

Curtis Madsen

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Education

Ph.D. Computer Science, University of Utah, GPA: 4.0 (August 2013).

Dissertation Title: Stochastic Analysis of Synthetic Genetic Circuits

Thesis Advisor: Professor Chris J. Myers

B.S. Computer Science, University of Utah, *Magna Cum Laude*, GPA: 3.992 (December 2009).

Thesis Title: Representing Genetic Networks as Labeled Hybrid Petri Nets for State Space Exploration and Markov Chain Analysis

Thesis Advisor: Professor Chris J. Myers

Research Experience

Postdoctoral Researcher, Professor Douglas Densmore and Professor Calin Belta, Cross-disciplinary Integration of Design Automation Research (CIDAR) and Hybrid and Networked Systems (HyNeSs) Research Groups, Boston University (November 2015-Present)

Contributed to the development of *Phoenix*, a tool that assists users in an iterative, hierarchical design-build-test cycle for constructing genetic circuits.

Formulated several metrics for computing the distance between two STL formulae.

Developed *STL#*, an extension to signal temporal logic (STL) that includes syntax and semantics for composition of formulae.

Research Associate, Professor Anil Wipat and Dr. Paolo Zuliani, Interdisciplinary Computing and Complex BioSystems (ICOS) Research Group, Newcastle University (December 2013-October 2015)

Developed the SBOL Stack, a Sesame RDF repository for storing and publishing synthetic biology designs.

Developed *BioPSy*, a tool for performing parameter synthesis on systems and synthetic biology models.

Implemented a robustness checker that utilizes statistical model checking approaches to determine the robustness of a system given a temporal logic property.

Designed an architecture for bringing together modules for multi-scale models in the Newcastle University Frontiers in Engineering Biology (NUFEB) project.

Research Assistant, Professor Chris J. Myers, University of Utah (January 2006-August 2013)

Designed and contributed to the development of *iBioSim*, a tool for biochemical reaction network model analysis.

Designed the incremental stochastic simulation algorithm (*iSSA*).

Developed a methodology for abstracting a genetic circuit into a logical model.

Applied stochastic model checking techniques to these logical models.

Teaching Experience

Guest Lecturer, Professor Douglas Densmore and Professor Calin Belta, Cross-disciplinary Integration of Design Automation Research (CIDAR) and Hybrid and Networked Systems (HyNeSs) Research Groups, Boston University (November 2015-Present)

Lectured on topics including stochastic and statistical model checking, modeling, and simulation in classes of about 20 students.

Guest Lecturer and Teaching Assistant, Professor Anil Wipat and Dr. Paolo Zuliani, Interdisciplinary Computing and Complex BioSystems (ICOS) Research Group, Newcastle University (December 2013-October 2015)

Lectured on topics including bio-inspired computing and stochastic methods in classes of about 20 students. Provided one-on-one assistance to master's students with questions on Python.

Teaching Assistant, Professor Joseph L. Zachary, University of Utah, (August 2011-December 2011)

Led labs of 10-30 students on software engineering topics.
Provided one-on-one assistance to students with questions.
Graded exams and homework assignments.

Professional Experience

Intern, Jasmin Fisher, Microsoft Research Cambridge, (September 2012-December 2012)

Developed probabilistic qualitative networks (PQNs), an extension to both probabilistic boolean networks (PBNs) and qualitative networks (QNs).

Intern, Onyx Graphics, (June 2003-August 2003)

Assisted the engineering division in editing software for translation into other languages.

Professional Activities

Editor, *Synthetic Biology Open Language (SBOL)*, August 2017-Present

Organizer, *Computational Modeling in Biology Network (COMBINE) Forum*, October 8-12, 2018

Program Committee Member, *International Workshop on Bio-Design Automation (IWBDA)*, July 31-August 3, 2018

Chair, Session on Machine-Learning, *International Workshop on Bio-Design Automation (IWBDA)*, August 2, 2018

Program Committee Member, *International Workshop on Bio-Design Automation (IWBDA)*, August 8-10, 2017

Chair, Session on Modeling, *International Workshop on Bio-Design Automation (IWBDA)*, August 10, 2017

Reviewer, *IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)* 2017

Reviewer, *IET Systems Biology* 2017

Chair, Session on Synthetic Biology, *Computational Modeling in Biology Network (COMBINE) Forum*, September 20, 2016

Guest Editor, *Programmable Biology Special Issue*, ACS Synthetic Biology, Volume 5, Issue 8, August 19, 2016

Reviewer, *14th International Conference on Computational Methods in Systems Biology (CMSB)* 2016

Organizer, *Towards Programmable Biology (ToProB)*, Satellite Workshop at ECAL 2015

Reviewer, *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)* 2015

Reviewer, *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)* 2014

Awards

- 3rd Annual Allan Kuchinsky Scholarship, *International Workshop on Bio-Design Automation (IWBD)* (2017)
- Best Student Paper, *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)* (2012)
- Gerald Gagner Scholarship, *University of Utah* (2008-2009)
- Arel Berrier Scholarship, *University of Utah* (2007-2008)
- University of Utah President's Scholarship, *University of Utah* (2005-2009)
- Engineering Scholars Program, *University of Utah* (2005-2006)

Skills

Knowledge of algorithms, compilers, computer-aided design, cyber-physical systems, computational biology, formal verification, and synthetic biology.

Proficient in Java, C, C++, C#, Python, F#, and Javascript.

Publications

Journal Articles

1. Leandro Watanabe, Tramy Nguyen, Michael Zhang, Zach Zundel, Zhen Zhang, **Curtis Madsen**, Nicholas Roehner, and Chris J. Myers, "iBioSim 3: A Tool for Model-Based Genetic Circuit Design," *ACS Synthetic Biology*, 2018.
2. Robert Sidney Cox III, **Curtis Madsen**, James Alastair McLaughlin, Tramy Nguyen, Nicholas Roehner, Bryan Bartley, Swapnil Bhatia, Michael Bissell, Kevin Clancy, Thomas Gorochoowski, Raik Grünberg, Augustin Luna, Nicolas Le Novère, Matthew R. Pocock, Herbert M. Sauro, John T. Sexton, Guy-Bart Stan, Jeffery J. Tabor, Chris Voigt, Zach Zundel, Chris J. Myers, Jacob Beal, and Anil Wipat, "Synthetic Biology Open Language Visual (SBOL Visual) Version 2.0," *Journal of Integrative Bioinformatics*, 2018.
3. Robert Sidney Cox III, **Curtis Madsen**, James Alastair McLaughlin, Tramy Nguyen, Nicholas Roehner, Bryan Bartley, Jacob Beal, Michael Bissell, Kiri Choi, Kevin Clancy, Raik Grünberg, Chris Macklin, Goksel Misirli, Ernst Oberortner, Matthew R. Pocock, Meher Samineni, Michael Zhang, Zhen Zhang, Zach Zundel, John H. Gennari, Chris J. Myers, Herbert M. Sauro, and Anil Wipat, "Synthetic Biology Open Language (SBOL) Version 2.2.0," *Journal of Integrative Bioinformatics*, 2018.
4. Evan Appleton, Douglas Densmore, **Curtis Madsen**, and Nicholas Roehner, "Needs and Opportunities in Bio-Design Automation: Four Areas for Focus," *Current Opinion in Chemical Biology*, 2017.
5. Pahala Gedara Jayathilake, Prashant Gupta, Bowen Li, **Curtis Madsen**, Oluwole Oyebamiji, Rebeca González-Cabaleiro, Steve Rushton, Ben Bridgens, David Swailes, Ben Allen, A. Stephen McGough, Paolo Zuliani, Irina Dana Ofiteru, Darren Wilkinson, Jinju Chen, and Tom Curtis, "A Mechanistic Individual-Based Model of Microbial Communities," *PLOS One*, 2017.
6. Chris Myers, Jacob Beal, Thomas Gorochoowski, Hiroyuki Kuwahara, **Curtis Madsen**, James Alastair McLaughlin, Goksel Misirli, Tramy Nguyen, Ernst Oberortner, Meher Samineni, Anil Wipat, Michael Zhang, and Zach Zundel, "A Standard-Enabled Workflow for Synthetic Biology," *Biochemical Society Transactions*, 2017.
7. Goksel Misirli, **Curtis Madsen**, Iñaki Sainz de Murieta, Matthieu Bultelle, Keith Flanagan, Matthew Pocock, Jennifer Hallinan, James Alastair McLaughlin, Justin Clark-Casey, Mike Lyne, Gos Micklem, Guy-Bart Stan, Richard Kitney, and Anil Wipat, "Constructing Synthetic Biology Workflows in the Cloud," *IET Engineering Biology*, 2017.

8. Evan Appleton, **Curtis Madsen**, Nicholas Roehner, and Douglas Densmore, "Design Automation in Synthetic Biology," Cold Spring Harbor Perspectives in Biology, 2017.
9. Jacob Beal, Robert Sidney Cox III, Raik Grünberg, James McLaughlin, Tramy Nguyen, Bryan Bartley, Michael Bissell, Kiri Choi, Kevin Clancy, Chris Macklin, **Curtis Madsen**, Goksel Misirli, Ernst Oberortner, Matthew R. Pocock, Nicholas Roehner, Meher Samineni, Michael Zhang, Zhen Zhang, Zach Zundel, John H. Gennari, Chris J. Myers, Herbert M. Sauro, and Anil Wipat, "Synthetic Biology Open Language (SBOL) Version 2.1.0," Journal of Integrative Bioinformatics, 2016.
10. **Curtis Madsen**, James Alastair McLaughlin, Goksel Misirli, Matthew Pocock, Keith Flanagan, Jennifer Hallinan, and Anil Wipat, "The SBOL Stack: A Platform for Storing, Publishing, and Sharing Synthetic Biology Designs," ACS Synthetic Biology, 2016.
11. Nicholas Roehner, Jacob Beal, Kevin Clancy, Bryan Bartley, Goksel Misirli, Raik Grunberg, Ernst Oberortner, Matthew Pocock, Michael Bissell, **Curtis Madsen**, Tramy Nguyen, Zhen Zhang, Zach Zundel, John H. Gennari, Anil Wipat, Herbert M. Sauro, and Chris J. Myers, "Sharing Structure and Function in Biological Design with SBOL 2.0," ACS Synthetic Biology, 2016.
12. James Alastair McLaughlin, Matthew Pocock, Goksel Misirli, **Curtis Madsen**, and Anil Wipat, "VisBOL: Web-Based Tools for Synthetic Biology Design Visualization," ACS Synthetic Biology, 2016.
13. Goksel Misirli, Matteo Cavaliere, William Waites, Matthew Pocock, **Curtis Madsen**, Owen Gilfellon, Ricardo Honorato-Zimmer, Paolo Zuliani, Vincent Danos, and Anil Wipat, "Annotation of rule-based models with formal semantics to enable creation, analysis, reuse and visualisation," Bioinformatics, 2016.
14. Bryan Bartley, Jacob Beal, Kevin Clancy, Goksel Misirli, Nicholas Roehner, Ernst Oberortner, Matthew R. Pocock, Michael Bissell, **Curtis Madsen**, Tramy Nguyen, Zhen Zhang, John H. Gennari, Chris J. Myers, Anil Wipat, and Herbert M. Sauro, "Synthetic Biology Open Language (SBOL) Version 2.0.0," Journal of Integrative Bioinformatics, 2015.
15. **Curtis Madsen**, Zhen Zhang, Nicholas Roehner, Chris Winstead, and Chris J. Myers, "Stochastic Model Checking of Genetic Circuits," Journal on Emerging Technologies in Computing Systems, 2014.
16. Nicholas Roehner, Ernst Oberortner, Matthew Pocock, Jacob Beal, Kevin Clancy, **Curtis Madsen**, Goksel Misirli, Anil Wipat, Herbert Sauro, and Chris J. Myers, "Proposed Data Model for the Next Version of the Synthetic Biology Open Language," ACS Synthetic Biology, 2014.
17. **Curtis Madsen**, Chris J. Myers, Tyler Patterson, Nicholas Roehner, Jason Stevens, and Chris Winstead, "Design and Test of Genetic Circuits using iBioSim," Design & Test of Computers, 2012.
18. Chris J. Myers, Nathan Barker, Kevin Jones, Hiroyuki Kuwahara, **Curtis Madsen**, and Nam-Phuong Nguyen, "iBioSim: A Tool for the Analysis and Design of Genetic Circuits," Bioinformatics, 2009.

Conference Papers

1. **Curtis Madsen**, Prashant Vaidyanathan, Sadra Sadraddini, Cristian-Ioan Vasile, Nicholas A. DeLateur, Ron Weiss, Douglas Densmore, and Calin Belta, "Metrics for Signal Temporal Logic Formulae," IEEE Conference on Decision and Control (CDC), 2018.
2. **Curtis Madsen**, Fedor Shmarov, and Paolo Zuliani, "BioPSy: An SMT-based Tool for Guaranteed Parameter Set Synthesis of Biological Models," Computational Methods for Systems Biology (CMSB), 2015.
3. **Curtis Madsen**, Chris J. Myers, Nicholas Roehner, Chris Winstead, and Zhen Zhang, "Utilizing Stochastic Model Checking to Analyze Genetic Circuits," IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB), San Diego, California, May 2012 (**Best Student Paper**).
4. Chris Winstead, Chris J. Myers, **Curtis Madsen**, "iSSA: An Incremental Stochastic Simulation Algorithm for Genetic Circuits," International Symposium on Circuits and Systems (ISCAS), Paris, France, May 2010.

5. Chris J. Myers, Nathan Barker, Hiroyuki Kuwahara, Kevin Jones, **Curtis Madsen**, and Nam-Phuong Nguyen, "Genetic Design Automation," International Conference on Computer-Aided Design (ICCAD), San Jose, California, November 2009.

Book Chapters

1. Thakur Neupane, Zhen Zhang, **Curtis Madsen**, Hao Zheng, and Chris J. Myers, "Approximation Techniques for Stochastic Analysis of Biological Systems," in Automated Reasoning for Systems Biology and Medicine, Pietro Liò and Paolo Zuliani, Ed., Springer, 2018 (submitted).
2. **Curtis Madsen**, Chris J. Myers, Nicholas Roehner, Chris Winstead, and Zhen Zhang, "Efficient Analysis Methods in Synthetic Biology," in Computational Methods in Synthetic Biology, Mario A. Marchisio, Ed., Springer New York, 2015.
3. Hiroyuki Kuwahara, **Curtis Madsen**, Ivan Mura, Chris J. Myers, Abiezer Tejada and Chris Winstead, "Efficient Stochastic Simulation to Analyze Targeted Properties of Biological Systems," in Stochastic Control, Chris J. Myers, Ed., SciYo, 2010.

Editorials

1. Harold Fellermann, Omer Markovitch, Owen Gilfellon, **Curtis Madsen**, and Andrew Phillips, "Toward Programmable Biology," ACS Synthetic Biology, 2016.

Technical Reports

1. Robert Sidney Cox III, **Curtis Madsen**, James Alastair McLaughlin, Tramy Nguyen, Nicholas Roehner, Anil Wipat, Bryan Bartley, Jacob Beal, Swapnil Bhatia, Mike Bissell, Kevin Clancy, Thomas Goroehowski, Raik Grünberg, Augustin Luna, Chris J. Myers, Nicolas Le Novère, Matthew R. Pocock, Herbert M. Sauro, John T. Sexton, Guy-Bart Stan, Jeffrey J. Tabor, Chris Voigt, and Zach Zundel, "Synthetic Biology Open Language Visual (SBOL Visual) Version 2.0," BBF RFC #115, 2017.
2. Robert Sidney Cox III, **Curtis Madsen**, James Alastair McLaughlin, Tramy Nguyen, Nicholas Roehner, Anil Wipat, Jacob Beal, Kevin Clancy, Raik Grünberg, Chris Macklin, Michael Bissell, Goksel Misirli, Ernst Oberortner, Matthew R. Pocock, Zhen Zhang, Chris Myers, Michael Zhang, Meher Samineni, Zach Zundel, Bryan Bartley, Kiri Choi, John H. Gennari, and Herbert M. Sauro, "Synthetic Biology Open Language (SBOL) Version 2.2.0," BBF RFC #114, 2017.
3. Jacob Beal, Robert Sidney Cox III, Raik Grünberg, James Alastair McLaughlin, Tramy Nguyen, Chris Macklin, Michael Bissell, **Curtis Madsen**, Nicholas Roehner, Ernst Oberortner, Goksel Misirli, Kevin Clancy, Matthew R. Pocock, Zhen Zhang, Chris J. Myers, Michael Zhang, Meher Samineni, Zach Zundel, Bryan Bartley, Kiri Choi, John H. Gennari, and Herbert M. Sauro, "Synthetic Biology Open Language (SBOL) Version 2.1.0," BBF RFC #112, 2016.
4. Bryan Bartley, Jacob Beal, Kevin Clancy, Goksel Misirli, Nicholas Roehner, Herbert M. Sauro, Ernst Oberortner, **Curtis Madsen**, Matthew R. Pocock, Anil Wipat, Tramy Nguyen, Zhen Zhang, Chris J. Myers, John H. Gennari, and Michael Bissell, "Synthetic Biology Open Language (SBOL) Version 2.0.0," BBF RFC #108, 2015.
5. Michal Galdzicki, Mandy L. Wilson, Cesar A. Rodriguez, Matthew R. Pocock, Ernst Oberortner, Laura Adam, Aaron Adler, Christopher J. Anderson, Jacob Beal, Yizhi Cai, Deepak Chandran, Douglas Densmore, Omri A. Drory, Drew Endy, John H. Gennari, Raik Grünberg, Timothy S. Ham, Nathan J. Hillson, Jeffrey D. Johnson, Allan Kuchinsky, Matthew W. Lux, **Curtis Madsen**, Goksel Misirli, Chris J. Myers, Carlos Olguin, Jean Peccoud, Hector Plahar, Darren Platt, Nicholas Roehner, Evren Sirin, Trevor F. Smith, Guy-Bart Stan, Alan Villalobos, Anil Wipat, and Herbert M. Sauro, "Synthetic Biology Open Language (SBOL) Version 1.1.0," BBF RFC #87, 2012.

6. Michal Galdzicki, Mandy L. Wilson, Cesar A. Rodriguez, Laura Adam, Aaron Adler, Christopher J. Anderson, Jacob Beal, Deepak Chandran, Douglas Densmore, Omri A. Drory, Drew Endy, John H. Gennari, Raik Grünberg, Timothy S. Ham, Allan Kuchinsky, Matthew W. Lux, **Curtis Madsen**, Goksel Misirli, Chris J. Myers, Jean Peccoud, Hector Plahar, Matthew R. Pocock, Nicholas Roehner, Trevor F. Smith, Guy-Bart Stan, Alan Villalobos, Anil Wipat, and Herbert M. Sauro, "Synthetic Biology Open Language (SBOL) Version 1.0.0," BBF RFC #84, 2011.

Workshops

1. **Curtis Madsen**, Prashant Vaidyanathan, Nicholas A. DeLateur, Evan Appleton, Greg Frasco, Calin Belta, Ron Weiss and Douglas Densmore, "Temporal Verification of Genetic Circuits," International Workshop on Biological Design Automation (IWBD A), Berkeley, California, August 2018.
2. Bryan Bartley, Christian Atallah, Alasdair Humphries, Vishwesh Kulkarni, **Curtis Madsen**, Goksel Misirli, Angel Goni-Moreno, Tramy Nguyen, Ernst Oberortner, Nicholas Roehner, Meher Samineni, Zach Zundel, Jacob Beal, Chris J. Myers, Herbert Sauro, Anil Wipat, "The Synthetic Biology Open Language Supports Integration of the Engineering Life-Cycle for Synthetic Biologists," International Workshop on Biological Design Automation (IWBD A), Berkeley, California, August 2018.
3. **Curtis Madsen**, Evan Appleton, Prashant Vaidyanathan, Rizki Mardian, Cristian-Ioan Vasile, Katherine Elkind, Alexander Bennett, Fan Cao, Masakazu Nagata, Calin Belta, and Douglas Densmore, "Phoenix: A Systems Engineering Approach to Genetic Circuit Synthesis," International Workshop on Biological Design Automation (IWBD A), Pittsburgh, Pennsylvania, August 2017.
4. Andrea Desrosiers, **Curtis Madsen**, Nicholas Roehner, and Douglas Densmore, "Nona Research Foundation - Creating a SynBio Software Commons," Computational Modeling in Biology Network (COMBINE) Forum, Newcastle upon Tyne, UK, September 2016.
5. **Curtis Madsen**, Prashant Vaidyanathan, Cristian-Ioan Vasile, Rachael Ivison, Junmin Wang, Calin Belta, and Douglas Densmore, "Utilizing Signal Temporal Logic to Characterize and Compose Modules in Synthetic Biology," International Workshop on Biological Design Automation (IWBD A), Newcastle upon Tyne, UK, August 2016.
6. Prashant Vaidyanathan, Evan Appleton, **Curtis Madsen**, Cristian-Ioan Vasile, Alan Pacheco, Iman Haghghi, Nicholas Roehner, Rachael Ivison, Junmin Wang, Yash Agarwal, Zachary Chapasko, Calin Belta, and Douglas Densmore, "Genetic Systems Engineering," International Workshop on Biological Design Automation (IWBD A), Newcastle upon Tyne, UK, August 2016.
7. **Curtis Madsen**, Goksel Misirli, Matthew Pocock, Jennifer Hallinan, and Anil Wipat, "SBOL Stack: The One-stop-shop for Storing and Publishing Synthetic Biology Designs," International Workshop on Biological Design Automation (IWBD A), Seattle, Washington, August 2015.
8. Owen Gilfellow, **Curtis Madsen**, Goksel Misirli, Paolo Zuliani, Jennifer Hallinan, and Anil Wipat, "SynBad: A Synthetic Biology Design Framework," International Workshop on Biological Design Automation (IWBD A), Seattle, Washington, August 2015.
9. **Curtis Madsen**, Goksel Misirli, Matthew Pocock, Jennifer Hallinan, and Anil Wipat, "SBOL Stack: The One-stop-shop to Storing and Publishing SBOL Data," Computational Modeling in Biology Network (COMBINE) Forum, Los Angeles, California, August 2014.
10. Tyler Patterson, Nicholas Roehner, **Curtis Madsen**, and Chris J. Myers, "Modeling and Visualization of Genetic Circuits," International Workshop on Biological Design Automation (IWBD A), San Diego, California, June 2011.
11. Abiezer Tejeda, Eduardo Monzon, **Curtis Madsen**, Chris Winstead, and Chris J. Myers, "Resolving variable dependencies in the MPDE-iSSA algorithm," International Workshop on Biological Design Automation (IWBD A), Anaheim, California, June 2010.

12. **Curtis Madsen**, Chris J. Myers, and Chris Winstead, "Markov Chain Analysis of Genetic Circuits," International Workshop on Biological Design Automation (IWBD A), Anaheim, California, June 2010.
13. Chris J. Myers, Nathan Barker, Kevin Jones, Hiroyuki Kuwahara, **Curtis Madsen**, Nam-Phuong Nguyen, and Chris Winstead, "Synthetic Biology: A New Application Area for Design Automation Research," International Workshop on Biological Design Automation (IWBD A), San Francisco, California, July 2009.
14. Nam-Phuong Nguyen, Nathan Barker, Hiroyuki Kuwahara, **Curtis Madsen**, and Chris J. Myers, "Synthesis of genetic circuits from graphical specifications," International Workshop on Logic Synthesis (IWLS), Lake Tahoe, California, June 2008.

Poster Presentations

1. Calin Belta, Doug Densmore, Vijay Kumar, Ron Weiss, Demarcus Briers, Sambaeta Das, Nicholas DeLateur, Elizabeth Hunter, Rachael Ivison, **Curtis Madsen**, Noushin Mehdipour, Edward Steager, Brian Teague, Prashant Vaidyanathan, and Junmin Wang, "CPS: Frontier: Collaborative Research: bioCPS for Engineering Living Cells," Eighth Annual Cyber-Physical Systems (CPS) Principal Investigators' (PI) Meeting, Alexandria, Virginia, November 2017.
2. **Curtis Madsen**, Evan Appleton, Prashant Vaidyanathan, Katherine Elkind, Rizki Mardian, Nicholas Roehner, Alan Pacheco, Calin Belta, and Douglas Densmore, "Phoenix: A Systems Engineering Approach to Genetic Circuit Synthesis," Synthetic Biology: Engineering, Evolution & Design (SEED), Vancouver, British Columbia, Canada, June 2017.
3. Calin Belta, Doug Densmore, Vijay Kumar, Ron Weiss, Demarcus Briers, Sambaeta Das, Nicholas DeLateur, Elizabeth Hunter, Rachael Ivison, **Curtis Madsen**, Edward Steager, Brian Teague, Prashant Vaidyanathan, Cristian-Ioan Vasile, and Junmin Wang, "CPS: Frontier: Collaborative Research: bioCPS for Engineering Living Cells," Seventh Annual Cyber-Physical Systems (CPS) Principal Investigators' (PI) Meeting, Arlington, Virginia, October 2016.
4. **Curtis Madsen**, Goksel Misirli, Matthew Pocock, Jennifer Hallinan, and Anil Wipat, "SBOL Stack: The One-stop-shop to Storing and Publishing SBOL Data," Hackathons on Resources for Modeling in Biology (HARMONY), Wittenberg, Germany, April 2015.
5. **Curtis Madsen**, Goksel Misirli, Matthew Pocock, Jennifer Hallinan, and Anil Wipat, "SBOL Stack: The One-stop-shop to Storing and Publishing SBOL Data," Hackathons on Resources for Modeling in Biology (HARMONY), Manchester, UK, April 2014.
6. **Curtis Madsen**, Chris J. Myers, Nicholas Roehner, Chris Winstead, and Zhen Zhang, "Stochastic Model Checking of Synthetic Genetic Circuits," Fifth International Meeting on Synthetic Biology (SB 5.0), Stanford University, California, June 2011.
7. **Curtis Madsen**, Chris J. Myers, and Chris Winstead, "An Adaptive Incremental Stochastic Simulation Algorithm (iSSA) for Behavioral Design Verification in Synthetic Biology," International Conference on Systems Biology (ICSB), Edinburgh, United Kingdom, October 2010.
8. **Curtis Madsen** and Chris J. Myers, "Using Labeled Hybrid Petri Nets for Efficient Markovian Analysis of Genetic Circuit Models," International Conference on Systems Biology (ICSB), Stanford University, California, August-September 2009.
9. Chris J. Myers, Nathan Barker, Hiroyuki Kuwahara, **Curtis Madsen**, and Nam-Phuong Nguyen, "iBioSim: A Tool for the Analysis and Design of Genetic Circuits," International Conference on Systems Biology (ICSB), Gothenburg, Sweden, August 2008.

Invited Talks and Presentations

1. **Curtis Madsen**, "A Workflow for the Design of Synthetic Genetic Circuits Using Signal Temporal Logic," Synthetic Biology Center (SBC) Technical Workshop Series, Massachusetts Institute of Technology, November 6, 2017.
2. **Curtis Madsen**, Prashant Vaidyanathan, and Douglas Densmore, "Bio Design Automation & Synthesis of Functional Specification," Bio Cyberphysical Systems (BioCPS) for Engineering Living Cells National Science Foundation (NSF) Kick-Off Meeting, February 5, 2016.
3. **Curtis Madsen**, Prashant Gupta, Jayathilake Gedara, and Rebeca Gonzalez-Cabaleiro, "A Modelling Framework for Waste Water Treatment," Newcastle University Frontiers in Engineering Biology (NUFEB) Modellers Group Meeting, July 14, 2015.