

Curriculum Vitae: Scott M. Summers

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ACADEMIC POSITIONS	University of Wisconsin—Oshkosh Oshkosh, WI USA Computer Science Department ▷ Assistant professor of Computer Science	9/2013–present
	University of Wisconsin—Platteville Platteville, WI USA Department of Computer Science and Software Engineering ▷ Assistant professor of Computer Science	8/2010–7/2013
EDUCATION	Iowa State University Ames, IA USA Ph.D., Computer Science ▷ Dissertation title: <i>Universality in algorithmic self-assembly</i> ▷ Advisors: James I. Lathrop and Jack H. Lutz ▷ Area: algorithms, theoretical Computer Science	5/2007-5/2010
	Iowa State University Ames, IA USA M.S., Computer Science ▷ Thesis title: <i>Strict self-assembly of discrete Sierpinski triangles</i> ▷ Advisors: James I. Lathrop and Jack H. Lutz ▷ Area: algorithms, theoretical Computer Science	8/2004-5/2007
	University of Wisconsin—Green Bay Green Bay, WI USA B.S., Computer Science ▷ <i>Summa cum laude</i> ▷ Minor: Mathematics	9/2000-5/2004
GRANTS	<i>Non-cooperative self-assembling algorithms</i> , University of Wisconsin—Oshkosh faculty professional development summer research grant FDR881, 2015. <i>College of Engineering, Mathematics and Science Recruitment and Retention Center</i> , \$899,888, National Science Foundation (NSF) Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP) grant, 2012–2017 (PI: Christina J. Curras, co-PIs: William B. Hudson, Tammy J. Salmon-Stephens and Scott M. Summers), NSF award #DUE-1161180 ▷ I am neither currently funded by nor actively involved in this project.	

TEACHING University of Wisconsin—Oshkosh
EXPERIENCE Oshkosh, WI USA

Instructor:

- ▷ Math 212: Discrete Mathematics
- ▷ Comp Sci 212: Discrete Structures
- ▷ Comp Sci 221: Object-Oriented Design and Programming I
- ▷ Comp Sci 251: Computer Architecture and Assembly Language
- ▷ Comp Sci 262: Object-Oriented Design and Programming II
- ▷ Comp Sci 271: Data Structures
- ▷ Comp Sci 310: Computer Organization and Design
- ▷ Comp Sci 321: Algorithms
- ▷ Comp Sci 350: Ethical Issues in Computing
- ▷ Comp Sci 480: Special Topics in Computer Science: Algorithmic Self-Assembly

University of Wisconsin—Platteville
Platteville, WI USA

Instructor:

- ▷ CS 1010: Introduction to Computer Science
- ▷ CS 1430: Programming in C++
- ▷ CS 2430: Object-Oriented Programming and Data Structures I
- ▷ CS 3830: Data Communications and Computer Networks
- ▷ CS 3870: Web Protocols, Technologies and Applications
- ▷ CS 7220: Software Project II

Iowa State University
Ames, IA USA

Instructor:

- ▷ Com S 207: Introduction to Programming I
- ▷ Com S 331: Theory of Computation

Teaching assistant:

- ▷ Com S 227: Introduction to Object-Oriented Programming
- ▷ Com S 311: Design and Analysis of Algorithms
- ▷ Com S 330: Discrete Computational Structures
- ▷ Com S 331: Theory of Computation
- ▷ Com S 511: Design and Analysis of Algorithms

REFEREED **Following standard convention for publications in theoretical Computer Science,**
PUBLICATIONS **my co-authors and I are listed on all publications in alphabetical order, with**
no special positions for lead author, second author, etc.

2016 Matthew J. Patitz, Trent A. Rogers, Robert Schweller, Scott M. Summers and Andrew Winslow, *Resiliency to Multiple Nucleation in Temperature-1 Self-Assembly*, Proceedings of the Twenty second International Conference on DNA Computing and Molecular Programming (DNA22),

David Furcy, Samuel Micka and Scott M. Summers, *Optimal program-size complexity for self-assembled squares at temperature 1 in 3D*, *Algorithmica*, to appear.

2015 David Furcy, Samuel Micka and Scott M. Summers, *Optimal program-size complexity for self-assembled squares at temperature 1 in 3D*, *Algorithmica*, to appear.

David Furcy and Scott M. Summers, *Scaled pier fractals do not strictly self-assemble*, Natural Computing, to appear.

David Furcy and Scott M. Summers, *Optimal self-assembly of finite shapes at temperature 1 in 3D*, Proceedings of the Ninth Annual International Conference on Combinatorial Optimization and Applications (COCO A 15).

David Furcy, Samuel Micka and Scott M. Summers, *Optimal program-size complexity for self-assembly at temperature 1 in 3D*, Proceedings of the Twenty first International Conference on DNA Computing and Molecular Programming (DNA 21). Samuel Micka received **Best Student Paper** award for this paper.

Erik D. Demaine, Matthew J. Patitz, Trent A. Rogers, Robert T. Schweller, Scott M. Summers and Damien Woods, *The two-handed tile assembly model is not intrinsically universal*, Algorithmica, to appear.

Scott M. Summers, *Temperature programming in self-assembly*, Encyclopedia of Algorithms, to appear. Invited paper.

2014 Kimberly Barth, David Furcy, Scott M. Summers and Paul Totzke, *Scaled tree fractals do not strictly self-assemble*, Proceedings of the Thirteenth International Conference on Unconventional Computation and Natural Computation (UCNC 2014).

Jacob Hendricks, Matthew J. Patitz, Trent A. Rogers and Scott M. Summers, *The Power of Duples (in Self-Assembly): It's Not So Hip To Be Square*, Proceedings of the Twentieth annual International Computing and Combinatorics Conference (COCOON 2014).

Jennifer E. Padilla, Matthew J. Patitz, Raul Pena, Robert T. Schweller, Nadrian C. Seeman, Robert Sheline, Scott M. Summers and Xingsi Zhong, *Asynchronous Signal Passing for Tile Self-Assembly: Fuel Efficient Computation and Efficient Assembly of Shapes*, International Journal of Foundations of Computer Science, 25(4):459–488, 2014. Special issue of invited papers from the 2013 International Conference on Unconventional Computation and Natural Computation (UCNC 2013).

Pierre-Étienne Meunier, Matthew J. Patitz, Scott M. Summers, Guillaume Theyssier, Andrew Winslow, Damien Woods, *Intrinsic universality in self-assembly requires cooperation*, Proceedings of the Twenty fifth annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2014).

2013 Erik D. Demaine, Matthew J. Patitz, Trent A. Rogers, Robert T. Schweller, Scott M. Summers and Damien Woods, *The two-handed tile assembly model is not intrinsically universal*, Proceedings of the Fortieth International Colloquium on Automata, Languages and Programming (ICALP 2013).

Jennifer E. Padilla, Matthew J. Patitz, Raul Pena, Robert T. Schweller, Nadrian C. Seeman, Robert Sheline, Scott M. Summers and Xingsi Zhong, *Asynchronous Signal Passing for Tile Self-Assembly: Fuel Efficient Computation and Efficient Assembly of Shapes*, Proceedings of the 2013 International Conference on Unconventional Computation and Natural Computation (UCNC 2013).

Sarah Cannon, Erik D. Demaine, Martin L. Demaine, Sarah Eisenstat, Matthew J. Patitz, Robert T. Schweller, Scott M. Summers and Andrew Winslow, *Two Hands Are Better Than One (up to constant factors): Self-Assembly In The 2HAM vs. aTAM*, Proceedings of the Thirtieth International Symposium on Theoretical Aspects of Computer Science (STACS 2013).

- 2012** Matthew J. Patitz and Scott M. Summers, *Identifying shapes using self-assembly*, Algorithmica 64(3):481–510, 2012. Special issue of invited papers from the Twenty First International Symposium on Algorithms and Computation (ISAAC 2010).
- David Doty, Jack H. Lutz, Matthew J. Patitz, Robert T. Schweller, Scott M. Summers and Damien Woods, *The tile assembly model is intrinsically universal*, Proceedings of the Fifty Third Annual IEEE Symposium on Foundations of Computer Science (FOCS 2012).
- Scott M. Summers, *Reducing tile complexity for the self-assembly of scaled shapes through temperature programming*, Algorithmica 63(1):117–136, 2012.
- Matthew J. Patitz, Robert T. Schweller and Scott M. Summers, *Exact shapes and Turing universality at temperature 1 with a single negative glue*, Proceedings of the Seventeenth International Conference on DNA Computing and Molecular Programming (DNA 17).
- 2011** David Doty and Matthew J. Patitz and Scott M. Summers, *Limitations of self-assembly at temperature 1*, Theoretical Computer Science 412(1-2):145–158, 2011. Special issue of invited papers from Complexity of Simple Programs workshop (CSP 2008).
- Erik D. Demaine, Matthew J. Patitz, Robert T. Schweller and Scott M. Summers, *Self-assembly of arbitrary shapes using RNase enzymes: meeting the Kolmogorov bound with small scale factor*, Proceedings of the Twenty Eighth International Symposium on Theoretical Aspects of Computer Science (STACS 2011).
- Matthew J. Patitz and Scott M. Summers, *Self-assembly of decidable sets*, Natural Computing, 10(2):853–877, 2011. Special issue of invited papers from the Seventh International Conference on Unconventional Computation (UC 2008).
- James I. Lathrop, Jack H. Lutz, Matthew J. Patitz and Scott M. Summers, *Computability and complexity in self-assembly*, Theory of Computing Systems, 48:617–647, 2011. Special issue of invited papers from the Fourth Conference on Computability in Europe (CiE 2008).
- 2010** Matthew J. Patitz and Scott M. Summers, *Identifying shapes using self-assembly*, Proceedings of the Twenty First International Symposium on Algorithms and Computation (ISAAC 2010).
- David Doty, Matthew J. Patitz, Dustin Reishus, Robert T. Schweller and Scott M. Summers, *Strong fault-tolerance for self-assembly with fuzzy temperature*, Proceedings of the Fifty First Annual IEEE Symposium on Foundations of Computer Science (FOCS 2010).
- David Doty, Jack H. Lutz, Matthew J. Patitz, Scott M. Summers and Damien Woods, *Intrinsic universality in self-assembly*, Proceedings of the Twenty Seventh International Symposium on Theoretical Aspects of Computer Science (STACS 2010).
- Matthew J. Patitz and Scott M. Summers, *Self-assembly of discrete self-similar fractals*, Natural Computing, 9(1):135–172, 2010. Special issue of invited papers from The Fourteenth International Meeting on DNA Computing (DNA 14).
- 2009** David Doty, Jack H. Lutz, Matthew J. Patitz, Scott M. Summers and Damien Woods, *Random number selection in self-assembly*, Proceedings of the Eighth International Conference on Unconventional Computation (UC 2009).

David Doty, Matthew J. Patitz and Scott M. Summers, *Limitations of self-assembly at temperature 1*, Proceedings of The Fifteenth International Meeting on DNA Computing and Molecular Programming (DNA 15).

James I. Lathrop, Jack H. Lutz and Scott M. Summers, *Strict self-assembly of discrete Sierpinski triangles*, Theoretical Computer Science, 410:384–405, 2009. Special issue of invited papers from the Third Conference of Computability in Europe (CiE 2007).

2008 Matthew J. Patitz and Scott M. Summers, *Self-assembly of decidable sets*, Proceedings of the Seventh International Conference on Unconventional Computation (UC 2008).

Matthew J. Patitz and Scott M. Summers, *Self-assembly of discrete self-similar fractals*, Proceedings of The Fourteenth International Meeting on DNA Computing (DNA 14).

James I. Lathrop, Jack H. Lutz, Matthew J. Patitz and Scott M. Summers, *Computability and complexity in self-assembly*, Proceedings of the Fourth Conference on Computability in Europe (CiE 2008).

2007 James I. Lathrop, Jack H. Lutz and Scott M. Summers, *Strict self-assembly of discrete Sierpinski triangles*, Proceedings of the Third Conference of Computability in Europe (CiE 2007).

INVITED TALKS

The theory of tile self-assembly with multiple temperatures, Computer Science and Computer Engineering department research colloquium, University of Arkansas (2014).

Two Hands are Better Than One, Invited workshop speaker at the Thirteenth International Conference on Unconventional Computation and Natural Computation (UCNC 2014).

Limitations of self-assembly at temperature 1, International Workshop on The Complexity of Simple Programs (CSP 2008), University College Cork, Ireland December 6–7, 2008.

Strict self-assembly of discrete Sierpinski triangles, University of Wisconsin–Green Bay Department of Computer Science Colloquium, Green Bay, WI May 9, 2008.

SERVICE

Program committee:

- ▷ Fifteenth International Conference on Unconventional Computation and Natural Computation (UCNC 2016)

Journal referee:

- ▷ Algorithmica
- ▷ Fundamenta Informaticae
- ▷ SIAM Journal on Computing
- ▷ Theoretical Computer Science

Conference referee:

- ▷ ACM-SIAM Symposium on Discrete Algorithms (SODA 2013)
- ▷ Innovations in Theoretical Computer Science (ITCS 2013)
- ▷ International Conference on DNA Computing and Molecular Programming (DNA 19)
- ▷ International Conference on Unconventional Computation and Natural Computing (UCNC 2014)
- ▷ Symposium on the Theoretical Aspects of Computer Science (STACS 2015)
- ▷ Symposium on the Theory of Computation (STOC 2015)
- ▷ International Conference on DNA Computing and Molecular Programming (DNA 21)