

# R. Paul Wiegand III

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Dr. Wiegand is a U.S citizen.

August 28, 2023

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## Degrees

Ph.D., Computer Science, George Mason University (January, 2004)  
“Analysis of Cooperative Coevolutionary Algorithms”

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

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

## Experience

Associate Professor, Winthrop University, *August 2023 – present*

Assistant Professor, Winthrop University, *August 2020 – May 2023*

Courtesy Appointment, School of Modeling, Simulation & Training, UCF, *August 2020 – present*

Interim Program Director of UCF’s Modeling & Simulation graduate Program, *August 2018 – August 2020*

Director of UCF’s Advanced Research Computing Center. *August 2017 – August 2020*

Associate Research Professor, Inst. for Simulation & Training, University of Central FL. *August 2017 – August 2020*

Co-Manager of Higher Performance Computing resources at UCF’s Advance Research Computing Center.  
*March 2015 – August 2017*

Interim Program Director of UCF’s Modeling & Simulation graduate Program, *June 2014 – August 2015*

Associate Director of UCF’s Modeling & Simulation graduate Program, *September 2014 – June 2014*

Joint secondary appointment in Department of Electrical Engineering & Computer Science *April 2011 – August 2020*

Assistant Research Professor, Institute for Simulation & Training, Univ. of Central Florida. *April 2011 – August 2017*

Research Associate, Institute for Simulation & Training, University of Central Florida. *June 2007 – April 2011*

Secondary joint faculty appointment with Department of Electrical Engineering & Computer Science. *2008 – 2020*

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

Adjunct faculty, Dept. of Computer Science at George Mason University. *Spring semester 2006, Fall semester 2002*

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 Univ. *September 1999 – March 2004*

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

Part-time instructor, Central Piedmont Community College. *Spring 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: robotics, machine learning, natural computation, coadaptive systems, robust representation/optimization of agents within human teams, high performance computing, algorithm analysis

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, runtime analysis of randomized algorithms

## Postdoctoral Work

Supervisor: Kenneth A. De Jong, Group: Natural Computation group in the NCARAI at NRL (section 5514)

Activities: Contributed to research, publication, and grant-writing activities of the group; helped construct demonstrations of robotic technologies; helped coordinate student activities

Research projects: NRL research option “Coordinated Teams of Autonomous Systems”, ONR projects N0001405WX20057 and N0001405WX30001 on “Adaptation to Attrition and Degradations in Teams of Unmanned Vehicles”

## Academic Activities

Courses taught:

- *Machine Learning* (2020, CSCI Winthrop, on-going Spring)
- *Computer Graphics* (2020, CSCI Winthrop, on-going Fall)
- *Computer Science II* (2020, CSCI Winthrop, on-going)
- *Programming Tools* (2020, CSCI Winthrop, on-going)
- *Introduction to Computers & Information Processing* (CSCI Winthrop, on-going)
- *Mathematical Foundations of Modeling & Simulation* (2019 – 2020, M&S Program UCF)
- *An Interdisciplinary Approach to Data Visualization* (2015 – 2020, M&S Program UCF)
- *Data Visualization* (2018, Business Analytics Program, UCF)
- *Quantitative Aspects of Modeling & Simulation* (2011 – 2018, M&S Program UCF)
- *Machine Learning* (2007, 2009–2013, CS Program UCF)
- *Data Structures & Algorithm Analysis* (Spring 2002 & Fall 2006, CS Program GMU)
- *Introduction to Programming, Java* (Spring 1999, CPCC)
- *Various Independent Study, Thesis, & Dissertation*

Advised & Graduated:

- Lauren Doocy (co-advising w/ Joe Kider, Ph.D., UCF Modeling & Simulation, 2023)
- Avonie Parchment (Ph.D., UCF Modeling & Simulation, 2018)
- Jeff (Phillip) Hanes (Ph.D., UCF Modeling & Simulation, 2018)
- Oddny Brun (M.S., UCF Modeling & Simulation, 2017)
- Sean Mondesire (Ph.D., EECS, 2014)
- Joshua Haley (Undergraduate Honors, UCF EECS, 2014)
- Gautham Anil (Ph.D., UCF EECS, 2012)
- Armando Fandango (Ph.D., UCF Modeling & Simulation, 2021)
- Oddny Brun (Ph.D., UCF Modeling & Simulation, 2021)
- Rachel Moan (Undergraduate Honors, Winthrop CSQM/Math, 2022)

Thesis & dissertation committee service (graduated):

- Arash Zarmehr (Ph.D., UCF Modeling & Simulation, 2022)
- Joe Del Rocca (Ph.D., UCF EECS, 2021)
- Cintya Dutta (Ph.D., UCF Modeling & Simulation, 2021)
- Keith McArthur (Ph.D., UCF Modeling & Simulation, 2021)
- Gurav Gupta (Ph.D., UCF Mechanical & Aerospace Engineering, 2020)
- Kristian Damjker (Ph.D., UCF Modeling & Simulation, 2020)
- Vera Kazakova (Ph.D., UCF Computer Science, 2020)
- Justin Hodges (Ph.D., UCF Mechanical & Aerospace Engineering, 2020)
- Golam Bari (Ph.D., USF Computer Science, 2019)
- Chathika Gunaratne (Ph.D., UCF Modeling & Simulation, 2019)
- Marcel Otto (Ph.D., UCF Mechanical & Aerospace Engineering, 2019)
- Myungho Lee (Ph.D., UCF Modeling & Simulation, 2019)
- Salam Daher (Ph.D., UCF Modeling & Simulation, 2018)
- Charles Trim (Masters, MUCF odeling & Simulation, 2018)
- Lisa Soros (Ph.D., UCF Computer Science, 2018)
- Matthew Hackett (Ph.D., UCF Modeling & Simulation, 2018)
- William Rivera (Ph.D., UCF Modeling & Simulation, 2015)
- Ryan Kasha (Ph.D., UCF Modeling & Simulation, 2015)
- Travis Wiltshire (Ph.D, UCF Modeling & Simulation, 2015)
- Shawn Chu-Quinn (M.S., UCF Modeling & Simulation, 2015)
- Bryan Wilder (Undergraduate UCF Honors, EECS, 2015)
- Chris Hollander (Ph.D, UCF Modeling & Simulation, 2015)
- Charles Harris (Ph.D., UCF Modeling & Simulation, 2014)
- Cassondra Puklavage (M.S., EECS, 2013)
- John Barry (M.S., UCF Modeling & Simulation, 2013)
- Sebastian Risi (Ph.D., UCF EECS, 2012)
- Syed Mohammed (Ph.D., UCF Modeling & Simulation, 2012)
- David D'Ambrosio (Ph.D., UCF EECS, 2011)
- Benito Graniela (Ph.D., UCF Modeling & Simulation, 2011)
- Omar Thompson (Ph.D., UCF Modeling & Simulation, 2011)
- Mohamed Abdel-Raheem (Ph.D., UCF Civil Engineering, 2011)
- Joel Lehman (Ph.D., UCF EECS, 2010)
- Jason Gauci (Ph.D., UCF EECS, 2010)
- Aniket Vartak (Ph.D., UCF EECS, 2010)
- Erin Hastings (Ph.D., UCF EECS, 2009)
- Ahmed Bakhsh (Ph.D., UCF Industrial Engineering, 2009)

Co-Director: Data Sciences & Machine Learning student group, Winthrop University (2021 – present)

Co-Director: Joint Evolutionary Computation / Natural Computation & Coadaptive Systems labs at UCF (2007–2020)

Co-Director: *Algorithms & Theory Group*, a graduate student group in EECS at UCF (2008–2013)

## Awards and Invitations

CBA *Springs Global Research Award* (2022)

Member Upsilon Pi Epsilon (2021–present)

McKnight Foundation's *William R. Jones Outstanding Mentor* award (2014)

Invited collaborative participant of Dagstuhl “Theory of Evolutionary Algorithms” seminars (2004, 2006, 2008 & 2010)

Invited talk at the UCF *EECS Seminar Series* (2009)

Invited researcher for the Collaborative Research Center on “Computational Intelligence” at Universität Dortmund.  
(February 17 – April 13, 2003)

## **Funded Research Activities**

Total funding: \$3.8M      By credit split: \$1.85M

Awarded: “Machine Learning Consulting – Low-Latency, High-Bandwidth Expeditionary Mobile Data Networks for Supporting Future Live Training Simulation Capabilities, Phase 2 SBIR Topic A20-043” (PI, \$75K, 100%, TiTenn Inc. / Army, TBD)

Awarded: “Using Coevolutionary Algorithms to Identify Distractor Answers for Multiple” (PI, \$223K, 50%, Aug 2020 – Aug 2023)

Completed: “Preliminary Analysis of Novelty Search” (PI, \$2.5K, 100%, CBA Summer Research Award, 100%, May 2021 – Jun 2021)

Completed: “Machine Learning Consulting, Phase 1 SBIR” (PI, \$7.5K, 100%, TiTenn Inc., Feb 2021 – Jun 2021)

Completed: “Graduate Student Sponsored, SP20” (PI, \$13,833, Orlando Health Foundation, 100%, Dec 2019 – Jun 2020)

Completed: “Graduate Student Sponsored, FA20” (PI, \$13,833, Orlando Health Foundation, 100%, Jun 2019 – Dec 2019)

Completed: “Consulting for Augmented Reality Training SBIR” (PI, \$10,000, TiTenn, Inc., 50%, Oct 2019 – Nov 2019)

Completed: “Virtualizable Rendering Resources to Support the Army Integrated Training Environment and the Future Synthetic Training Environment” (Co-PI, \$241K, UCF Army Research Office, contrib: 50%, May 2018 – May 2019)

Completed: “Persistent Virtual Worlds for Simulation-based Training” (Co-PI, \$1.7M, incremental \$249K awarded to-date, US Army STTC, contrib.: 25%, Jan 2015 – Mar 2019)

Completed: “Enhancing the Integrated Training Environment (ITE)” (Co-PI, \$555K, US ARL via Battelle, contrib.: 20%, Aug 2016 – Mar 2018)

Completed: “Education-Focused GPU Cluster” (Co-PI, \$266K, UCF Internal Technology Fee, contrib.: 50%, 2018)

Completed: “Scalable scaffolding of novice programmers learning and automated analysis of their online activities” (PI, \$60K, NSF, contrib.: 100%, Sep 2015 – Aug 2017)

Completed: “CC\*IIIE Engineer: Bridging IT and Research Computing at UCF” (PI, \$400K, NSF, contrib.: 100%, Sep 2014 – Aug 2017)

Completed: “CC-NIE Networking Infrastructure: Developing a Dedicated Research Network Infrastructure at the University of Central Florida” (PI, \$314K, NSF, contrib.: 50%, Oct 2013 – Mar 2015)

Completed: “Biologically Inspired Approaches for Reasoning on Complex Functional Networks (follow-on)” (PI, \$147K, NGA via University of Wyoming, contrib.: 100%, Aug 2011 – Sep 2014)

Completed: “The Central Florida MOSAIC Interface, Stage II” (Co-PI, \$50K, UCF, contrib.: 5%, May 2011 – Jun 2013)

Completed: “Study of dense matrix thermal and structural problems of interest to NASA for High Performance Computing Benchmark Suite” (Co-PI, \$54K, NASA/JPL via Intelligent Automation, Inc., contrib.: 0%, Apr 2011 – Aug 2012)

Completed: “High Performance Computing Benchmark Suite” (PI, \$125K, NASA/JPL via Intelligent Automation, Inc., contrib.: 60%, Aug 2010 – Aug 2012)

Completed: “Biologically Inspired Approaches for Reasoning on Complex Functional Networks” (PI, \$50K, NGA via University of Wyoming, contrib.: 100%, Aug 2010 – Aug 2011)

Completed: “Multicore Model Advancement Principles Demonstrated on STOKES” (PI, \$55K US ARL, contrib.: 100%, Aug 2010 – Aug 2011)

Completed: “Architecture to Support Interactive Training Simulation on Stokes HPC” (PI, \$5K, US ARL via Intelligent Automation, Inc., contrib.: 100%, Sep 2009 – Mar 2010)

Completed: “Learning robust behaviors in mixed-agent, heterogeneous teams” project in *Team Performance in Human-Agent Collaboration*, (PI, \$55K, US ARL, contrib.: 100%, Sep 2007 – Dec 2008)

## Service Activities

(Univ) Winthrop, University CFaculty Advisory Committee on Intercollegiate Athletics (2023 – present)

(Univ) Winthrop, University Curriculum Committee (2021 – present)

(Univ) Winthrop, University Honors Committee (2021 – present)

(Univ) Winthrop, General Education Assessment Committee (2020 – present)

(Coll) Winthrop, CBA Curriculum Committee, *Chair* (2021 – present)

(Coll) Winthrop, CBA Student Scholarships (2020 – 2022)

(Dept) Winthrop, CSCI Petitions (2020 – 2022)

(Dept) Winthrop, Math Candidate Search Committee (2021)

(Dept) Winthrop, CSCI Candidate Search Committee (2020)

(Natnl) XSEDE Campus Champion for Winthrop University (2021 – present)

(Natnl) Co-organizer for HPC Workshop at Genetic of Evolutionary Computation Conference (2022 – present)

(Intl) Guest Editor for Special Issue on Data Viz for IJHCI (2021 – present)

### *Before Winthrop:*

(Dept) Interim program director of the Modeling & Simulation program (2018 – 2020)

(Dept) Member of the Modeling & Simulation curriculum committee (2013 – 2020)

(Univ) Member of UCF’s University Research Council (2011–2020)

(Dept) Member of the Modeling & Simulation admissions committee (2014 – 2018)

(Univ) Chair for UCF’s *UCF Future Directions of Research Computing Committee* (2016)

(Regional) Local arrangements coordinator for Orlando *Southern Partnership in Advanced Networking* workshop (2016)

(Univ) Faculty sponsor of the *Go Club* at UCF (on-going)

(Regional) Organizer of the High Performance Computing Users Group of Orlando (HUGO, 2014–2016)

(Dept) Interim program director of the Modeling & Simulation program (2014/2015)

(Dept) Associate director of the Modeling & Simulation program (2014)

(Univ) Chair of UCF’s University Research Council (2014/2015)

(Dept) Faculty sponsor of the *Algorithms & Theory* student group (2010–2011)

(Natnl) Co-organizer of the Tenth Foundations of Genetic Algorithms (FOGA-2009, ACM)

(*Natnl*) Organizer of the “Introductory Tutorial on Coevolution” (2007 & 2008) and “Advanced Tutorial on Coevolution” (2006) at the Genetic and Evolutionary Computation Conference (GECCO)

(*Natnl*) Co-organizer of the “Coevolution Tutorial” (2005) at the Congress on Evolutionary Computation (CEC)

(*Natnl*) Co-moderator of the Evolutionary Computation Digest. *January 2001 – March 2005*

(*Natnl*) Co-chair of local arrangements for the 2005 Genetic and Evolutionary Computation Conference (2GECCO-2005, ACM)

(*Natnl*) Co-chair of the “Coevolution and Coadaptive Systems Workshop” at the 2005 AAAI Fall Symposium

(*Natnl*) Co-organizer of the first “Discussion Forum on Coevolution” (GECCO 2005) and “Understanding Coevolution Workshop” (GECCO 2002)

(*Dept*) Co-organized summer lecture series on advanced topics in evolutionary computation. *Summer, 2002*

Co-organized “Workshop on Coevolution” at GECCO 2002

Reviewer for: *Evolutionary Computation Journal*, *Journal of Artificial Intelligence Research*, *IEEE Transactions on Systems, Man, and Cybernetics*, *IEEE Transactions on Evolutionary Computation*, *Journal of Theoretical Computer Science*, *PlosOne*, and *Algorithmica*

## Publications Summary

Journal articles: 12  
 Book Chapters: 4  
 FOGA articles: 3  
 Conference papers: 34  
 Other: 3  
*h*-Index: 20  
*i*10-index: 24

## Key Journal Publications and Book Chapters

- Wiegand, R.P.** (2023). “Preliminary Analysis of Novelty Search”, *Evolutionary Computation Journal* [Journal Impact Factor: 6.8]
- Wiegand, R.P.**, Bucci, A., Kumar, A.N, Albert, J., & Gaspar A. (2022). “Identifying Informatively Easy and Informatively Hard Concepts”, *ACM Transactions of Computing Education* [Journal Impact Factor: 1.86]
- Pattanaik, S. **Wiegand, R.P.** (2021). “Data Visualization.” Chapter in *Handbook of Human Factors and Ergonomics, 5th Edition*. Wiley.
- Wu, A.S., **Wiegand, R.P.**, & Pradhan, R. (2020). “Response probability enhances robustness in decentralized threshold-based robotic swarms.” *Swarm Intelligence* [Journal Impact Factor: 2.208]
- Doocy, L., Prager, S., Kider, J., & **Wiegand, R.P.** (2019) “Robust Path Matching and Anomalous Route Detection Using Posterior Weighted Graphs.” *ACM Transactions on Spatial Algorithms and Systems*. [Journal Impact Factor: 1.690]
- Hanes, J. and **Wiegand, R.P.** (2019). “Analytical and Evolutionary Methods for Finding Cut Volumes in Fault Trees Constrained by Location.” *IEEE Transactions on Reliability*. [Journal Impact Factor: 2.790]
- Bari, G., Gaspar, A., **Wiegand, R.P.**, Albert, J., Bucci, A., and Kumar, A. (2019). “Evolutionary Parsons Puzzles: Design Implementation & Preliminary Evaluation.” *IEEE Transactions on Learning Technologies*. [Journal Impact Factor: 2.267]
- Giroux, A.L., Harper, C., **Wiegand, R.P.** (2018). “Evaluating Multi-criteria Connection Mechanisms: a new algorithm for browsing digital archives.” In *Digital Scholarship in the Humanities*, volume 33 (3).

- Prager, S. & **Wiegand, R.P.** (2013) “Modeling Use of Space from Social Media Data Using a Biased Random Walker”. *Transactions in GIS*, DOI: 10.1111/tgis.12069. [Journal Impact Factor: 1.298]
- Wiegand, R.P.** & Christopher Ellis (2012) “Physicomimetic Swarm Design Considerations: Modularity, Scalability, Heterogeneity, and the Prediction vs Control Dilemma.” Chapter in *Physicomimetics: Physics-Based Swarm Intelligence* (Springer)
- Wiegand, R.P.** (2011) “Coevolutionary Learning”. Chapter in *Encyclopedia of Machine Learning* (Springer).
- Popvici, E., Bucci, A., **Wiegand, R.P.**, & de Jong, E.E. (2010) “Coevolutionary Principles”. Chapter in *Natural Computation Handbook* (Springer).
- Panait, L., Luke, S., & **Wiegand, R.P.** (2006) “Biasing Coevolutionary Search for Optimal Multiagent Behaviors.” *IEEE Transactions on Evolutionary Computation* 10(6). [Journal Impact Factor: 5.545]
- Jansen, T. & **Wiegand, R.P.** (2004) “The Cooperative Coevolutionary (1+1) EA.” *Evolutionary Computation*, 12(4). [Journal Impact Factor: 3.103]

### FOGA Publications

*Foundations of Genetic Algorithms* is the leading venue for publishing work related the theory of evolutionary computation and is considered a near journal-level quality publication within the field of *Evolutionary Computation*.

- Anil, G. & **Wiegand, R.P.** (2009) “Black-box search by elimination of fitness functions.” In *Foundations of Genetic Algorithms X*.
- Wiegand, R.P.**, Liles, W., & De Jong, K. (2002) “Modeling Variation in Cooperative Coevolution Using Evolutionary Game Theory.” In *Foundations of Genetic Algorithms VII*.
- Luke, S. & **Wiegand, R.P.** (2002) “Guaranteeing Coevolutionary Objective Measures.” In *Foundations of Genetic Algorithms VII*.

### Other Refereed Publications

- Brun, O., Kider, J., & **Wiegand, R.P.** (2021). “Particle-Based Flow Vorticity Analysis by Use of Second-Generation Wavelets”. In *Proceedings of the 2021 Computational Methods and Measurements Conference*.
- Vitel, D., Gaspar, A., & **Wiegand, R.P.** (2021). “A Neutral Rewrite Mutation Operator for Genetic Programming applied to Boolean Domain Problems.” In *Proceedings of the 34<sup>th</sup> Florida Artificial Intelligence Research Symposium*.
- Wiegand, R.P.** (2021). “Population-Based Novelty Searches Can Converge.” Poster in *Proceedings of the 34<sup>th</sup> Florida Artificial Intelligence Research Symposium*.
- Wiegand, R.P.** (2020). “The Objective of Simple Novelty Search.” In *Proceedings of the 33<sup>rd</sup> Florida Artificial Intelligence Research Symposium*.
- Fandango, A., **Wiegand, R.P.** (2020). “Impact of Augmenting GRU Networks with Iterative and Direct Strategies for Traffic Speed Forecasting.” In *Proceedings of the 33rd Florida Artificial Intelligence Research Symposium*.
- Bari, G., Gaspar, A., **Wiegand, R.P.** (2018). “Selection Methods to Relax Strict Acceptance Condition in test-based Coevolution.” In *Proceedings of the 2018 Congress on Evolutionary Computation*. [Conference acceptance rate  $\approx$  60%]
- Fandango, A. & **Wiegand, R.P.** (2018). “Towards investigation of iterative strategy for data mining of short-term traffic flow with Recurrent Neural Networks”. In *Proceedings of the 2<sup>nd</sup> ACM International Conference on Information System and Data Mining*. [Acceptance rate unknown]
- Gaspar, A., Bari, G., Kumar, A., Bucci, A., **Wiegand, R.P.**, and Albert, J. (2017) “Evolutionary Practice Problems Generation: More Design Guidelines.” In *Proceedings of the 29<sup>th</sup> International Florida Artificial Intelligence Symposium*. [Conference acceptance rate  $\approx$  57%]

- Caulkins, B. Goldiez, B.F. **Wiegand, R.P.**, Martin, G. Dumanoir, P., & Torres, T. (2017) “Emerging Network and Architecture Technology Enhancements to Support Future Training Environments.” In *Proceedings of the 2017 Interservice/Industry Training, Simulation, and Education Conference*.
- Gaspar, A., Bari, G., Kumar, A., Bucci, A., **Wiegand, R.P.**, and Albert, J. (2016) “Evolutionary Practice Problems Generation: Design Guidelines.” In *Proceedings of the IEEE 28<sup>th</sup> International on Tools with Artificial Intelligence*. [Conference acceptance rate  $\approx$  31%]
- Wiegand, R.P.**, Bucci, A., Kumar, A., Albert, J., Gaspar, A. (2016). “A Data-Driven Analysis of Informatively Hard Concepts in Introductory Programming.” In *Proceedings of the 47<sup>th</sup> ACM Technical Symposium on Computer Science Education*. [Conference acceptance rate  $\approx$  35%]
- Bucci, A., **Wiegand, R.P.**, Kumar, A., Albert, J., Gaspar, A. (2016). “Effectiveness of Dimension Extraction Methods for Student-Problem Performance Analysis.” In *Proceedings of the 28<sup>th</sup> International Florida Artificial Intelligence Symposium*. [Conference acceptance rate  $\approx$  57%]
- Hanes, J., **Wiegand, R.P.** (2016). “Using L-Systems to Generate Fault Trees for Benchmarking & Testing.” In *Proceedings of the 28<sup>th</sup> International Florida Artificial Intelligence Symposium*. [Conference acceptance rate  $\approx$  57%]
- Wu, A.S., **Wiegand, R.P.**, Pradhan, R., (2016). “Diversity in Top-N Recommendations via Probabilistic Selection of Neighbors in Collaborative Recommender Systems”. In *Proceedings of the 28<sup>th</sup> International Florida Artificial Intelligence Symposium*. [Conference acceptance rate  $\approx$  57%]
- Mondesire, S. and **Wiegand, R.P.** (2014) “Forgetting Beneficial Knowledge in Decomposition-Based Reinforcement Learning Using Evolutionary Computation”. In *Proceedings of the 2014 International Conference on Genetic and Evolutionary Methods*. [Conference acceptance rate  $\approx$  65%]
- Wiegand, R.P.** & Prager, S. (2013) “Simple Methods for Reasoning about Behavior Patterns on Graphs Given Extremely Sparse Observations”. In *The 5<sup>th</sup> International Conference on Advanced Geographic Information Systems, Applications, and Services*. [Conference acceptance rate  $\approx$  29%]
- Mondesire, S. & **Wiegand, R.P.** (2013) “Forgetting Classification and Measurement for Decomposition-based Reinforcement Learning”. In *Proceedings of The 15<sup>th</sup> International Conference on Artificial Intelligence*. [Conference acceptance rate  $\approx$  25%]
- Mondesire, S. & **Wiegand, R.P.** (2011) “Evolving a non-playable character team with layered learning.” In *Proceedings of IEEE Symposium on Computational Intelligence in Multi-criteria Decision-Making*.
- Anil, G. & **Wiegand, R.P.** (2011) “Domain Specific Analysis and Modeling of Optimal Elimination of Fitness Functions with Optimal Sampling.” In *Proceedings of the 2011 Genetic and Evolutionary Computation Conference*. [Conference acceptance rate  $\approx$  38%]
- Ghosh, C., **Wiegand, R.P.**, Goldiez, B., & Dere, T. (2010) “An Architecture Supporting Large Scale MMOGs.” In *Proceedings of the 2010 Distributed Simulation & On-Line Gaming Conference*.
- Wiegand, R.P.**, Anil, G., Garibay, I., Garibay, O., & Wu, An. (2009) “On the Performance Effects of Unbiased Module Encapsulation.” In *Proceedings for the 2009 Genetic and Evolutionary Computation Conference*. [Conference acceptance rate  $\approx$  41%]
- Ellis, C. & **Wiegand, R.P.** (2008) “Actuation Constraints and Artificial Physics Control.” In *Proceedings from the Tenth International Conference on Parallel Problem Solving from Nature*. [Conference acceptance rate  $\approx$  55%]
- Wiegand, R.P.**, Potter, M., Sofge, D., & 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*. [Conference acceptance rate  $\approx$  42%]
- Wiegand, R.P.** & Potter, M. (2006) “Robustness in Cooperative Coevolution.” In *Proceedings from the 2006 Genetic and Evolutionary Computation Conference*. [Conference acceptance rate  $\approx$  46%]
- Jansen, T. & **Wiegand, R.P.** (2004) “Bridging the Gap Between Theory and Practice.” In *Proceedings from the Eighth International Conference on Parallel Problem Solving from Nature*. [Conference acceptance rate  $\approx$  33%]



- Panait, L., **Wiegand, R.P.**, & Luke, S. (2003) "Improving Coevolutionary Search for Optimal Multiagent Behaviors." In *Proceedings of the 18<sup>th</sup> International Joint Conference on Artificial Intelligence*. [Conference acceptance rate  $\approx$  21%]
- Potter, M., **Wiegand, R.P.**, Blumenthal, J., & Sofge, D. (2005) "Effects of Experience Bias When Seeding With Prior Results." In *Proceedings from the 2005 Congress of Evolutionary Computation*. [Conference acceptance rate  $\approx$  57%]
- Panait, L., **Wiegand, R.P.**, & Luke S. (2004) "A Visual Demonstration of Convergence Properties of Cooperative Coevolution." In *Proceedings from the Eighth International Conference on Parallel Problem Solving from Nature*. [Conference acceptance rate  $\approx$  33%]
- Panait, L., **Wiegand, R.P.**, & Luke S. (2004) "A Sensitivity Analysis of a Cooperative Coevolutionary Algorithm Biased for Optimization." In *Proceedings from the 2004 Genetic and Evolutionary Computation Conference*. [Conference acceptance rate  $\approx$  50%]
- Wiegand, R.P.** & 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*. [Conference acceptance rate  $\approx$  33%]
- Jansen, T. & **Wiegand, R.P.**, (2003) "Sequential versus Parallel Cooperative Coevolutionary (1+1) EAs." In *Proceedings of the 2003 Congress on Evolutionary Computation*. [Conference acceptance rate  $\approx$  65%]
- Jansen, T. & **Wiegand, R.P.** (2003) "Exploring the Explorative Advantage of the CC (1+1) EA." In *Proceedings of the 2003 Genetic and Evolutionary Computation Conference*. [Conference acceptance rate  $\approx$  47%]
- Wiegand, R.P.**, Liles, W., & De Jong, K. (2002) "The Effects of Representational Bias on Collaboration Methods in Cooperative Coevolution." In *Proceedings of the Seventh Conference on Parallel Problem Solving from Nature*. [Conference acceptance rate  $\approx$  50%]
- Wiegand, R.P.**, Liles, W., & De Jong, K. (2002) "Analyzing Cooperative Coevolution with Evolutionary Game Theory." In *Proceedings for the 2002 Congress on Evolutionary Computation*. [Conference acceptance rate  $\approx$  47%]
- Wiegand, R.P.** (1998) "Applying Diffusion to a Cooperative Coevolutionary Model". In *Proceedings of Parallel Problem Solving from Nature V* [Conference acceptance rate  $\approx$  54%]

## Dissertation and Thesis

- Wiegand, R.P.** (2004) "Analysis of Cooperative Coevolutionary Algorithms." Ph.D. thesis, George Mason University. Advisor: Kenneth De Jong.
- Wiegand, R.P.** (1999) "A Mutable Tagging Scheme for Cooperative Coevolutionary Algorithms", Masters Thesis, University of North Carolina Charlotte. Advisor: Zbigniew Michalewicz