborative Research: Simulated Biological Intelligence with NCS
PI: Bobby D. Bryant
Co-PIs: Sergiu-M. Dascalu, Frederick C. Harris, Jr.
Collaborator: Laurence Bray, George Mason University
$828,731
NSF (Submitted Fall 2013)

Other Proposals Submitted (not awarded)

Modeling and Visualization of Neural Systems
PI: Laurence C. Jayet Bray
Co-PIs: Bobby D. Bryant, Sergiu-M. Dascalu, Frederick C. Harris, Jr.
$820,959
NSF, 2012.

RI: Medium: Simulated Biological Intelligence with NCS
PI: Bobby D. Bryant
Co-PIs: Laurence C. Jayet Bray, Sergiu-M. Dascalu, Frederick C. Harris, Jr.
$1,193,604
NSF,2012.

CAREER: Inductive Agent Modelling
PI: Bobby D. Bryant
$501,135
NSF, 2012.

Collaborative Research: Large-Scale Modeling and Real-Time Simulation of Brain Dynamics and Interaction
PI: Frederic C. Harris, Jr.
Co-PIs: Bobby D. Bryant, Laurence C. Jayet Bray, Sergiu-M. Dascalu
External Collaborator: Hava Siegelmann [UMass Amherst]
$622,986
NSF, 2011.

CAREER: Inductive Agent Modelling
PI: Bobby D. Bryant
$512,365
NSF, 2011.

Development and Dissemination of STEM Learning Modules Based on State Learning Standards
PI: Dwight Egbert
Co-PIs: Bobby D. Bryant, Michael Leverington
$439,559
NSF, 2011.

Utilizing a Web-Based Artificial Intelligence Driven Simulation to Enhance Teacher Abilities to Facilitate K-12 STEM Learning
PI: Jennifer Mahon (Education)
Co-PIs: Bobby D. Bryant *et al.*
$424,086
NSF, 2009.

CAREER: Acquiring Visibility Intelligent Behavior via Example-Guided Neuroevolution
PI: Bobby D. Bryant
$561,209
NSF, 2007.

A Simulation Infrastructure for Situated Intelligence
PI: Bobby D. Bryant
Co-PI: Sushil Louis
External Collaborator: Risto Miikkulainen [UT-Austin]
$480,045
NSF, 2007.

A Spacetime Approach to Multi-Agent Coordination
PI: Bobby D. Bryant
$298,276
NSF, 2007.

Collaborative Interactive Evolution for Creative Design and Education
PI: Sushil Louis
Co-PIs: Bobby D. Bryant, David Crowther (Education), Teruni Lamberg (Education), Linda Hayes (Psychology)
$799,134
NSF, 2007.

Foundations of Neurovisual Control
PI: Bobby D. Bryant
$449,004
NSF, 2007.

A New Approach to spatial Data Authentication Using Mathematical Visualization
PI: Gregory Vert
Co-PIs: Bobby D. Bryant, Sergiu Dascalu, Frederic C. Harris, Jr.
$500,000
NSF, 2007.

Sloan Research Fellowship
PI: Bobby D. Bryant
$45,000
Alfred P. Sloan Foundation, 2007.

Inducing Meta-Level Gene Regulatory Network Models from Biological Data
PI: Bobby D. Bryant
$135,000
NIH (via Nevada INBRE), 2007.

A Simulation Infrastructure for Computational Intelligence
PI: Bobby D. Bryant
Co-PI: Sushil Louis
External Collaborator: Risto Miikkulainen [UT-Austin]
$497,937
NSF, 2006.

Awards

CIG'06 Best Student Paper, for "Exploiting Sensor Symmetries in Example-based Training for Intelligent Agents".

CIG'05 Best Paper, for "Evolving Neural Network Agents in the NERO Video Game".

Digital Media Collaboratory Fellowship, for the study of example-guided evolution (three semesters at UT-Austin).

Service

Technical Committees: Member, IEEE Computational Intelligence Society's Technical Committee on Games (2007-2014)

Task Forces: Chair, Task Force on Real-Time Strategy Games [for the IEEE Computational Intelligence Society's Technical Committee on Games] (2007-2008, Assistant Chair 2009-2014); Assistant Chair, Task Force on Player Satisfaction Modelling [for the IEEE Computational Intelligence Society's Technical Committee on Games](2007-2014)

Program Committees: Member, IEEE Symposium/Conference on Computational Intelligence in Games (2007-2013); Co-organizer, Special Session on Games (CEC 2011); Member, IEEE Congress on Evolutionary Computation (2009); Co-organizer, Special Session on Computational Intelligence in Real Time Strategy Games (CIG 2008); Co-organizer, Special Session on Player Satisfaction (CIG 2008); Co-organizer, Special Session on Player/Opponent Modeling (CIG 2008); Organizer, Workshop on Behavior Analysis for Artificial and Simulated Agents (2007); Co-organizer, Workshop on Optimizing Player Satisfaction in Computer and Physical Games (2006-2008)

Reviewer: Artificial Intelligence; Artificial Intelligence Review; Artificial Life; Evolutionary Computation; Genetic Programming and Evolvable Machines; IEEE Congress on Evolutionary Computation; IEEE International Conference on Intelligent Robotics and Systems; IEEE Symposium/Conference on Computational Intelligence and Games; IEEE Transactions on Autonomous Mental Development; IEEE Transactions on Computational Intelligence and AI in Games; IEEE Transactions on Evolutionary Computation; IEEE Transactions on Neural Networks; IEEE Transactions on Systems, Man and Cybernetics - Part B; IEEE World Congress on Computational Intelligence International Conference on Parallel Problem Solving From Nature; Neural Networks; Workshop on Optimizing Player Satisfaction in Computer and Physical Games;

Departmental Committees: Member,Committee on Curriculum Review and Globally Competitive Engineering Education (2011-); Member, Undergraduate Curriculum Committee (2011-); Member, Web Monitoring Committee (2011-); Member, Lectureship Search Committee (2010-2011); Chair, Student Relations and Activities Committee (2008-2009); Member, CSE/EBE

Colloquium Committee (2008-2009); Member, Computer Science and Engineering Curriculum Committee (2006-2009);

University Committees: Member, Grid System Administrator Search Committee (2007); Member, Grid Systems Steering Committee (2007-)

Society Memberships: IEEE (2003-)ACM (2006-);

Courses Taught

CS 135 Computer Science I

CS 381 The Game Development Pipeline

CS 382 Introduction to Artificial Intelligence

CS 481/681 Advanced Game Design

CS 482R/682R Artificial Intelligence

CS 483R/683R Artificial Intelligence Programming

CS 491s/691(S) Neural Networks

CS 493(Q) Directed Study: Machine Learning

CS 493(R) Directed Study: Modeling and Simulation

CS 493(W) Directed Study: Programming Languages

CS 709(C) Discrete Systems Simulation

CS 790(Q) Seminar: Machine Learning

CS 790(S) Seminar: Neural Networks

CS 793(R) Independent Study: Modeling and Simulation

Advisees

Ben Seelbinder (M.S. 2012)

Mark Harmer (M.S. 2010)

Mikhail Utkin (M.S. 2009)

Matt Parker (M.S. 2009)

Radha Gurugubelli (M.S. 2008)

Dat Ta (M.S. 2008)