

R. Paul Wiegand III

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Degrees

Ph.D., Computer Science, George Mason University (2004)

M.S., Computer Science, University of North Carolina at Charlotte (1999)

B.S., Computer Science, Winthrop University (1994)

Experience

Research faculty, Institute for Simulation & Training, University of Central Florida. *June 2007 – present*

Scientific research consultant, ITT Advanced Engineering & Sciences (contracted to the Naval Research Laboratory). *November 2005 – May 2007*

Adjunct faculty (Data Structures & Algorithm Analysis), Department of Computer Science at George Mason University. *Spring semester 2006*

Postdoctoral fellowship, American Society of Engineering (served at the Naval Research Laboratory). *March 2004 – November 2005*

Graduate research assistant, Department of Computer Science at George Mason University. *September 1999 – March 2004*

Adjunct faculty (Data Structures & Algorithm Analysis), Department of Computer Science at George Mason University. *Fall semester 2002*

Part-time instructor (Introduction to Programming, Java), Central Piedmont Community College. *Spring Semester 1999*

On-going trainer/educational resource (C++, Delphi, Object-Oriented Methodology), TrustMark, Inc. *August 1995 – August 1999*

Professional IT developer & consultant, Entity Systems & Programming, and TrustMark Inc. *May 1993 – August 1999*

Part-time student instructor (Introduction to C), Department of Computer Science at Winthrop University. *Spring Semester 1994*

Research interests

General topics: algorithm analysis, adaptive systems, coevolution, evolutionary computation, evolutionary robotics, machine learning

Key specific topics: analysis of coadaptive systems for optimization and machine learning, theory and dynamics of coevolutionary systems, adaptive multiagent team reconfiguration and role assignment

Academic activities

- Co-organizer of the “Introductory Tutorial on Coevolution” at the 2007 Genetic and Evolutionary Computation Conference
- Co-organizer of the “Advanced Tutorial on Coevolution” at the 2006 Genetic and Evolutionary Computation Conference
- Invited participant of Dagstuhl “Theory of Evolutionary Algorithms” seminars #04081 in 2004, #06061 in 2006, & #08051 in 2008
- Co-moderator of the Evolutionary Computation Digest. *January 2001 – March 2005*
- Co-chair of local arrangements for the 2005 Genetic and Evolutionary Computation Conference
- Co-chair of the “Coevolution and Coadaptive Systems Workshop” at the 2005 AAAI Fall Symposium
- Co-organizing the first “Discussion Forum on Coevolution” at the 2005 Genetic and Evolutionary Computation Conference
- Invited researcher for the Collaborative Research Center on “Computational Intelligence” at Universität Dortmund. *February 17 – April 13, 2003*
- Co-organized summer graduate-level lecture series on advanced topics in evolutionary computation. *Summer, 2002*
- Co-organized “Workshop on Coevolution” at the 2002 Genetic and Evolutionary Computation Conference
- Reviewed articles for the following journals: *Journal of Artificial Intelligence Research, IEEE Transactions on Systems, Man, and Cybernetics, IEEE Transactions on Evolutionary computation*
- Served on a variety of program committees including the Foundations of Genetic Algorithms workshop and the Genetic and Evolutionary Computation Conference

Memberships

- Association for Computing Machinery, SigEVO
- Adaptive Systems Laboratory at the Krasnow Institute for Advanced Study (2001 – 2004)
- Evolutionary Computation Laboratory at George Mason University (1999 – 2004)
- Natural Computation Group, Navy Center for Applied Research in Artificial Intelligence (2004 – 2007)

References

- Kenneth De Jong, George Mason University, kdejong@cs.gmu.edu
- Zbigniew Michalewicz, University of Adelaide, zbyszek@cs.adelaide.edu.au
- Thomas Jansen, Universität Dortmund, Thomas.Jansen@udo.edu
- Sean Luke, George Mason University, sean@cs.gmu.edu

Key Publications

- Panait, L., Luke, S., and Wiegand, R.P. (2007) "Biasing Coevolutionary Search for Optimal Multiagent Behaviors." *IEEE Transactions on Evolutionary Computation*.
- Wiegand, R.P., Potter, M., Sofge, D., and Spears, W. (2006) "A Generalized Graph-Based Method for Engineering Swarm Solutions to Multiagent Problems." In *Proceedings for the Ninth International Conference on Parallel Problem Solving from Nature*. ©Springer 2006.
- Potter, M., Wiegand, R.P., Blumenthal, J., and Sofge, D. (2005) "Effects of Experience Bias When Seeding With Prior Results." In *Proceedings from the 2005 Congress of Evolutionary Computation*. ©2005 IEEE.
- Wiegand, R.P. and Potter, M. (2006) "Robustness in Cooperative Coevolution." In *Proceedings from the 2006 Genetic and Evolutionary Computation Conference*. ©2006 ACM Press.
- Jansen, T. and Wiegand, R.P. (2004) "The Cooperative Coevolutionary (1+1) EA." *Evolutionary Computation*, 12(4). ©2004 MIT Press.
- Wiegand, R.P. and Sarma, J. (2004) "Spatial Embedding and Loss of Gradient in Cooperative Coevolutionary Algorithms." In *Proceedings from the Eighth International Conference on Parallel Problem Solving from Nature*. ©2004 Springer.
- Jansen, T. and Wiegand, R.P. (2004) "Bridging the Gap Between Theory and Practice." In *Proceedings from the Eighth International Conference on Parallel Problem Solving from Nature*. ©2004 Springer.
- Wiegand, R.P., (2004) "Analysis of Cooperative Coevolutionary Algorithms." Ph.D. thesis, George Mason University. ©2004 R. Paul Wiegand.
- Panait, L., Wiegand, R.P., and Luke, S. (2003) "Improving Coevolutionary Search for Optimal Multiagent Behaviors." In *Proceedings of the Eighteenth International Joint Conference on Artificial Intelligence*. ©2003 Morgan Kaufman.
- Wiegand, R.P., Liles, W., and De Jong, K. (2002) "Modeling Variation in Cooperative Coevolution Using Evolutionary Game Theory." In *Foundations of Genetic Algorithms VII*. ©2002 Morgan Kaufman.
- Luke, S. and Wiegand, R.P. (2002) "Gauranteeing Coevolutionary Objective Measures." In *Foundations of Genetic Algorithms VII*. ©2002 Morgan Kaufman.

Funding/Proposals

- Pending: "Learning robust behaviors in mixed-agent, heterogeneous teams" project in *Team Performance in Human-Agent Collaboration*, ARL W911NF-07-R001 (Project portion \$75K per year, FY07 – FY11)
- Pending: "Bayesian structural learning & analysis" project in *Immune Cells Mitogen Activated Protein Kinase (MAPK) Network Responses to Francisella Tularensis*, DTRA ZZ0006-08-NRL-B (Project portion \$45K in FY09, \$30K in FY10)