

Dr. Garnett Wilson

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Education

From	To	Institution	Degree
Sept. 2002	April 2007	Dalhousie University, NS, Canada Faculty of Computer Science	Ph.D., Computer Science
Sept. 2000	Aug. 2002	Dalhousie University, NS, Canada Faculty of Computer Science	Master of Computer Science
Sept. 1996	April 2000	Dalhousie University, NS, Canada Department of Philosophy	BA, Honors with Distinction

Awards and Honors

- Best Paper Nominee, European Workshop on Evolutionary Computation in Finance and Economics (EvoFIN 2009)
- American Association for the Advancement of Science (AAAS) / Science Program for Excellence in Science, 2008-2010
- Doctoral Izaak Walton Killam Memorial Scholarship, Sept. 2003-Aug. 2006
- Doctoral National Sciences and Engineering Research Council (NSERC) Post-graduate Scholarship, May 2003-May 2005
- Best Student Paper in Artificial Intelligence and Computer Hardware Engineering, IEEE Canadian Conference on Electrical & Computer Engineering, May 2002
- Masters National Sciences and Engineering Research Council (NSERC) Post-graduate Scholarship, May 2001-April 2003
- Masters Izaak Walton Killam Memorial Scholarship, Sept. 2000-May 2001
- National Sciences and Engineering Research Council (NSERC) Undergraduate Student Research Award (USRA), Summer 2000
- Andrew MacKay Dalhousie Alumni Scholarship (community/university leadership), 1998
- Dalhousie University Renewable Entrance Scholarship, Sept. 1996-April 2000

Employment History

From	To	Organization	Position
Sept. 2009	Dec. 2009	Commercial Development Contract, Memorial University of Newfoundland	Stock Management Software Developer
April 2007	Aug. 2009	Department of Computer Science, Memorial University of Newfoundland with Verafin, Inc.	Postdoctoral Fellow
Dec. 2005	Dec. 2007	E-md Inc. (www.e-md.info)	.NET Developer
Feb. 2005	Aug. 2005	Greenfield Research Inc. (www.greenfieldresearch.ca)	Software Engineer
May 2000	Aug. 2000	Faculty of Computer Science, Dalhousie University	NSERC Undergraduate Student Research Award

Teaching History

From	To	Organization	Position
<i>Course: COMP 1510: An Introduction to Scientific Computing (with lab)</i>			
Jan. 2009	April 2009	Memorial University of Newfoundland, Department of Computer Science	Instructor
Jan. 2008	April 2008		
<i>Course: CSCI 3150: Artificial Intelligence (now CSCI 4150: Artificial Intelligence)</i>			
Jan. 2001	April 2001	Dalhousie University, Faculty of Computer Science	Teaching Assistant, Marker
<i>Course: CSCI 1200: Introduction to Computing for Non-Majors</i>			
Sept. 2000	Dec. 2000	Dalhousie University, Faculty of Computer Science	Lab Instructor, Marker
<i>Course: PHIL 2130: Logic: Deduction</i>			
Sept. 1999	Dec. 1999	Dalhousie University, Department of Philosophy	Marker

Academic Publications

Journal Papers

- **Wilson, G. C.**, Banzhaf, W., "Deployment of Parallel GPU-Based Linear Genetic Programming on PC and Video Game Console Platforms," Genetic Programming and Evolvable Machines, upcoming.
- **Wilson, G. C.**, Heywood, M. I., "Foundations for an Intelligent Business Logic Engine using Genetic Programming and RuleML-based Services," International Journal Business Process Integration and Management, 2007, 2(4), 2007, Inderscience Publishers, ISSN: 1741-8763, pp. 282-291. (*Shorter conference paper version also published; see below.*)
- **Wilson, G. C.**, Heywood, M. I., "Introducing Probabilistic Adaptive Mapping Developmental Genetic Programming with Redundant Mappings," Genetic Programming and Evolvable Machines, 8(2), 2007, Springer, ISSN: 1389-2576 (print), pp. 187-220.
- Maitzen, S., **Wilson, G. C.**, "Newcomb's Hidden Regress," Theory and Decision, 54(2), 2003, Kluwer Academic, ISSN 0040-5833, pp. 151-162.
- **Wilson, G. C.**, Heywood M. I., "Crossover Context in Page-based Linear Genetic Programming," Canadian Journal on Electrical and Computer Engineering, July 2002, IEEE Canada, ISSN 0840-8688, pp. 113-116. (*Shorter conference paper version also published; see below.*)

Book Chapters

- **Wilson, G. C.**, Banzhaf, W. "Interday and Intraday Stock Trading using Probabilistic Adaptive Mapping Developmental Genetic Programming and Linear Genetic Programming," Natural Computing in Computational Finance, Vol. 3, 2010, Springer, upcoming.
- **Wilson, G. C.**, Banzhaf, W. "Algorithmic Trading with Developmental and Linear Genetic Programming," Genetic Programming Theory and Practice (GPTP) VII, 2009, Springer, upcoming.
- Banzhaf, W., Harding, S., Langdon, W.B., and **Wilson, G.**, "Accelerating Genetic Programming Through Graphics Processing Units," Genetic Programming Theory and Practice (GPTP) VI, 2008, Springer, pp. 229-249.

Journal Reviews

- **Wilson, G.C.**, McIntyre A., Heywood M.I., "Three open source systems for evolving programs—Lilgp, ECJ and Grammatical Evolution," Genetic Programming and Evolvable Machines, 5(1), 2004, Kluwer Academic, ISSN 1389-2576, pp. 103-105 (*Invited Review*).

Conference and Workshop Papers

- **Wilson, G. C.**, Banzhaf, W., "Soft Memory for Stock Market Analysis using Linear and Developmental Genetic Programming," Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2009), July 8-12, 2009, Montréal, Canada, ACM Press, ISBN 978-1-60558-325-9, pp. 1633-1640.
- **Wilson, G. C.**, Banzhaf, W., "Deployment of CPU and GPU –based Genetic Programming on Heterogeneous Devices," Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2009), July 8-12, 2009, Montréal, Canada, ACM Press, ISBN 978-1-60558-325-9, pp. 2531-2538.
- **Wilson, G. C.**, and Banzhaf W., "Discovery of email communication networks from the Enron corpus with a genetic algorithm using social network analysis," Proceedings of the IEEE Congress on Evolutionary Computation (CEC 2009), May 18-21, 2009, Trondheim, Norway, IEEE Press, ISBN: 978-1-4244-2958-5, pp. 3256-3263.

- **Wilson, G. C.**, Banzhaf, W., "Prediction of Interday Stock Prices using Developmental and Linear Genetic Programming," Applications of Evolutionary Computing: EvoWorkshops 2009, April 15-17, 2009, Tübingen, Germany, Springer, ISSN 0302-9743, pp. 172-181. (**Nominee: Best Paper Award**)
- **Wilson, G. C.**, and Banzhaf W., "Linear Genetic Programming GPGPU on Microsoft's Xbox 360," Proceedings of the IEEE World Congress on Computational Intelligence (WCCI 2008), June 1-6, 2008, Hong Kong, China, IEEE Press, ISBN 978-1-4244-1823-7, pp. 378-385.
- **Wilson, G. C.**, Banzhaf, W., "A Comparison of Cartesian Genetic Programming and Linear Genetic Programming," Proceedings of the 11th European Conference on Genetic Programming (EuroGP 2008), March 26-28, 2008, Napoli, Italy, Springer, ISBN 978-3-540-78670-2, pp. 182-193.
- **Wilson, G. C.**, Heywood, M. I., "Learning Recursive Programs with Cooperative Coevolution of Genetic Code Mapping and Genotype," Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2007), July 7-11, 2007, London, U.K., ACM Press, ISBN 978-1-59593-697-4, pp. 1053-1060.
- **Wilson, G. C.**, Heywood, M. I., "Probabilistic Adaptive Mapping Developmental Genetic Programming (PAM DGP): A New Developmental Approach," Proceedings of the 9th International Conference on Parallel Problem Solving from Nature (PPSN IX), Sept. 9-13, 2006, Reykjavik, Iceland, Springer, ISSN 0302-9743, pp. 751-760.
- **Wilson, G. C.**, Heywood, M. I., "Foundations for an Intelligent Business Logic Engine using Genetic Programming and RuleML-based Services," Proceedings of the 2006 International Workshop on Service Oriented Techniques (SOT06), August 14-16, 2006, Fredericton, Canada, NRC Research Press, pp. 63-70.
- **Wilson, G. C.**, Heywood, M. I., "Probabilistic (Genotype) Adaptive Mapping Combinations for Developmental Genetic Programming," Proceedings of the IEEE Congress on Evolutionary Computation (CEC 2006), July 16-21, 2006, Vancouver, Canada, IEEE Press, ISBN 0-7803-9487-9, pp. 8667-8674.
- **Wilson, G. C.**, Heywood, M. I., "Use of a Genetic Algorithm in Brill's Transformation-Based Part-of-Speech Tagger," Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2005), June 25-29, 2005, Washington, DC, USA, ACM Press, ISBN 1-59593-010-8, pp. 2067-2073.
- **Wilson, G. C.**, Heywood, M. I., "Context-based Repeated Sequences in Linear Genetic Programming," Proceedings of the 8th European Conference on Genetic Programming (EuroGP 2005), March 30-April 1, 2005, Lausanne, Switzerland, Springer, ISSN 0302-9783, pp. 240-249.
- **Wilson, G. C.**, Heywood, M.I., "Search Operator Bias in Linearly Structured Genetic Programming," GECCO (Genetic and Evolutionary Computation Conference) 2004 Late Breaking Papers, June 26-30, 2004, Seattle, USA.
- **Wilson, G. C.**, Heywood, M. I., "Crossover Context in Page-based Linear Genetic Programming," Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2002), May 12-15 2002, Winnipeg, Canada, IEEE Canada, ISBN 0-7803-7515-7, pp. 809-814. (**Winner: Best Student Paper Award in AI and Computer Hardware Engineering**)

Theses

- **Ph.D. Thesis:** Probabilistic Adaptive Mapping Developmental Genetic Programming (PAM DGP), Dalhousie University, May 2007.
- **Master's of Computer Science Thesis:** Strategy Learning Through Page-based Linear Genetic Programming Applied to The San Mateo Trail, Dalhousie University, October 2002.

Professional Contributions

- Reviewer for international journals and conferences:
 - Natural Computing Journal
 - Genetic Programming and Evolvable Machines
 - Evolutionary Computation Journal
- Workshop Organizer:
 - Computational Intelligence on Consumer Games and Graphics Hardware (CIPU 2009) at Genetic and Evolutionary Computation Conference (GECCO 2009), Montréal, Canada
 - Generative and Developmental Systems Workshop at Genetic and Evolutionary Computation Conference (GECCO 2009), Montréal, Canada
- Competition Judge:
 - nVidia-sponsored GPUs for Genetic and Evolutionary Computation Competition, Genetic and Evolutionary Computation Conference (GECCO 2009), Montréal, Canada
- Program Committee Member
 - Computational Intelligence on Consumer Games and Graphics Hardware (CIPU 2010) at IEEE World Congress on Computational Intelligence (WCCI 2010), Barcelona, Spain
 - 4th European Workshop on Evolutionary Computation in Finance (EvoFin 2010), Istanbul, Turkey
 - Genetic Programming Track, Genetic and Evolutionary Computation Conference (GECCO 2009), Montréal, Canada
 - Genetic Programming Theory and Practice 2009, Ann Arbor, USA
 - 8th European Conference (EuroGP 2005), Lausanne, Switzerland
 - Workshop on Nature Inspired Cooperative Strategies for Optimization (NICSO 2007)
- Technical Committee Member
 - IEEE World Congress on Computational Intelligence (WCCI 2008), Hong Kong, China
- Conference Session Chair
 - Genetic and Evolutionary Computation Conference (GECCO 2005), Washington, DC, USA
- Member, Institute of Electrical and Electronics Engineers (IEEE), 2001 – present
- Member, Association of Computing Machinery (ACM), 2004 - present