

Brian W. Goldman

Curriculum Vitae

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Education

- 2015 Doctor of Philosophy in Computer Science & Engineering, Michigan State University
 - Dissertation Advisor: Dr. William F. Punch
 - Dissertation: Out of the Box Optimization using the Parameter-less Population Pyramid
- 2012 Master of Science in Computer Science, Missouri University of Science and Technology
 - Thesis Advisor: Dr. Daniel R. Tauritz
 - Thesis: Robust Evolutionary Algorithms
- 2010 Bachelor of Science in Computer Science, Missouri University of Science and Technology

Employment

- Google Software Engineer. Fall 2016.
- Postdoc, Whitley Lab, Colorado State University. Spring 2016.
- Postdoc, Hintze Lab, Michigan State University. Fall 2015.
- Advanced Computing Solutions Program, Los Alamos National Laboratories. Summer 2012.
- Center for Cyber Defenders, Sandia National Laboratories. Summer 2011.

Peer Reviewed Publications (15 Total)

Journal Articles

1. Whitley, L. D., F. Chicano, and B. W. Goldman (2016). Gray Box Optimization for Mk Landscapes (NK Landscapes and MAX-kSAT). *Evolutionary computation* **24**(3), 491–519.
2. Goldman, B. W. and W. F. Punch (2015). Analysis of Cartesian Genetic Programming’s Evolutionary Mechanisms. *IEEE Trans. Evolutionary Computation* **19**(3), 359–373.
3. Goldman, B. W. and W. F. Punch (2015). Fast and Efficient Black Box Optimization using the Parameter-less Population Pyramid. *Evolutionary computation* **23**(3), 451–479.
4. Lehmann, K., B. W. Goldman, I. Dworkin, D. M. Bryson, and A. P. Wagner (2013). From cues to signals: evolution of interspecific communication via aposematism and mimicry in a predator-prey system. *PloS one* **9**, e91783.
5. White, D. R., J. McDermott, M. Castelli, L. Manzoni, B. W. Goldman, G. Kronberger, W. Jaskowski, U.-M. O’Reilly, and S. Luke (2013). Better GP benchmarks: community survey results and proposals. *Genetic Programming and Evolvable Machines* **14**(1), 3–29.

Conference Papers

1. Goldman, B. W. and W. F. Punch (2016). Hyperplane Elimination for Quickly Enumerating Local Optima. In: *European Conference on Evolutionary Computation in Combinatorial Optimisation*. Springer, pp.154–169.
2. Goldman, B. W. and D. Sudholt (2016). Runtime Analysis for the Parameterless Population Pyramid. In: *Genetic and Evolutionary Computation Conference*. ACM, pp.669–676.
3. Goldman, B. W. and W. F. Punch (2015). Gray-Box Optimization using the Parameter-less Population Pyramid. In: *Genetic and Evolutionary Computation Conference*. ACM, pp.855–862.
4. Goldman, B. W. and W. F. Punch (2014). Parameter-less population pyramid. In: *Genetic and Evolutionary Computation Conference*. Vancouver, BC, Canada: ACM, pp.785–792.
5. Goldman, B. W. and W. F. Punch (2013). Length Bias and Search Limitations in Cartesian Genetic Programming. In: *Genetic and Evolutionary Computation Conference*. Amsterdam, The Netherlands: ACM, pp.933–940.

6. Goldman, B. W. and W. F. Punch (2013). Reducing Wasted Evaluations in Cartesian Genetic Programming. In: *European Conference on Genetic Programming*. Vol. 7831. LNCS. Vienna, Austria: Springer Verlag, pp.61–72.
7. Kamrath, N. R., B. W. Goldman, and D. R. Tauritz (2013). Using supportive coevolution to evolve self-configuring crossover. In: *Genetic and Evolutionary Computation Conference Companion*. Amsterdam, The Netherlands: ACM, pp.1489–1496.
8. Goldman, B. W. and D. R. Tauritz (2012). Linkage tree genetic algorithms: variants and analysis. In: *Genetic and Evolutionary Computation Conference*. Philadelphia, Pennsylvania, USA: ACM, pp.625–632.
9. Goldman, B. W. and D. R. Tauritz (2012). Supportive coevolution. In: *Genetic and Evolutionary Computation Conference Companion*. Philadelphia, Pennsylvania, USA: ACM, pp.59–66.
10. Goldman, B. W. and D. R. Tauritz (2011). Self-configuring crossover. In: *Genetic and Evolutionary Computation Conference Companion*. Dublin, Ireland: ACM, pp.575–582.

Other Publications

Conference Posters

1. Chen, W., D. Whitley, A. Howe, and B. Goldman (2016). Stochastic Local Search over Minterms on Structured SAT Instances. In: *Ninth Annual Symposium on Combinatorial Search*.
2. Goldman, B. W. and D. R. Tauritz (2011). Meta-evolved empirical evidence of the effectiveness of dynamic parameters. In: *Genetic and Evolutionary Computation Conference Companion*. Dublin, Ireland: ACM, pp.155–156.

Grants

- BEACON NSF STC 2015 funded proposal \$105,148
- BEACON NSF STC 2014 funded proposal \$62,284.

Awards

- Nominated, Best Paper - European Conference on Evolutionary Computation in Combinatorial Optimisation 2016 “Hyperplane Elimination for Quickly Enumerating Local Optima”
- Runner-up, Best Paper - Genetic Algorithms Track for GECCO 2015 “Gray Box Optimization using the Parameter-less Population Pyramid”
- Best Paper - Genetic Algorithms Track for GECCO 2014 “Parameter-less Population Pyramid”
- Voted 2012 Leader of the Year, Missouri S&T Computer Science Department
- Google AI challenge, ranked 25th out of 4619 world wide, 6th in USA, 2010
- Missouri S&T Human versus Computer chess tournament, two first place AIs, 2009 and 2011

Invited talks

- Job Talk, University of Memphis, April 2015
- BEACON NSF STC Congress, Michigan State University, August 2014 and August 2015
- Evolutionary Computation, Michigan State University, September 2014 and October 2015
- Heuristic and Evolutionary Algorithms Laboratory, University of Applied Sciences Upper Austria, December 2014
- BEACON Day, North Carolina A&T, October 2013

Activities

- Co-chair, 2016 Genetic Programming Theory and Practice Conference
- Co-chair, GECCO 2015–present Combinatorial Black Box Optimization Competition
- Peer Reviewer, IEEE Transactions on Evolutionary Computation Journal 2014–present
- Peer Reviewer, Genetic Programming and Evolvable Machines 2014–present
- Program Committee Member, GECCO 2012–present Genetic Algorithms Track

- Founder and organizer, Computational Evolution Discussion Group October 2013–2015
- Chair of ACM SIG for AI competition game development (SIG-Game), 2011–2012

Teaching Experience

- Introduction to Programming II, Summer 2014. Lead instructor for a C++11 course. In charge of lecturing, creating course content, and assessments for 37 students. Managed two graduate assistants who taught lab sections and graded assignments. Received 3.81/4 student evaluation.
- Introduction to Programming II, Fall 2013 – Spring 2014. Primary instructor for lab section.
- Object Oriented Numerical Methods, Spring 2012. Teaching assistant for senior level course.
- Introduction to C++ Lab, Spring 2011 – Fall 2011. Primary instructor for lab section.
- Parallel Computing, Spring 2011. Teaching assistant for senior level course.
- Evolutionary Computation, Fall 2010. Teaching assistant for senior level course.