

Biographical Sketch -- Gary B. Parker

General Information

Address: Box 5477
Connecticut College
New London, Connecticut, 06320

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Citizenship: U.S.A.

Education

Ph.D., Indiana University, 1999, Computer Science and Cognitive Science
M.S. with distinction, Naval Postgraduate School, 1992, Computer Science
B.A., University of Washington, 1976, Zoology

Professional Experience

Associate Professor of Computer Science (2005 – present)
Department of Mathematics and Computer Science
Connecticut College, New London, Connecticut

Assistant Professor of Computer Science (1999 - 2005)
Department of Mathematics and Computer Science
Connecticut College, New London, Connecticut

Computer Specialist / Programmer / Analyst (1994)
Transportation Engineering Agency
Department of the Army, Newport News, Virginia

Adjunct Instructor (1994)
Department of Computer Science
The College of William & Mary, Williamsburg, Virginia

United States Naval Officer (1976 - 1993)
Lieutenant Commander, Pilot
United States Navy

Refereed Publications

1. Parker, G. and P. Nathan (2006). Evolving Sensor Morphology on a Legged Robot in Niche Environments. World Automation Congress (WAC 2006). July 2006, Budapest, Hungary.

2. Parker, G. and O. Izmirlı (2006). Choosing a Charging Station Using Sound in Colony Robotics. World Automation Congress (WAC 2006). July 2006, Budapest, Hungary.
3. Blumenthal, H. and G. Parker (2006). Benchmarking Punctuated Anytime Learning for Evolving a Multi-Agent Team's Binary Controllers. World Automation Congress (WAC 2006). July 2006, Budapest, Hungary.
4. Parker, G. and M. Parker (2006). The Incremental Evolution of Attack Agents in Xpilot. The 2006 Congress on Evolutionary Computation (CEC 2006). July 2006, Vancouver, BC, Canada.
5. Parker, G., Doherty, T., and M. Parker (2006). Generation of Unconstrained Looping Programs for Control of Xpilot Agents. The 2006 Congress on Evolutionary Computation (CEC 2006). July 2006, Vancouver, BC, Canada.
6. Parker, M. and G. Parker (2006). Learning Control for Xpilot Agents in the Core. The 2006 Congress on Evolutionary Computation (CEC 2006). July 2006, Vancouver, BC, Canada.
7. Parker, M. and G. Parker (2006). Using a Queue Genetic Algorithm to Evolve Xpilot Control Strategies on a Distributed System. The 2006 Congress on Evolutionary Computation (CEC 2006). July 2006, Vancouver, BC, Canada.
8. Parker, G. and I. Parashkevov (2005). Cyclic Genetic Algorithm with Conditional Branching in a Predator-Prey Scenario. *Proceedings of the 2005 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2005)*. October 2005, Waikoloa, Hawaii.
9. Parker, G. and R. Zbeda (2005). Controlled Use of a Robot Colony Power Supply. *Proceedings of the 2005 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2005)*. October 2005, Waikoloa, Hawaii.
10. Parker, G., Doherty, T., and M. Parker (2005). Evolution and Prioritization of Survival Strategies for a Simulated Robot in Xpilot. *Proceedings of the 2005 IEEE Congress on Evolutionary Computation (CEC 2005)*. September 2005, Edinburgh, UK.
11. Parker, G., Parker, M., and S. Johnson (2005). Evolving Autonomous Agent Control in the Xpilot Environment. *Proceedings of the 2005 IEEE Congress on Evolutionary Computation (CEC 2005)*. September 2005, Edinburgh, UK.
12. Parker, G. and R. Georgescu (2005). Using Cyclic Genetic Algorithms to Evolve Multi-Loop Control Programs. *Proceedings of the 2005 IEEE International Conference on Mechatronics and Automation (ICMA 2005)*. July 2005, Niagara Falls, Ontario, Canada.
13. Parker, G. and R. Georgescu (2005). Evolution of Multi-Loop Controllers for Fixed Morphology with a Cyclic Genetic Algorithm. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2005)*. June 2005, Washington, DC.

14. Parker, G. (2005). Evolving Gaits for Hexapod Robots Using Cyclic Genetic Algorithms. *International Journal of General Systems*, Volume 34, Number 3, June 2005, pp. 301-315.
15. Blumenthal, H. and G. Parker (2004). Co-Evolving Team Capture Strategies for Dissimilar Robots. *Proceedings of the AAAI 2004 Symposium on Artificial Multiagent Learning*. October 2004, Washington, DC.
16. Parker, G. (2004). Fitness Biasing to Produce Adaptive Gaits for Hexapod Robots. *Proceedings of the 2004 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2004)*. September 2004, Sendai, Japan.
17. Parker, G. and H. Blumenthal (2004). Competing Sample Sizes for the Co-Evolution of Heterogeneous Agents. *Proceedings of the 2004 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2004)*. September 2004, Sendai, Japan.
18. Parker, G. (2004). Partial Recombination for the Co-Evolution of Model Parameters. *Proceedings of the Congress on Evolutionary Computation (CEC 2004)*.
19. Parker, G. and H. Blumenthal (2004). Varying Sample Sizes for the Co-Evolution of Heterogeneous Agents. *Proceedings of the Congress on Evolutionary Computation (CEC 2004)*.
20. Blumenthal, H. and G. Parker (2004). Punctuated Anytime Learning for Evolving Multi-Agent Capture Strategies. *Proceedings of the Congress on Evolutionary Computation (CEC 2004)*.
21. Parker, G., Parashkevov, I., Blumenthal, H., and T. Guildman (2004). Cyclic Genetic Algorithms for Evolving Multi-Loop Control Programs. *Proceedings of the World Automation Congress (WAC 2004)*.
22. Parker, G., Georgescu, R., and K. Northcutt (2004). Continuous Power Supply for a Robot Colony. *Proceedings of the World Automation Congress (WAC 2004)*.
23. Parker, G. and H. Blumenthal (2003). Comparison of Sampling Sizes for the Co-Evolution of Cooperative Agents. *Proceedings of the 2003 Congress on Evolutionary Computation (CEC 2003)*.
24. Parker, G., Anev A., and D. Duzevik (2003). Evolving Towers in a 3-Dimensional Simulated Environment. *Proceedings of the 2003 Congress on Evolutionary Computation (CEC 2003)*.
25. Parker, G. and Z. Li (2003). Evolving Neural Networks for Hexapod Leg Controllers. *Proceedings of the 2003 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2003)*.
26. Parker, G. (2003). Learning Adaptive Leg Cycles Using Fitness Biasing. *Proceedings of the 2003 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2003)*.

27. Toth, D. and G. Parker (2003). Evolving Gaits for the Lynxmotion Hexapod II Robot. *Proceedings of the 7th World Multiconference on Systems, Cybernetics and Informatics (SCI 2003), Volume III.*
28. Parker, G. and H. Blumenthal (2002). Sampling the Nature of a Population: Punctuated Anytime Learning for Co-Evolving a Team. *Smart Engineering System Design: Neural Networks, Fuzzy Logic, Evolutionary Programming, Data Mining, and Complex Systems (ANNIE 2002).*
29. Parker, G. (2002). Punctuated Anytime Learning for Hexapod Gait Generation. *Proceedings of the 2002 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2002).*
30. Parker, G. (2002). Learning Area Coverage Using the Co-Evolution of Model Parameters. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2002).*
31. Parker, G. and Z. Li (2002). Evolving Neural Network Controllers to Produce Leg Cycles for Gait Generation. *Proceedings of the World Automation Congress (WAC2002), Volume 14, Robotics, Manufacturing, Automation and Control.*
32. Parker, G and H. Blumenthal (2002). Punctuated Anytime Learning for Evolving a Team. *Proceedings of the World Automation Congress (WAC2002), Volume 14, Robotics, Manufacturing, Automation and Control.*
33. Parker, G. (2001). Evolving Cyclic Control for a Hexapod Robot Performing Area Coverage. *Proceedings of 2001 IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA 2001).*
34. Parker, G. (2001). The Incremental Evolution of Gaits for Hexapod Robots. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2001).*
35. Larochelle, K., Dashnaw, S., and G. Parker (2001). Gait Evolution for a Hexapod Robot. *Proceedings of the Fourth International Symposium on Soft Computing and Intelligent Systems for Industry (SOCO / ISFI 2001).*
36. Parker, G. (2001). Learning Control Cycles for Area Coverage with Cyclic Genetic Algorithms. *Advances in Fuzzy Systems and Evolutionary Computation. Proceedings of the 2nd WSES International Conference on Evolutionary Computation (EC '01).*
37. Parker, G. (2000). Co-Evolving Model Parameters for Anytime Learning in Evolutionary Robotics. *Robotics and Autonomous Systems*, Volume 33, Issue 1, 31 Oct. 2000, pp. 13-30.
38. Parker, G. (2000). Evolving Leg Cycles to Produce Hexapod Gaits. *Proceedings of the World Automation Congress (WAC 2000), Volume 8, Robotic and Manufacturing Systems.*
39. Parker, G. and K. Larochelle (2000). Punctuated Anytime Learning for Evolutionary Robotics. *Proceedings of the World Automation Congress (WAC 2000), Volume 8, Robotic and Manufacturing Systems.*

40. Parker G. (1999). The Co-Evolution of Model Parameters and Control Programs in Evolutionary Robotics. *Proceedings of the 1999 IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA'99)*.
41. Parker, G. and J. Mills (1999). Adaptive Hexapod Gait Control Using Anytime Learning with Fitness Biasing. *GECCO-99: Proceedings of the Genetic and Evolutionary Computation Conference*.
42. Parker, G. (1998). Generating Arachnid Robot Gaits with Cyclic Genetic Algorithms. *Genetic Programming 1998: Proceedings of the Third Annual Conference*.
43. Parker, G. and I. Cyliax (1998). Locomotion Control Cycles Adapted for Disabilities in Hexapod Robots. *Proceedings of the World Automation Congress (WAC '98), Volume 7, Robotic and Manufacturing Systems*.
44. Parker, G. and J. Mills (1998). Metachronal Wave Gait Generation for Hexapod Robots. *Proceedings of the World Automation Congress (WAC '98), Volume 7, Robotic and Manufacturing Systems*.
45. Parker, G., Braun, D., and I. Cyliax (1997). Evolving Hexapod Gaits Using a Cyclic Genetic Algorithm. *Proceedings of the IASTED International Conference on Artificial Intelligence and Soft Computing (ASC '97)*.
46. Parker, G., Braun, D., and I. Cyliax (1997). Learning Gaits for the Stiquito. *Proceedings of the 8th International Conference on Advanced Robotics (ICAR '97)*.
47. Parker, G., and G. Rawlins (1996). Cyclic Genetic Algorithms for the Locomotion of Hexapod Robots. *Proceedings of the World Automation Congress (WAC '96), Volume 3, Robotic and Manufacturing Systems*.
48. Shing, M., and G. Parker (1993). Genetic Algorithms for the Development of Real-Time Multi-Heuristic Search Strategies. *Proceedings of the Fifth International Conference on Genetic Algorithms (ICGA '93)*.

Other Publications

1. Johnson, S., Parker, G., Cyliax I., and D. Braun (1997). Using Cyclic Genetic Algorithms to Reconfigure Hardware Controllers for Robots. Indiana University Computer Science Department Technical Report No. 494, October 1997.

Invited Presentations

Evolutionary Computation for Learning Robot Control
Naval Postgraduate School
September 2005. Monterey, California.

Evolutionary Robotics, Cyclic Control, and Colony Agent Learning
Naval Postgraduate School
September 2005. Monterey, California.

Robotics at Connecticut College
Event for the Presidential Inauguration of Norman Fainstein
Connecticut College
May 2002. New London, Connecticut.

Learning Cyclic Control Programs for Hexapod Robots
The Endowed Chair Lecture Series
Connecticut College
February 2000. New London, Connecticut.

Evolving Gaits for Hexapod Robots Using Cyclic Genetic Algorithms
Michigan Technological University
December 1998. Houghton, Michigan.

Evolutionary Robotics and the Adaptive Systems Lab
Northern Michigan University
December 1998. Marquette, Michigan.

Evolving Gaits for Hexapod Robots Using Cyclic Genetic Algorithms
Northern Michigan University
December 1998. Marquette, Michigan.

Legged Robot Control Using Cyclic Genetic Algorithms
International Conference on Intelligent Systems and Semiotics (ISAS '97)
September 1997. Gaithersburg, Maryland.

The Stiquito, Cyclic Genetic Algorithms, and IU Robotics
Naval Postgraduate School
July 1997. Monterey, California.

Grants and Awards

Extended Keck/Hughes Visiting Fellows Modules in Data Mining Grant
Connecticut College, 2006

NSF Math and Computer Science Scholarship Program
National Science Foundation DUE-0123078, 2002-2006
Principal Investigator. \$385,000

The W. M. Keck-Howard Hughes Medical Institute Visiting Fellows Modules
in Emerging Fields Program Grant
Modules in Data Mining
Connecticut College, 2003

SOCO/ISFI 2001 Best Paper Presented on 29 June 2001 Award
Gait Evolution for a Hexapod Robot

Named the Jean C. Temple '65 Assistant Professor in Computer Science
Connecticut College, 2000

WAC '98 Best Paper Award for ISORA '98, 1998
Locomotion Control Cycles Adapted for Disabilities in Hexapod Robots

Graduate Traineeship in Robotics and Intelligent Control, 1994 - 1999
National Science Foundation, \$21,000 per year

Rear Admiral Grace Murray Hopper Award, United States Navy, 1992

Navy Commendation Medal, United States Navy, 1990

Professional Activities

Chairmanships

11th International Symposium on Robotics and Applications (ISORA 2006) (Co-Chair)

SMC 2005 Session on Energy for Dynamic Systems (Chair)

SMC 2005 Session on Multi-Agent Systems (Co-Chair)

SMC 2005 Session on Robot Learning (Co-Chair)

ICMA 2005 Session on Control (Co-Chair)

ICMA 2005 Session on Modeling and Simulation (Co-Chair)

IROS 2004 Session on Collective Robotic Systems (Co-Chair)

CEC 2004 Session on Evolutionary Intelligent Agents (Chair)

WAC 2004 Session on Multiple Robots and Cooperation (Chair)

CEC 2003 Session on Evolutionary Design and Evolvable Hardware (Chair)

IROS 2003 Session on Biologically Inspired Robots (Chair)

SCI 2003 Session on Intelligent Robots II (Chair)

WAC 2002 Session on Robot Control (Chair)

SOCO/ISFI 2001 Session on Neural Networks II (Chair)

WSES EC 2001 Session One on Evolutionary Computation (Chair)

WAC 2000 Session on Evolutionary Robotics (Organizer and Chair)

CIRA'99 Session on Multi-Legged Robots (Chair)

GECCO '99 Session on Robotics (Chair)

WAC '98 Session on Learning Cyclic Control/Behavior in Robots (Organizer and Chair)

WAC '98 Session on Walking Robots (Co-Chair)

Board of Associate Editors

IEEE Systems Journal

AutoSoft, International Journal on Intelligent Automation and Soft Computing

Reviewer for Journals

IEEE Transactions on Systems, Man and Cybernetics
Robotics and Autonomous Systems
Genetic Programming and Evolvable Machines
AutoSoft, International Journal on Intelligent Automation and Soft Computing
IEEE Transactions on Robotics and Automation
International Journal of Smart Engineering System Design
Journal of Robotic Systems

Program Committees

2006 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2006)
Genetic and Evolutionary Computation Conference (GECCO 2006)
Twenty-Eighth Annual Conference of the Cognitive Science Society (CogSci 2006)
2006 Congress on Evolutionary Computation (CEC 2006)
11th International Symposium on Robotics and Applications (ISORA 2006)
IEEE SMC International Conference on System of Systems Engineering (SoSE 2006)
2005 International Conf. on Computing, Communications and Control Technologies
2005 Congress on Evolutionary Computation (CEC 2005)
A-Life, Evolutionary Robotics and Adaptive Behavior track for GECCO 2005
2005 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2005)
2004 International Conf. on Computing, Communications and Control Technologies
2004 Congress on Evolutionary Computation (CEC-2004)
2003 Conference on Smart Engineering System Design (ANNIE 2003)
2003 Evolutionary Robotics Track for GECCO
2003 Congress on Evolutionary Computation (CEC 2003)
2002 Evolutionary Robotics Track for GECCO
2002 World Congress on Computational Intelligence (WCCI '02)
2000 Genetic and Evolutionary Computation Conference (GECCO 2000)
1999 Genetic and Evolutionary Computation Conference (GECCO '99)

Memberships

The Institute of Electrical and Electronics Engineers (IEEE)
IEEE Computer Society
IEEE Computational Intelligence Society
Association for Computing Machinery (ACM)
ACM Special Interest Group for Genetic and Evolutionary Computation (SIGEVO)
American Association for Artificial Intelligence (AAAI)
Intelligent Autonomous Systems Society
Cognitive Science Society