

David A. Furcy

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Professional Experience

- Fall 2016—Present** University of Wisconsin, Oshkosh, WI
- Professor, Computer Science Department
- Fall 2011—Summer 2016** University of Wisconsin, Oshkosh, WI
- Associate Professor, Computer Science Department
- Fall 2005—Fall 2011** University of Wisconsin, Oshkosh, WI
- Assistant Professor, Computer Science Department
- June 2015—June 2018** University of Wisconsin, Oshkosh, WI
- Chair, Computer Science Department
- June 2013—May 2015** University of Wisconsin, Oshkosh, WI
- Co-Chair, Computer Science Department
- Spring 2005** Blackburn College, Carlinville, IL
- Interim professor (one-semester sabbatical replacement), Computer Science Department

Teaching Experience

- Fall 2005—Present** University of Wisconsin, Oshkosh, WI
- Courses taught:
- CS125 - Web Site Development (2 sections)
 - CS142 - Elementary Programming in Visual Basic (3 sections)
 - CS221 - Object-Oriented Design and Programming I (6 sections)
 - CS251 - Computer Organization and Assembly Language (8 sections)
 - CS262 - Object-Oriented Design and Programming II (3 sections)
 - CS271 - Data Structures (2 sections)
 - CS300 - Artificial Intelligence (1 section)
 - CS310 - Computer Architecture (3 sections)
 - CS321 - File Structures (4 sections)
 - CS321 - Algorithms (2 sections)
 - CS326 - Computer Security (3 sections)
 - CS331 - Programming Languages (9 sections)
 - CS346 - Web Software Development (1 section)
 - CS381 - Theory of Computing (9 sections)
 - CS391 - Data Communications and Computer Networks (2 sections)
 - CS399 - Internship in Computer Science (13 sections)
 - CS421 - Operating Systems (1 section)
 - CS431 - Compilers (7 sections)
 - CS480 - Topics in Computing: Heuristic Search (1 section)
 - CS490 - Practicum in Computer Science (13 sections)
 - DS730 - Big Data: High Performance Computing (3 sections)
 - MATH212 - Mathematics for Computer Science (2 sections)

Spring 2005

Blackburn College, Carlinville, IL

Courses taught:

- CS212 - Paradigms (1 section)
- CS214 - Environments (1 section)
- CS440 - Theory of Computation (1 section)

Education

December 2004, Ph.D. in Computer Science

Georgia Institute of Technology, College of Computing, Atlanta, GA

Dissertation: Speeding Up the Convergence of Online Heuristic Search and Scaling Up Offline Heuristic Search

Advisor: Dr. Sven Koenig

Major: Intelligent Systems *Minor:* Cognitive Science

July 1997, M.S. in Computer Science

University of Iowa, Computer Science Department, Iowa City, IA

Thesis: Formal Description of and Experiments with Knuth-Bendix-Based Theorem Proving in OTTER

Advisor: Dr. Maria P. Bonacina

August 1994, M.S. in Computer Science

U.T.C., Department of Computer Engineering, Compiègne, France

Diploma: French D.E.A. or “Diplôme d’Etudes Approfondies” from the Université de Technologie de Compiègne (U.T.C.)

Thesis: Real-Time Monitoring of Dynamical Systems with Temporal Scenarios (in French)

Advisors: Dr. Dominique Fontaine and Dr. Claudette Sayettat

July 1993, B.S. in Computer Science

U.T.C., Department of Computer Engineering, Compiègne, France

Diploma: French “Diplôme d’Ingénieur” from the Université de Technologie de Compiègne (U.T.C.)

Major: Artificial Intelligence

Invited Publications

- D. Furcy and S. Koenig, *STRIPS*, Encyclopedia of Cognitive Science, London: Macmillan, 2002

Edited Proceedings

- D. Furcy, S. Koenig, W. Ruml, and R. Zhou (editors), *Proceedings of the AAI-08 Workshop on Search in Artificial Intelligence and Robotics*, WS-08-10, AAAI Press, 2008

Conference Reports

- R. Bunescu, V. Carvalho, J. Chomicki, V. Conitzer, M. Cox, V. Dignum, Z. Dodds, M. Dredze, D. Furcy, E. Gabrilovich, M. Göker, H. Guesgen, H. Hirsh, D. Jannach, U. Junker, W. Ketter, A. Kobsa, S. Koenig, T. Lau, L. Lewis, E. Matson, T. Metzler, R. Mihalcea, B. Mobasher, J. Pineau, P. Poupart, A. Raja, W. Ruml, N. Sadeh, G. Shani, D. Shapiro, S. Singh, M. Taylor, K. Wagstaff, T. Smith, W. Walsh, and R. Zhou, *AAAI 2008 Workshop Reports, Artificial Intelligence Magazine*, Vol. 30(1), p. 108-118, 2009

Peer-Reviewed Publications

- D. Furcy, S.M. Summers, and C. Wendlandt, *Self-assembly of and optimal encoding within thin rectangles at temperature-1 in 3D*, Theoretical Computer Science, Vol. ?(?), p. ?, Accepted for publication on Feb. 1, 2021
- D. Furcy, S.M. Summers and C. Wendlandt, *New Bounds on the Tile Complexity of Thin Rectangles at Temperature-1*, C. Thachuk and Y. Liu (Eds); DNA 25 (25th International Conference on DNA Computing and Molecular Programming), LNCS 11648, p. 100-119, DOI: 10.1007/978-3-030-26807-7, 2019

- D. Furcy and S.M. Summers, *Optimal Self-Assembly of Finite Shapes at Temperature 1 in 3D*, Algorithmica, Vol. 80(6), p. 1909-1963, 10.1007/s00453-016-0260-6, June 2018
- D. Furcy and S.M. Summers, *Scaled Pier Fractals Do Not Strictly Self-Assemble*, Natural Computing, Vol. 16(2), p. 317-338, DOI: 10.1007/s11047-015-9528-z, June 2017
- D. Furcy, S. Micka and S.M. Summers, *Optimal Program-Size Complexity for Self-Assembled Squares at Temperature 1 in 3D*, Algorithmica, Vol. 77(4), p. 1240-1282, DOI 10.1007/s00453-016-0147-6, April 2017
- D. Furcy and S.M. Summers, *Optimal Self-Assembly of Finite Shapes at Temperature 1 in 3D*, Z. Lu et al. (Eds.); COCOA 2015, LNCS 9486; DOI: 10.1007/978-3-319-26626-8_11, p. 138-151, 2015
- G. Thomas, M. Zahm and D. Furcy, *Using a Sentence Compression Framework for the Summarization of Email Threads in an Archive*, Accepted at CCSC-Rocky Mountain Conference, 2015
- D. Furcy, S. Micka and S.M. Summers, *Optimal Program-Size Complexity for Self-Assembly at Temperature 1 in 3D*, A. Phillips and P. Yin (Eds); DNA 21 (21st International Conference on DNA Computing and Molecular Programming), LNCS 9211, p. 71-86, 2015
- K. Barth, D. Furcy, S.M. Summers and P. Totzke, *Scaled tree fractals do not strictly self-assemble*, O.H. Ibarra et al. (Eds); UCNC 2014, LNCS 8553; DOI: 10.1007/978-3-319-08123-6_3, p. 27-39, 2014
- C. Jenkins, A. Voss, and D. Furcy, *An Effective Educational Module for Booth's Multiplication Algorithm*, Journal of Computing Sciences in Colleges, Vol. 27(4), p. 54-62, Apr. 2012
- D. Furcy and D. Penniston, *Congruences for l -Regular Partition Functions Modulo 3*, Ramanujan Journal, Vol. 27 (1), p. 101-108, Jan. 2012; DOI 10.1007/s11139-011-9312-3
- D. Furcy and G. Thomas, *Designing Effective Heterogeneous Teams for Multiagent Routing Domains*, International Conference on Intelligent Agent Technology (IAT), p. 341-348, 2011
- M. Corliss, D. Furcy, J. Davis, and L. Pietraszek, *Bantam Java Compiler Project: Experiences And Extensions*, Journal of Computing Sciences in Colleges, Vol. 25(6), p. 159-166, Apr. 2010
- D. Furcy, *JHAVEPOP: Visualizing Linked-list Operations In C++ And Java*, Journal of Computing Sciences in Colleges, Vol. 25(1), p. 32-41, Oct. 2009
- D. Furcy, T. Naps, and J. Wentworth, *Sorting Out Sorting - The Sequel*, Thirteenth Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE), p. 174-178, 2008
- M. McNally, T. Naps, D. Furcy, S. Grissom, and C. Trefftz, *Supporting The Rapid Development of Pedagogically Effective Algorithm Visualizations*, Journal of Computing Sciences in Colleges, Vol. 23(1), p. 80-90, Oct. 2007
- D. Furcy, A. Jungwirth, and T. Naps, *BlockTree - Pedagogical Information Visualization for Heuristic Search*, Twentieth International FLAIRS Conference, p. 303-308, 2007
- R.C. Holte, A. Felner, J. Newton, R. Meshulam, and D. Furcy, *Maximizing Over Multiple Pattern Databases Speeds Up Heuristic Search*, Artificial Intelligence Journal, Vol. 170(16-17), p. 1123-1136, 2006
- D. Furcy and S. Koenig, *Limited Discrepancy Beam Search*, Nineteenth International Joint Conference on Artificial Intelligence (IJCAI), p. 125-131, 2005
- D. Furcy and S. Koenig, *Scaling Up WA^* With Commitment And Diversity*, Nineteenth International Joint Conference on Artificial Intelligence (IJCAI), p. 1521-1522, 2005
- S. Koenig, M. Likhachev, Y. Liu, and D. Furcy, *Incremental Heuristic Search in AI*, Artificial Intelligence Magazine, Vol. 25(2), p. 99-112, Summer 2004
- S. Koenig, M. Likhachev, and D. Furcy, *Lifelong Planning A^** , Artificial Intelligence Journal, Vol. 155(1-2), p. 93-146, 2004
- A. Felner, R. Holte, R. Meshulam, J. Newton, and D. Furcy, *Multiple Pattern Databases*, Fourteenth International Conference on Automated Planning and Scheduling (ICAPS), p. 122-133, 2004
- Y. Liu, S. Koenig, and D. Furcy, *Speeding Up The Calculation of Heuristics for Heuristic Search-Based Planning*, Eighteenth National Conference on Artificial Intelligence (AAAI), p. 484-491, 2002

- S. Koenig, D. Furcy, and C. Bauer, *Heuristic Search-Based Replanning*, Sixth International Conference on Artificial Intelligence Planning and Scheduling (AIPS), p. 294-301, 2002
- D. Furcy and S. Koenig, *Combining Two Fast-Learning Real-Time Search Algorithms Yields Even Faster Learning*, Sixth European Conference on Planning (ECP), 2001
- D. Furcy and S. Koenig, *Speeding Up The Convergence of Real-Time Search*, Seventeenth National Conference on Artificial Intelligence (AAAI), p. 891-897, 2000

Grants

External Grants

- UW System Innovation Fund, Co-Principal-Investigator, with M. Eierman, J. Iversen, C. McDermott, and B. Rau, Increasing Graduates in Information Technology Fields
Award: \$56,000 FY 2018—FY 2019
- NSF IUSE Program, Co-Principal-Investigator, with Tom Naps (UWO), Collaborative Research: Assessment and Expanding the Impact of OpenDSA, an Open Source, Interactive eTextbook for Data Structures and Algorithms
Award #DUE-1431399, \$99,903 January 1, 2015—December 31, 2017
- NSF REU (Research Experiences for Undergraduates), Co-Principal-Investigator, with Tom Naps (UWO), Exploring Open Source Software: Development and Efficacy of Online Learning Environments in Computer Science, Award # CNS-0851569, \$261,167.00 July 1, 2009—June 30, 2012
- NSF, Co-Principal-Investigator, with Sven Koenig (University of Southern California), Wheeler Ruml (University of New Hampshire), and Rong Zhou (Palo Alto Research Center), A Symposium Series on Heuristic Search and Its Applications, Award # IIS-0831035, \$14,646.00 June 1, 2008—May 5, 2009
- NSF Stipend, Visualization of Pointer Operations in Linked Lists for Use in a Data Structures Course, \$2,000.00 2007—2008
- NSF Stipend, Algorithm Visualization of Operations on One-Dimensional Arrays in CS1, \$1,000.00 2006

UWO Grants

- UWO Faculty Development Board – Teaching Component, with Z. Benzaid and H. Moghadam (UWO Mathematics Department), 15% CAS for D. Furcy and \$400 auxiliary support 2008
- UWO Faculty Development Board – Undergraduate Student and Faculty Collaborative Research, \$3,000 2007
- UWO Faculty Development Board – Off-Campus Component, \$902.00 2007
- UWO Faculty Development Board – Small Grant Component, \$400.00 2006

Memberships and Service

Memberships

<i>Member</i> of the Association for the Advancement of Artificial Intelligence (A.A.A.I.)	1999—Present
<i>Member</i> of the Association for Computing Machinery (A.C.M.)	2004—Present
<i>Member</i> of the Special Interest Group on Computer Science Education (A.C.M./SIGCSE)	2004—Present
<i>Member</i> of the Special Interest Group on Artificial Intelligence (A.C.M./SIGART)	2004—Present

Service to the Artificial Intelligence and Computer Science Education Research Communities

<i>Program Committee Member</i> , Ninth Symposium on Educational Advances in Artificial Intelligence (EAAI-2019)	2019
<i>Program Committee Member</i> , Eighth Symposium on Educational Advances in Artificial Intelligence (EAAI-2018)	2018
<i>Program Committee Member</i> , Seventh Symposium on Educational Advances in Artificial Intelligence (EAAI-2017)	2017
<i>Program Committee Member</i> , Sixth Symposium on Educational Advances in Artificial Intelligence (EAAI-2016)	2016
<i>Scholarship Committee Member</i> , Grace Hopper Celebration (GHC) of Women In Computing Conference	2015
<i>Program Committee Member</i> , Fifth Annual Symposium on Combinatorial Search	2012
<i>Program Committee Member</i> , Twenty-Fourth International FLAIRS Conference (FLAIRS-11, Special Track on AI Education)	2011
<i>Program Committee Member</i> , Twenty-Third International FLAIRS Conference (FLAIRS-10, Special Track on AI Education)	2010
<i>Program Committee Member</i> , Third Annual Symposium on Combinatorial Search	2010
<i>Program Committee Member</i> , Twenty-First International Joint Conference on Artificial Intelligence (IJCAI-09)	2009
<i>Program Committee Member</i> , Twenty-Second International FLAIRS Conference (FLAIRS-09, Special Track on AI Education)	2009
<i>Co-Founder, Co-Organizer, and Co-Chair</i> , with S. Koenig, W. Ruml, and R. Zhou, First International Symposium on Search Techniques in Artificial Intelligence and Robotics	2008
<i>Program Committee Member</i> , Twenty-Third Conference on Artificial Intelligence (AAAI-08, Nectar Program)	2008
<i>Program Committee Member</i> , Twenty-First International FLAIRS Conference (FLAIRS-08, Special Track on AI Education)	2008
<i>Program Committee Member</i> , Twenty-Second Conference on Artificial Intelligence (AAAI-07)	2007
<i>Program Committee Member</i> , Workshop on Heuristic Search, co-located with AAAI-06	2006
<i>Program Committee Member</i> , Twenty-First Conference on Artificial Intelligence (AAAI-06)	2006

Reviewer for Textbook Publishers, Research Journals, Conferences, and Funding Agencies

<i>Conference Paper Reviewer</i> , CCSC-Central-Plains	2021
<i>Conference Paper Reviewer</i> , CCSC-Central-Plains	2020
<i>Conference Paper Reviewer</i> , CCSC-Central-Plains	2019
<i>Conference Paper Reviewer</i> , CCSC-Central-Plains	2018
<i>Conference Paper Reviewer</i> , CCSC-Mid-West	2018
<i>Conference Paper Reviewer</i> , CCSC-Central-Plains	2017
<i>Conference Paper Reviewer</i> , CCSC-North-East	2017
<i>Conference Paper Reviewer</i> , CCSC-Mid-West	2016
<i>Conference Paper Reviewer</i> , EAAI-16	2016
<i>Conference Paper Reviewer</i> , CCSC-North-East	2015
<i>Conference Paper Reviewer</i> , CCSC-Mid-West	2014
<i>Conference Paper Reviewer</i> , CCSC-Mid-West	2012
<i>Conference Paper Reviewer</i> , SoCS-12	2012
<i>Conference Paper Reviewer</i> , CCSC-MW-12	2012
<i>Panel Member and Reviewer</i> , NSF IIS Panel, Division of Information & Intelligent Systems	2010
<i>Conference Paper Reviewer</i> , FLAIRS-10/Special Track on AI Education	2010
<i>Journal Paper Reviewer</i> , Journal of Artificial Intelligence Tools	2010
<i>Conference Paper Reviewer</i> , SoCS-10	2010
<i>Conference Paper Reviewer</i> , FLAIRS-09/Special Track on AI Education	2009
<i>Conference Paper Reviewer</i> , IJCAI-09	2009
<i>Conference Paper Reviewer</i> , AAAI-08/Nectar Program	2008

<i>Journal Paper Reviewer</i> , Journal of AI Research	2008
<i>Conference Paper Reviewer</i> , IJCAI-07	2007
<i>Conference Paper Reviewer</i> , AAAI-07	2007
<i>Book chapter Reviewer</i> , McGraw-Hill	2007
<i>Conference Paper Reviewer</i> , AAAI-06	2006
<i>Conference Paper Reviewer</i> , Heuristic Search Workshop	2006
<i>Journal Paper Reviewer</i> , Artificial Intelligence Journal	2006
<i>Journal Paper Reviewer</i> , Journal of Artificial Intelligence Tools	2005

Service to the Department, College, Campus and Community

<i>Committee Member</i> , Ad Hoc Computer Science Student Grievance Committee	Spring 2021
<i>Committee Member</i> , Computer Science Scholarship Committee	2020—Present
<i>Committee Member</i> , Computer Science Curriculum Committee	2020—Present
<i>Committee Member</i> , Computer Science Web and Social Media Committee	2020—Present
<i>Reviewer</i> , 4Imprint Scholarship, UWO	January 2021
<i>Reviewer</i> , Dr. Ronald Akin Scholarship, UWO	November 2020
<i>Committee Member</i> , Improvement of Instruction Committee	2019—Present
<i>Committee Member</i> , Computer Science Assessment Committee	2019—2020
<i>Chairperson</i> , Search and Screen Committee for Computer Science ADA Position	2019—2020
<i>Committee Member</i> , Computer Science Promotion Committee	2016—Present
<i>Committee Member</i> , USP Council on Nature	2016—Present
<i>Reviewer</i> , Oshkosh Scholar	2008—Present
<i>Panel Member</i> , Student Faculty Collaborative Research Program, Faculty Development Board	2008—Present
<i>Committee Member</i> , Computer Science Faculty Hiring Committee	2005—Present
<i>Committee Member</i> , Computer Science Curriculum Committee	2018—2019
<i>Committee Member</i> , COLS Tenure and Renewal Committee	2017—2019
<i>Founder and Leader</i> , Junior Computer Science Club	2015—2019
<i>Research and Teaching Panelist</i> , Faculty Development Board	2014—2019
<i>Programming Activity Leader</i> , Mathematical Problem Solving Contest, UWO	April 23, 2019
<i>Host</i> , Job Shadow Career Pathway Days for OASD 8 th Graders, UWO	March 5 & 7, 2019
<i>Host</i> , Computer Science Open House, Academic Open House Week, UW Oshkosh	February 18, 2019
<i>Chair</i> , Computer Science Department	2015—2018
<i>Committee Member</i> , COLS Curriculum Committee	2014—2018
<i>Presenter</i> , "Programming in OpenSCAD for 3D Modeling and Printing", Computer Science Club, UWO	November 15, 2018
<i>Co-founder and co-host</i> , Tech Titans - App development summer academy for girls entering grades 6 through 10, UWO	July 31—August 2 2018
<i>Programming Activity Leader</i> , Mathematical Problem Solving Contest, UWO	April 24, 2018
<i>Host</i> , Job Shadow Career Pathway Days for OASD 8 th Graders, UWO	March 6, 2018
<i>Host</i> , Computer Science Open House, Academic Open House Week, UW Oshkosh	February 13, 2018
<i>CAPP Presenter</i> , Course Selection Night, Muskego High School, WI	January 24, 2018
<i>Reviewer</i> , 4imprint Information Technology Scholarship, UWO	December 2017
<i>Reviewer</i> , Dr. Ronald Akin Scholarship, UWO	December 2017
<i>Panelist</i> , Amplify CollaborateIT Conference, Collaboration Works - Education and Careers panel	November 14, 2017
<i>Guest Speaker on IT Education</i> , NEW IT Alliance Meeting	November 9, 2017
<i>Committee Member</i> , Faculty Hearings Sub-Committee, UWO	Spring 2017
<i>Programming Activity Leader</i> , Mathematical Problem Solving Contest, UWO	April 25, 2017

<i>Reviewer, Dr. Ronald Akin Scholarship, UWO</i>	March 2017
<i>Host, Career and Life Path Days for OASD 8th Graders, UWO</i>	March 21-22, 2017
<i>Organizer and Host, Hour-of-code sessions</i>	2014—2016
<i>Computer Science Faculty Liaison, CAPP</i>	2013—2016
<i>Presenter, Career Exploration Fair for OASD 8th Graders, Oshkosh West</i>	October 25, 2016
<i>Workshop Presenter, Wisconsin Science Festival, UWO</i>	October 22, 2016
<i>Exhibitor, Titan Preview Academic Fair, UWO</i>	July 11-12, 2016
<i>Host, Career and Life Path Days for OASD 8th Graders, UWO</i>	April 19-21, 2016
<i>Presenter, Career Exploration Fair for OASD 8th Graders, Oshkosh West</i>	March 10, 2016
<i>Volunteer, Science Safari</i>	November 2015
<i>Co-Chair, Computer Science Department</i>	2013—2015
<i>Committee Member, Academic Computing User Group (ACUG)</i>	2010—2015
<i>Library Liaison, Computer Science Liaison to the UWO Library Representative</i>	2006—2012
<i>Founder and Director, Computer Science Robotics Laboratory</i>	2009—2011
<i>Exhibitor and Robotics Movie Editor, Preview Day/Major Fest</i>	2010
<i>Committee Member, Faculty Senate Improvement of Instruction Committee</i>	2008—2010
<i>Working Group Member, Textbook Cost Working Group</i>	2007—2010
<i>Committee Member, Computer Science Assessment Committee</i>	2006—2010
<i>Panelist and Programming Activity Leader, Computer Science Open House</i>	2009
<i>Judge, Association for Computing Machinery, International Collegiate Programming Contest</i>	2008—2009
<i>Panelist, Computer Science Open House</i>	2008
<i>Council Member, Undergraduate Research Advisory Council</i>	2007—2008
<i>Computer Science Outreach Program Co-Organizer, with T. Naps, Visits to Fox Valley and Madison area high-schools</i>	2006—2008
<i>Activity Leader, UWO Science Outreach Summer Day Camp</i>	2007
<i>Workshop Leader, UWO Science Safari for Girls</i>	2007
<i>UWO Site Director and Coach, Association for Computing Machinery, International Collegiate Programming Contest</i>	2007
<i>Exhibitor and Robotics Movie Editor (Won Second Place Prize for Best Booth), Preview Day/Major Fest</i>	2007
<i>Webmaster and Committee Member, Computer Science Web Site Committee</i>	2005—2007
<i>Judge, Association for Computing Machinery, International Collegiate Programming Contest</i>	2006