

# Yngvi BJÖRNSSON

## PERSONAL DATA

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PLACE AND DATE OF BIRTH: Iceland | November 9th, 1964  
ADDRESS: Reykjavik University, Menntavegur 1, IS-101 Reykjavik, Iceland  
PHONE: +354 8206226  
WEB: [www.ru.is/~yngvi](http://www.ru.is/~yngvi)  
EMAIL: [yngvi@ru.is](mailto:yngvi@ru.is)  
GOOGLE SCHOLAR: <http://scholar.google.com/citations?user=mhpMHIYAAAAJ>

## RESEARCH INTERESTS

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Artificial Intelligence, more specifically heuristic search, machine learning and data mining, intelligent agents, computer games and general problem-solving intelligence.

## WORK EXPERIENCE

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APR 2014-CURRENT	Professor at REYKJAVIK UNIVERSITY, Iceland <i>School of Computer Science</i> Research and teaching in the area of computer science and artificial intelligence.
JAN 2004-MAR 2014	Associate Professor at REYKJAVIK UNIVERSITY, Iceland <i>School of Computer Science</i> Research and teaching in the area of computer science and artificial intelligence.
APR 2005-DEC 2006	Chair at REYKJAVIK UNIVERSITY, Iceland <i>Department of Computer Science, School of Science and Engineering</i> Chair of the CS department, which at that time was a department within the School of Science and Engineering.
SEP 2002-DEC 2003	Research Associate at UNIVERSITY OF ALBERTA, Canada <i>Department of Computing Science</i> Worked on the Solving Checkers project.   Project leader: Prof. J. SCHAEFFER <a href="http://webdocs.cs.ualberta.ca/~chinook/project/">http://webdocs.cs.ualberta.ca/~chinook/project/</a>
JUN 2000-AUG 2002	Faculty Lecturer at UNIVERSITY OF ALBERTA, Canada <i>Department of Computing Science</i> Teaching undergraduate CS courses, including large introductory courses.
JUN 1988-AUG 1994	Software Developer at COMPUTER IMAGES, Iceland Software development and project management.

## EDUCATION

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JUN 2002	PhD in COMPUTER SCIENCE, <b>University of Alberta</b> , Edmonton, Alberta, Canada Thesis: "Selective Depth-First Game-Tree Search"   Supervisor: Prof. T. A. MARSLAND
JUN 1988	BSc in COMPUTER SCIENCE, <b>University of Iceland</b> , Reykjavik, Iceland

## AWARDS AND HONORS

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|-----------|--|
| 2012      | CADIAPLAYER: GGP agent<br>Winner of the International General Game Playing Competition.  |
| 2009      | CADIAPLAYER: General Game-Playing Systems<br>Keynote talk at IEEE Symposium on Computational Intelligence and Games (CIG'09), Milan, Italy.  |
| 2008      | CADIAPLAYER: GGP agent<br>Winner of the International General Game Playing Competition.  |
| 2007      | CADIAPLAYER: GGP agent<br>Winner of the International General Game Playing Competition.  |
| 2007      | Checker solved<br>Participant of the team that solved the game of checkers, an achievement named by <i>Science</i> magazine as a runner-up for the scientific breakthrough of that year. |
| 2006      | Tools for Debugging Large Game Trees<br>Plenary talk at the Eleventh Games Programming Workshop, Hakone, Kanagawa, Japan.  |
| 2005      | IJCAI Distinguished Paper Award<br>Co-author of the paper "Solving Checkers".  |
| 2000-2002 | YL: Lines of Action program<br>Winner of the 5th-7th Computer Games Olympiad.  |

## TEACHING AND MENTORING

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### Courses Taught

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|----------------|---|
| 2013<br>fall   | App Development: Android (BSc level, 2 ECTS)<br><i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland   |
| 2013<br>fall   | Web Mining (MSc level, 8 ECTS)<br><i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland<br>(co-taught with dr. H. Loftsson)                     |
| 2013<br>fall   | Introduction to Machine Learning (BSc level, 6 ECTS)<br><i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland<br>(co-taught with dr. D. Garret) |
| 2013<br>spring | Object-Oriented Programming in C++ (BSc level, 6 ECTS)<br><i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland                                 |
| 2013<br>winter | App Development: Android (BSc level, 2 ECTS)<br><i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland   |
| 2012<br>fall   | Informed Search Methods in Artificial Intelligence (MSc level, 8 ECTS)<br><i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland                 |

2012 fall	Introduction to Machine Learning (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland (co-taught with dr. D. Garret)
2012 spring	Object-Oriented Programming in C++ (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2011 fall	Web Mining (MSc level, 8 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland (co-taught with dr. H. Loftsson)
2011 fall	Introduction to Machine Learning (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2011 winter	Reinforcement Learning (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2010 fall	General Game Playing (MSc level, 8 ECTS; BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2010 fall	Artificial Intelligence (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2010 winter	Autonomous Robots (MSc level, 8 ECTS) <i>School of Science and Engineering</i> , REYKJAVIK UNIVERSITY, Iceland (co-taught with several engineering faculty)
2009 fall	Autonomous Planning and Scheduling (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland (co-taught with dr. A. Jónsson)
2009 fall	Problem Solving (BSc level; 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland (co-taught with several other CS faculty)
2009 winter	General Game Playing (MSc level, 8 ECTS; BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2009 winter	Design X <i>School of Science and Engineering</i> , REYKJAVIK UNIVERSITY, Iceland (co-taught with several engineering faculty)
2008 fall	Reinforcement Learning (MSc level, 8 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2008 winter	Artificial Intelligence (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland (co-taught with several other CS faculty)
2008 winter	Informed Search Methods in Artificial Intelligence (MSc level, 8 ECTS; BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland
2007 fall	Algorithms (BSc level, 6 ECTS) <i>School of Computer Science</i> , REYKJAVIK UNIVERSITY, Iceland

2007 fall	Operating Systems (BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i> (co-taught with dr. L. Aceto and dr. H. Vilhjálmsson)
2007 winter	Informed Search Methods in Artificial Intelligence (MSc level, 8 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i>
2006 fall	Reinforcement Learning (MSc level, 8 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i>
2006 winter	Artificial Intelligence (BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i> (co-taught with dr. K. Thórisson)
2006 winter	Informed Search Methods in Artificial Intelligence (MSc level, 8 ECTS; BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i>
2005 winter	Artificial Intelligence (BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i> (co-taught with dr. K. Thórisson)
2005 winter	Mathematical Algorithms (BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i> (co-taught with several other CS faculty)
2004 fall	Research Methodology (MSc level, 8 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i> (co-taught with several other CS faculty)
2004 fall	Informed Search Methods in Artificial Intelligence (MSc level, 8 ECTS; BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i>
2004 fall	Reinforcement Learning (BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i>
2004 summer	Algorithms (BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i>
2004 winter	Algorithms (BSc level, 6 ECTS) <i>School of Computer Science, REYKJAVIK UNIVERSITY, Iceland</i>
2003 fall	Practical Programming Methodology <i>Department of Computing Science, UNIVERSITY OF ALBERTA, Canada</i>
2002 fall	Practical Programming Methodology <i>Department of Computing Science, UNIVERSITY OF ALBERTA, Canada</i>
2001 fall	Introduction to Computing (BSc level) <i>Department of Computing Science, UNIVERSITY OF ALBERTA, Canada</i>
2001 summer	Introduction to Computing (BSc level) <i>Department of Computing Science, UNIVERSITY OF ALBERTA, Canada</i>

2001 | Introduction to Computing (BSc level)  
winter | *Department of Computing Science*, UNIVERSITY OF ALBERTA, Canada

2000 | Introduction to Computing (BSc level)  
fall | *Department of Computing Science*, UNIVERSITY OF ALBERTA, Canada

## Postdoctoral Research Fellow Mentoring

JUL 2012-CURRENT	Hilmar Finnsson, PhD Working on the General Game Playing and Landsvirkjun project
FEB 2011-CURRENT	Stephan Schiffel, PhD Working on the General Game Playing project
MAR 2006-AUG 2006	Mark Winands, PhD Now an assistant professor at the Department of Knowledge Engineering, Maastricht University, The Netherlands

## Graduate Student Supervision

JUN 2012	Hilmar Finnsson, PhD Thesis: <i>Simulation-Based General Game Playing</i> , School of Computer Science, Reykjavik University
JAN 2012	Björn Jónsson, MSc Thesis: <i>Representing Uncertainty in RTS Games</i> , School of Computer Science, Reykjavik University
JUN 2011	Steinar Hugi Sigurðarson, MSc Thesis: <i>Guided Search for Deadlocks in Actor-Based Models</i> , School of Computer Science, Reykjavik University (co-supervisor with Marjan Sirjani)
JUN 2009	Ársæll Þór Jóhannsson, MSc Thesis: <i>GPU-Based Markov Decision Process Solver</i> , School of Computer Science, Reykjavik University
JUN 2009	Gylfi Þór Guðmundsson, MSc Thesis: <i>Single-Agent Search for Solving General Game-Playing Puzzles</i> , School of Computer Science, Reykjavik University
JAN 2009	Pálmi Skowronski, MSc Thesis: <i>Gradual Focus: A Method for Automated Feature Discovery in Selective Search</i> , School of Computer Science, Reykjavik University
JAN 2008	Hilmar Finnsson, MSc Thesis: <i>CadiaPlayer: A General Game-Playing Agent</i> , School of Computer Science, Reykjavik University
JAN 2008	Jónheiður Ísleifsdóttir, MSc Thesis: <i>GTQL: A Query Language for Game Trees</i> , School of Computer Science, Reykjavik University
JAN 2007	Jónas Tryggvi Jóhannsson, MSc Thesis: <i>Experiments with Automated Weight Tuning in Heuristic Evaluation Functions</i> , School of Computer Science, Reykjavik University
JUN 2006	Sverrir Sigmundarson, MSc Thesis: <i>Backtracking and Value Back-Propagation in Real-Time Search</i> , School of Computer Science, Reykjavik University

## Graduate Committee Member

- JUN 2012 | Haukur Kristinsson, MSc  
Thesis: *Event-Based Analysis of Real-Time Actor Models*, School of Computer Science, Reykjavik University
- JUN 2012 | Hendrik Tómasson, MSc  
Thesis: *Speaker Localization and Identification*, School of Science and Engineering, Reykjavik University
- JUN 2011 | Carmine Oliva, MSc  
Thesis: *Social Path Following*, School of Computer Science, Reykjavik University / School of Science and Technology, University of Camerino, Italy (dual-degree)
- JUN 2011 | Þór Sigurðsson, MSc  
Thesis: *Automatic Planning in Wind-Energy Production using Ensemble Forecast*, School of Computer Science, Reykjavik University
- JUN 2011 | Valdís Sigurþórsdóttir, MSc  
Thesis: *Towards Automatic Generation of Realistic Web Query Sequences*, School of Computer Science, Reykjavik University
- MAY 2011 | Stephan Schiffel, PhD  
Thesis: *Knowledge-Based General Game Playing*, Department of Computer Science, Technical University of Dresden, Germany
- MAY 2011 | Maarten P.D. Schadd, PhD  
Thesis: *Selective Search in Games of Different Complexity*, Department of Knowledge Engineering, Maastricht University, The Netherlands
- JAN 2011 | Haukur Pálmason, MSc  
Thesis: *Large-Scale Music Classification using an Approximate k-NN*, School of Computer Science, Reykjavik University
- MAY 2011 | Maarten P.D. Schadd, PhD  
Thesis: *Selective Search in Games of Different Complexity*, Department of Knowledge Engineering, Maastricht University, The Netherlands
- MAY 2010 | Guillaume Chaslot, PhD  
Thesis: *Monte-Carlo Tree Search*, Department of Knowledge Engineering, Maastricht University, The Netherlands
- MARCH 2010 | Gian Piero Favini, PhD  
Thesis: *The Dark Side of the Board: Advances in Chess Kriegspiel.*, Department of Computer Science, University of Bologna, Italy
- JAN 2009 | Guðný Ragna Jónsdóttir, MSc  
Thesis: *A Distributed Dialog Architecture with Learning*, School of Computer Science, Reykjavik University
- MAY 2005 | Peter Spronck, PhD

Thesis: *Adaptive Game AI*, Department of Knowledge Engineering,  
Maastricht University, The Netherlands

## PROFESSIONAL ACTIVITIES

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### Professional Appointments

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|-----------|--|
| 2010-2013 | Centre for Analysis and Design of Intelligent Agents (CADIA), Reykjavik University<br>Director                   |
| 2005-2009 | Centre for Analysis and Design of Intelligent Agents (CADIA), Reykjavik University<br>Co-founder and Co-Director |
| 2005-2011 | International Computer Games Association (ICGA)<br>Vice-president  |
| 2004-2005 | International Computer Games Association (ICGA)<br>Programmers' representative                                   |

### Editorial and Reviewing Duties

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|--------------|---|
| 2008-2012    | IEEE Transactions of Computational Intelligence and AI in Games<br>Associate Editor   |
| 2012         | Entertainment Computing<br>Guest Editor of a special issue on "Games and AI" (with dr. Mark H.M. Winands and K. Tuyls)  |
| 2000-current | Reviewing for innumerable journals and conferences, including for <i>Artificial Intelligence</i> , <i>Journal of Artificial Intelligence Research</i> , <i>IEEE Transactions of Computational Intelligence and AI in Games</i> , <i>Computational Intelligence</i> , <i>IJCAI</i> , <i>AAAI</i> , and <i>ECAI</i> . |

### Organizing and Program Committees

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|------|---|
| 2013 | General Intelligence in Game-Playing Agents (GIGA'13)<br>Co-chair   |
| 2013 | IJCAI Workshop on Computer Games<br>Program Committee   |
| 2013 | Twenty-Third International Joint Conference on Artificial Intelligence (IJCAI'13)<br>Senior Program Committee |
| 2013 | Eight International Conference on Computers and Games (CG'13)<br>Program Committee                            |



- 2012 | Twentieth European Conference on Artificial Intelligence (ECAI'12)  
Program Committee
- 2012 | Twenty-Sixth National Conference on Artificial Intelligence (AAAI'12)  
Program Committee
- 2012 | ECAI Workshop on Artificial Intelligence in Games (AIG'12)  
Program Committee
- 2011 | General Intelligence in Game-Playing Agents (GIGA'11)  
Co-chair
- 2011 | Eleventh International Conference on Intelligent Virtual Agents (IVA'11)  
Poster and demo chair
- 2011 | International Joint Conference on Artificial Intelligence (IJCAI'11)  
Senior Program Committee
- 2011 | Thirteenth International Conference on Advances in Computer Games  
(ACG'11)  
Program Committee
- 2010 | Twenty-Fourth National Conference on Artificial Intelligence (AAAI'10)  
Program Committee
- 2010 | Nineteenth European Conference on Artificial Intelligence (ECAI'10)  
Program Committee
- 2010 | International Conference on Computers and Games (CG'10)  
Program Committee
- 2010 | Planning in Games (ICAPS'10 Workshop)  
Program Committee
- 2009 | General Intelligence in Game-Playing Agents (GIGA'09)  
Co-chair
- 2009 | Symposium on Abstraction, Reformulation and Approximation  
(SARA'09)  
Program Committee
- 2009 | Twelfth International Conference on Advances in Computer Games  
(ACG'09)  
Program Committee
- 2009 | Twenty-First International Joint Conference on Artificial Intelligence  
(IJCAI'09)  
Senior Program Committee
- 2008 | Sixth International Conference on Computers and Games (CG'08)  
Program Committee
- 2008 | ECAI Workshop on Artificial Intelligence in Games (AIG'08)  
Program Committee

2006	Fifth International Conference on Computers and Games (CG'06) Program Committee
2005	Eleventh International Conference on Advances in Computer Games (ACG'05) Program Committee
2004	Fourth International Conference on Computers and Games (CG'04) Co-chair
2004	Twenty-First International Conference on Machine Learning (ICML'04) Program Committee
2004	Third International Conference on Entertainment Computing (ICEC'04) Program Committee
2004	Nineteenth National Conference on Artificial Intelligence (AAAI'04) Program Committee
2002	Third International Conference on Computers and Games (CG'02) Co-chair
2002	Eighteenth National Conference on Artificial Intelligence (AAAI'02) Program Committee
2002	Fifth International Symposium on Abstraction, Reformulation and Approximation (SARA'02) Program Committee

### Other Committees and Posts

2013-current	Icelandic Association of Computer Scientists On education committee.
2013-current	The Icelandic Centre for Research (RANNIS) On the evaluation committee for the Research Infrastructure Fund.
2012-2013	School of Computer Science, Reykjavik University Chair of the Graduate Studies Council.
2012-2013	School of Computer Science, Reykjavik University Chair of the Strategy Work Committee.
2011-2012	School of Computer Science, Reykjavik University On the Graduate Studies Council.
2010-current	Icelandic Institute for Intelligent Machines (IIIM) On the scientific advisory board.
2010-current	School of Computer Science, Reykjavik University On the Industry Liaison Council.
2010	Reykjavik University On the Dean (for SCS) selection committee.

2010	School of Computer Science, Reykjavik University Chair of the promotion committee of dr. H. Vilhjálmsson.
2008-2009	Reykjavik University On the University Research Council.
2005-2009	School of Computer Science, Reykjavik University On the Research Council.
2004-2005	School of Computer Science, Reykjavik University Undergraduate program coordinator.

## RESEARCH GRANTS

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### Principal Applicant

2013-2015	Project grant: <i>Simulation- and Heuristic-Based Search in General Game Playing and Beyond</i> . ISK 20,000,000 Icelandic Centre for Research (RANNIS)
2011-2013	Project Grant: <i>Modeling of Long-Term Hydrothermal Systems Operations</i> . ISK 2,520,000 Energy Research Fund, Landsvirkun
2010-2012	Project grant: <i>General problem solving agents</i> . ISK 19,400,000. Icelandic Centre for Research (RANNIS)
2008-2009	Project grant: <i>General game playing</i> . ISK 10,000,000. Icelandic Centre for Research (RANNIS)
2005-2007	Project grant: <i>Automatic Learning of Search Control in Heuristic Search</i> . ISK 8,400,000. Icelandic Centre for Research (RANNIS)
2005-2006	Marie Curie IRG: <i>Adaptive Real-Time Heuristic Search (ARTHS)</i> . EUR 90,000 EUROPEAN COMMISSION 6th Framework Programme on Research, Technological Development and Demonstration
2005	Equipment grant: <i>Infrastructure for Intelligent Systems</i> . ISK 6,000,000 Icelandic Centre for Research (RANNIS) With: dr. Kristinn R. Þórisson, dr. Björn Þ. Jónsson, and Marta K. Lárusdóttir.
2004-2006	Project grant: <i>Efficient Navigation in Dynamic Multi-agent Environments</i> . ISK 6,600,000. Icelandic Centre for Research (RANNIS)

## Co-Applicant

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|-----------|---|
| 2011-2013 | Project grant: <i>Robust Continuous Machine Learning of Complex Real-time Communication</i> .<br>ISK 19,100,000.<br>Icelandic Centre for Research (RANNIS). Principal applicant: dr. Kristinn R. Þórisson |
| 2009-2011 | PhD student grant: <i>Dynamic Search Techniques for General Game Playing</i> .<br>ISK 7,950,000<br>Icelandic Centre for Research (RANNIS). Principal applicant: Hilmar Finnsson                           |
| 2008-2010 | Project grant: <i>Humanoid Agents and Avatars in Social Game Environments</i> .<br>ISK 27,500,000.<br>Icelandic Centre for Research (RANNIS). Principal applicant: dr. Hannes H. Vilhjálmsson             |
| 2006      | Technical development grant: <i>Batch Processing of fish fillets</i> .<br>ISK 8,500,000<br>Icelandic Centre for Research (RANNIS). Principal applicant: Valka ehf   |
| 2006      | MSc student grant: <i>Informed Search in Network Routing</i> .<br>ISK 720,000<br>Icelandic Centre for Research (RANNIS). Principal applicant: Daði Ármannsson   |
| 2006      | MSc student grant: <i>Learning of Heuristic in Real-Time Single-Agent Search</i> .<br>ISK 720,000<br>Icelandic Centre for Research (RANNIS). Principal applicant: Sverrir Sigmundarson                    |

## PUBLICATIONS (REFEREED)

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### Journals

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|---|
| Stephan Schiffel and Yngvi Björnsson. Efficiency of GDL reasoners. <i>IEEE Transactions on Computational Intelligence and AI in Games</i> , 2013. In press                        |
| Mandy J. W. Tak, Mark H. M. Winands, and Yngvi Björnsson. Decaying simulation strategies. <i>IEEE Transactions on Computational Intelligence and AI in Games</i> , 2013. In press |
| Michael M. Genesereth and Yngvi Björnsson. The international general game playing competition. <i>AI Magazine</i> , 34(2):107–111, 2013   |

- Mandy J. W. Tak, Mark H. M. Winands, and Yngvi Björnsson. N-grams and the last-good-reply policy applied in general game playing. *IEEE Transactions on Computational Intelligence and AI in Games*, 4(2):73–83, 2012
- Hilmar Finnsson and Yngvi Björnsson. CadiaPlayer: Search control techniques. *KI Journal*, 25(1):9–16, 2011
- Mark H. M. Winands, Yngvi Björnsson, and Jahn-Takeshi Saito. Monte Carlo Tree Search in Lines of Action. *IEEE Transactions on Computational Intelligence and AI in Games*, 2(4):239–250, 2010
- Vadim Bulitko, Yngvi Björnsson, and Ramon Lawrence. Case-based sub-goaling in real-time heuristic search for video game pathfinding. *Journal of Artificial Intelligence Research (JAIR)*, 39:269–300, 2010
- Yngvi Björnsson and Hilmar Finnsson. Cadiaplayer: A simulation-based general game player. *IEEE Transactions on Computational Intelligence and AI in Games*, 1(1):4–15, 2009
- Mark H. M. Winands and Yngvi Björnsson. Enhanced realization probability search. *New Mathematics and Natural Computation*, 3(6):329–327, 2008
- Vadim Bulitko, Mitja Lustrek, Jonathan Schaeffer, Yngvi Björnsson, and Sverrir Sigmundarson. Dynamic control in real-time heuristic search. *Journal of Artificial Intelligence Research (JAIR)*, 32:419–452, 2008
- Jonathan Schaeffer, Yngvi Björnsson Neil Burch, Akihiro Kishimoto, Martin Müller, Rob Lake, Paul Lu, and Steve Sutphen. Checkers is solved. *Science*, 317(5844):1518–1522, 2007. Work named by Science Magazine as one of the 10 most important scientific achievements of 2007
- Ryan Hayward, Yngvi Björnsson, Michael Johanson, Morgan Kan, Nathan Po, and Jack van Rijswijck. Solving 7x7 hex with domination, fill-in, and virtual connections. *Theoretical Computer Science*, 349(2):123–139, 2005
- Yngvi Björnsson and T. Anthony Marsland. Learning extension parameters in game-tree search. *Information Sciences*, 154(3-4):95–118, 2003
- Yngvi Björnsson and T. Anthony Marsland. Multi-cut alpha-beta-pruning in game-tree search. *Theoretical Computer Science*, 252(1-2):177–196, 2001
- Yngvi Björnsson and T. Anthony Marsland. Risk management in game-tree pruning. *Information Sciences*, 122(1):23–41, 2000
- Yngvi Björnsson, Tony Marsland, Jonathan Schaeffer, and Andreas Junghanns. Searching with uncertainty cut-offs in game-tree pruning. *International Computer Chess Association Journal*, 20(1):29–37, 1997

## Book Chapters, Conferences, and Workshops

Stefan Freyr Gudmundsson and Yngvi Björnsson. Sufficiency-based selection strategy for MCTS. In Francesca Rossi, editor, *IJCAI 2013, Proceedings of the 23rd International Joint Conference on Artificial Intelligence, Beijing, China, August 3-9, 2013*, pages 559–565. IJCAI/AAAI, 2013

Yngvi Björnsson and Stephan Schiffel. Comparison of GDL reasoners. In *IJCAI'13 Workshop on General Intelligence in Game Playing Agents (GIGA'13)*, pages 55–62, 2013

Mandy J. W. Tak, Mark H. M. Winands, and Yngvi Björnsson. Decaying simulation strategies. In *IJCAI'13 Workshop on General Intelligence in Game Playing Agents (GIGA'13)*, pages 23–30, 2013

Steinar Hugi Sigurdarson, Marjan Sirjani, Yngvi Björnsson, and Arni Hermann Reynisson. Guided search for deadlocks in actor-based models. In Corina S. Pasareanu and Gwen Salaün, editors, *FACS*, volume 7684 of *Lecture Notes in Computer Science*, pages 242–259. Springer, 2012

Yngvi Björnsson. Learning rules of simplified boardgames by observing. In *European Conference on Artificial Intelligence (ECAI'12)*, pages 175–180, 2012

Hilmar Finnsson and Yngvi Björnsson. Game-tree properties and MCTS performance. In *IJCAI'11 Workshop on General Intelligence in Game Playing Agents (GIGA'11)*, pages 23–30, 2011

Stefan F. Gudmundsson and Yngvi Björnsson. MCTS: Improved action selection techniques for deterministic games. In *IJCAI'11 Workshop on General Intelligence in Game Playing Agents (GIGA'11)*, pages 45–52, 2011

Mark H. M. Winands and Yngvi Björnsson. Alpha-beta-based play-outs in Monte-Carlo tree search. In Sung-Bae Cho, Simon M. Lucas, and Philip Hingston, editors, *2011 IEEE Conference on Computational Intelligence and Games, CIG 2011, Seoul, South Korea, August 31 - September 3, 2011*, pages 110–117. IEEE, 2011

Nathan Sturtevant, Vadim Bulitko, and Yngvi Björnsson. On learning in agent-centered search. In *Proceedings of the 9th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, pages 333–340, Toronto, Canada, 2010

Hilmar Finnsson and Yngvi Björnsson. Learning simulation control in general game-playing agents. In *The Twenty-Fourth AAI Conference on Artificial Intelligence*, pages 954–959. AAAI Press, 2010

Vadim Bulitko, Yngvi Björnsson, Nathan Sturtevant, and Ramon Lawrence. Real-time heuristic search for pathfinding in video games. In *Artificial Intelligence for Computer Games*, pages 1–30. Springer, 2011

Pálmi Skowronski, Yngvi Björnsson, and Mark H. M. Winands. Automated discovery of search-control features. In *Proceedings of the Twelfth International Advances in Computer Games Conference (ACG'09), Pamplona, Spain, May 11-13, 2009*. 182–194

Mark H. M. Winands and Yngvi Björnsson. Evaluation function based Monte-Carlo LOA. In *Proceedings of the Twelfth International Advances in Computer Games Conference (ACG'09), Pamplona, Spain, May 11-13, 2009*. 33–44

Yngvi Björnsson, Vadim Bulitko, and Nathan Sturtevant. TBA\*: Time-bounded A\*. In *Proceedings of the Twenty-first International Joint Conference on Artificial Intelligence (IJCAI'09), July 11-17, Pasadena, CA, USA, 2009*

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