Lisa Meeden

Full Professor
Computer Science Department
Swarthmore College
http://www.cs.swarthmore.edu/∼meeden/

EDUCATION

Ph.D. Computer Science, Minor: Cognitive Science, 1994
Indiana University, Bloomington, Indiana
Dissertation: *Towards Planning: Incremental Investigations into Adaptive Robot Control*

M.S. Computer Science 1990
Indiana University, Bloomington, Indiana

B.A. Mathematics 1985
Grinnell College, Grinnell, Iowa

PROFESSIONAL EXPERIENCE

Neil R. Grabois Professor in Natural Sciences and Engineering 2017-present
Swarthmore College

Chair, Computer Science Department 2019–2020, 2013–2015, 2003–2004, 1999–2001
Swarthmore College

Chair, Cognitive Science Program 2009–2010, 2005–2008
Swarthmore College

Full Professor 2008–present
Computer Science Department, Swarthmore College

Associate Professor 2000–2008
Computer Science Department, Swarthmore College

Assistant Professor 1994–2000
Computer Science Department, Swarthmore College

Visiting Researcher Spring 1997
Navy Center for Applied Research in Artificial Intelligence, Washington, D.C.

TOOLKITS

1. D. Blank, J. Marshall, & L. Meeden (2021). Artificial Intelligence Toolkit (aitk). This collection contains both an open source set of Python tools, and a set of computational essays for exploring and understanding Artificial Intelligence, Cognitive Science, Machine Learning, and Robotics. The code and essays are designed to require as few computing resources as necessary, while still allowing readers to gain valuable hands-on experince with these important topics. Available at https://github.com/ArtificialIntelligenceToolkit/aitk.

RESEARCH PUBLICATIONS (student co-authors indicated with a *)

1. R. Massari*, M. Biehl, L. Meeden, and R. Kanai (2021). Experimental Evidence that Empowerment May Drive Exploration in Sparse-Reward Environments *Proceedings of the IEEE International Conference on Development and Learning*, in Bejing, China.

2. L. Meeden and D. Blank (2017). Developing grounded goals through instant replay learning. *Proceedings of the IEEE International Conference on Development and Learning and on Epigenetic Robotics*, in Lisbon, Portugal.

3. D. Blank, J. Marshall, and L. Meeden (2017). A developmental robotics manifesto. *IEEE CIS Newsletter on Cognitive and Developmental Systems*, Volume 14, Spring.

4. L. Meeden, D. Blank, and J. Marshall (2017). Curiosity: Emergent behavior through interacting multilevel prediction. *Designing for Curiosity Workshop* at the *Computer Human Interaction Conference* in Denver, CO.

5. L. Meeden (2015). Review of the monograph *Developmental Robotics*, by Angelo Cangelosi and Matthew Schlesinger, published in the journal *Genetic Programming and Evolvable Machines*, Volume 16, Number 2.

6. R. Lee*, R. Walker*, L. Meeden, & J. Marshall (2009). Category-based intrinsic motivation. *Proceedings of the Ninth Internationals Conference on Epigenetic Robotics*.

7. D. Blank, J. Marshall, & L. Meeden (2007). Reply to Dialog: How can we assess open-ended development? entitled What is it like to be a developmental robot? *The Newsletter of the Autonomous Mental Development Technical Committee*, Vol. 4, No. 1.

8. L. Meeden and D. Blank (2006). Editorial: Introduction to developmental robotics. *Connection Science*, Vol. 18, No. 2 (pp. 93–96).

9. D. Blank and L. Meeden (2005). Reports on the 2005 AAAI Spring Symposium Series: Developmental Robotics. *AI Magazine*, Volume 26, Number 2.

10. D. Blank, D. Kumar, L. Meeden, & J. Marshall (2005). Bringing up robot: Fundamental mechanisms for creating a self-motivated, self-organizing architecture. *Cybernetics and Systems*, Volume 36, Number 2.

11. J. Marshall, D. Blank, & L. Meeden (2004). An Emergent Framework for Self-Motivation in Developmental Robotics. *Proceedings of the The Third International Conference on Development and Learning*.

12. D. Blank, D. Kumar, & L. Meeden (2002). Bringing up robot: Fundamental mechanisms for creating a self-motivated, self-organizing architecture. Proceedings of the Workshop *On Growing up Artifacts that Live* at the Conference on Simulation and Adaptive Behavior.

13. D. Blank, D. Kumar, & L. Meeden (2002). A Developmental Approach to Intelligence. *Proceedings of the Thirteenth Annual Midwest Artificial Intelligence and Cognitive Science Society Conference*, S. Conlon (editor).

14. L. Meeden (2002). Entry on Artificial Intelligence: Robotics. In *Von Nostrand's Scientific Encyclopedia*, Ninth Edition, edited by Glenn D. Considine, John Wiley and Sons, New York, NY.

15. B. Maxwell, L. Meeden, N. Addo*, P. Dickson*, N. Fairfield*, N. Johnson*, E. Jones*, S. Kim*, P. Malla*, M. Murphy*, B. Rutter*, & E. Silk* (2001) REAPER: A Reflexive Architecture for Perceptive Agents. *AI Magazine*, Vol. 22, No. 1.

16. M. Potter, L. Meeden, & A. Schultz (2001). Heterogeneity in the co-evolved behaviors of mobile robots: The emergence of specialists. *Proceedings of the Seventeenth International Joint Conference on Artificial Intelligence*, Morgan Kaufmann.

17. L. Meeden, J. Wales*, & J. Wells* (2000). Nature versus Nurture in Evolutionary Computation: Balancing the Roles of the Training Environment and the Fitness Function in Producing Behavior. *GECCO Late Breaking Papers.*

18. L. Meeden, A. Schultz, T. Balch, R. Bhargava, K. Zita Haigh, M. Bohlen, C. Stein, & D. Miller (2000). The AAAI 1999 Mobile Robot Competitions and Exhibitions. *AI Magazine*, Vol. 21, No. 3, (pp. 69-78).

19. L. Meeden & D. Kumar (1998). Trends in Evolutionary Robotics. In *Soft Computing for Intelligent Robotic Systems*, edited by L.C. Jain & T. Fukuda, Physica-Verlag, New York, NY (pp. 215–233).

20. L. Meeden (1998). Bridging the gap between simulations and reality with improved models of sensor noise. In *Genetic Programming 1998: Proceedings of the Third Annual Conference*, J. Koza et. al. editors (pp. 824–831). Morgan Kaufmann, San Francisco, CA.

21. D. Bruemmer*, R. Dickson*, J. Dilatush*, D. Lewis*, H. Mateyak*, M. Mirarchi*, M. Morton*, J. Tracy*, A. Vorobiev*, & L. Meeden (1997). A Situated Vacuuming Robot, *Proceedings of the American Association of Artificial Intelligence 1997 Conference* (pp.783–784). MIT Press, Cambridge, MA.

22. H. Hexmoor, L. Meeden, & R. Murphy (1997). Robot Learning: A New Subfield?, *AI Magazine*, Vol. 18, No. 4 (pp. 149–152).

23. H. Hexmoor & L. Meeden (1997). Learning in Autonomous Robots: A Summary of the 1996 Robolearn Workshop. *Knowledge Engineering Review*, Vol. 11, No. 4 (pp. 361-364).

24. L. Meeden (1996). An incremental approach to developing intelligent neural network controllers for robots. *IEEE Journal on Systems, Man, and Cybernetics–Part B*, Vol. 26, No. 3 (pp. 474–485).

25. L. Meeden, G. McGraw, & D. Blank (1993). Emergence of control and planning in an autonomous vehicle. In the Proceedings of the *Fifteenth Annual Meeting of the Cognitive Science Society* (pp. 735–740). Lawrence Erlbaum Associates, Hillsdale, NJ.

26. D. Blank, L. Meeden, & J. Marshall (1992). Exploring the Symbolic/Subsymbolic Continuum: A Case Study of RAAM. In *The Symbolic and Connectionist Paradigms: Closing the gap*, J. Dinsmore (editor), pp. 113–148. Lawrence Erlbaum Associates, Hillsdale, NJ.

Posters

1. K. Richmond-Crosset* & L. Meeden (2018). Using autoencoders to generate abstract visual features for a developmental robot. Presented at the Swarthmore College Sigma Xi Poster Session.

2. L. Meeden & D. Blank (2017). Developing grounded goals through instant replay learning. Presented at the *Seventh Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics*, in Lisbon, Portugal.

3. L. Meeden, D. Blank, & J. Marshall (2017). Curiosity: Emergent behavior through interacting multi-level prediction. Presented at the *Designing for Curiosity Workshop* at the *Computer Human Interaction Conference* in Denver, CO.

4. R. Thielstrom* & L. Meeden (2014). Exploration and Machine Learning with the Horde Architecture. Presented at the Swarthmore College Sigma Xi Poster Session.

5. R. Lee*, R. Walker*, & L. Meeden (2009). Category-Based Intrinsic Motivation: Linking the Perception and Action of a Physical Robot. Presented at the Swarthmore College Sigma Xi Poster Session.

6. G. Dahl* & L. Meeden (2007). An Online Variant of Cascade Correlation. Presented at the Swarthmore College Sigma Xi Poster Session.

7. B. Turner*, E. Jucovy*, & L. Meeden (2005). Developmental Robotics: Emergent Behavior in a Self-Motivated Robot. Presented at the Swarthmore College Sigma Xi Poster Session.

8. M. Fiedler*, E. Moses*, J. Stober*, & L. Meeden (2004). Developmental Robotics: Dynamic Sampling of Perceptions with Governed Neural Networks. Presented at CCSCNE in Schenectady, NY.

COMPUTER SCIENCE EDUCATION PUBLICATIONS

1. T. Newhall, L. Meeden, A. Danner, A. Soni, F. Ruiz, & R. Wicentowski (2014). A Comprehensive Support Program for Introductory CS Courses: Improved Student Performance and Retention of Underrepresented Groups. *Proceedings of the SIGCSE Technical Symposium on Computer Science Education.*

2. D. Blank, D. Kumar, J. Marshall & L. Meeden (2007). Advanced Robotics Projects for Undergraduate Students. *Proceedings of the AAAI Spring Symposium Workshop on Robots and Robot Venues: Resources for AI Education.*

3. D. Blank, D. Kumar, L. Meeden & H. Yanco (2006). The Pyro toolkit for AI and robotics. *AI Magazine*, Vol. 27, No. 1 (pp.39–50).

4. D. Blank, D. Kumar, L. Meeden & H. Yanco (2004). Pyro: A Python-based Versatile Programming Environment for Teaching Robotics. *ACM Journal on Educational Resources in Computing*, Vol. 3, No. 4.

5. Blank, D., Yanco, H., Kumar, D., & Meeden, L. (2004). Avoiding the Karel-the-Robot Paradox: A framework for making sophisticated robotics accessible. *Proceedings of the AAAI Spring Symposium Workshop on Accessible Hands-On Artificial Intelligence and Robotics Education.*

6. Blank, D., Meeden, L., & Kumar, D. (2003). Python robotics: An Environment for Exploring Robotics Beyond LEGOs. *Proceedings of the Thirty-Fourth SIGCSE Technical Symposium on Computer Science Education*, ACM Press, New York, NY.

7. Meeden, L., Newhall, T., Blank, D., & Kumar, D. (2003). Using departmental surveys to assess computing culture: Recognizing and addressing gender differences. Proceedings of the conference *Innovation and Technology in Computer Science Education 2003*.

8. T. Newhall & L. Meeden (2002) A comprehensive project for CS2: Combining key data structures and algorithms into an integrated web browser and search engine. *Proceedings of the Thirty-Third SIGCSE Technical Symposium on Computer Science Education*, ACM Press, New York, NY.

9. B. Maxwell & L. Meeden (2001). Integrating Robotics Research with Undergraduate Education. *IEEE Intelligent Systems*, Vol. 15, No. 6.

10. D. Kumar & L. Meeden (1998). Robots in the Undergraduate Curriculum. *The Journal of Computing in Small Colleges*, Vol. 13, No. 5 (pp. 105–112).

11. L. Meeden & D. Blank (1998). Robot Competitions as Class Projects. SIGART Bulletin, Vol. 9, No. 2 (pp. 5).

12. D. Kumar & L. Meeden (1998). A Robot Laboratory for Teaching Artificial Intelligence. *Proceedings of the Twenty-Ninth SIGCSE Technical Symposium on Computer Science Education* (pp. 341–344). ACM Press, New York, NY.

13. L. Meeden (1996). Using Robotics as an Introduction to Computer Science. In J.H. Stewman (Ed.), *Proceedings of the Ninth Florida Artificial Intelligence Research Symposium* (pp. 473–477). Florida AI Research Society, St. Petersburg, FL.

INVITED LECTURES

Creating autonomous, self-motivated, adaptive robots, Rollins College, Florida, October, 2014.

Creating curious robots, University of Maryland at Baltimore County, March, 2009.

Teaching CS1 in Python, University of Maryland at Baltimore County, March, 2009.

Overview of the emerging field of developmental robotics. Panel on *Can the development on intelligent robots be benchmarked? Concepts and issues from epigenetic robotics* at the conference *Performance Metrics for Intelligent Systems*, Washington, DC, August, 2007.

Bringing up robot: The development of self-motivated control, Union College, January, 2005.

Creating intrinsic value systems for reinforcement learning in developmental robotics, Rutgers University, December, 2004.

Self-motivated, task-independent reinforcement learning for robots. *AAAI Fall Symposium on Real-Life Reinforcement Learning*, Washington D.C., October, 2004.

Heterogeneity in the behaviors of co-evolved mobile robots: The emergence of specialists. *Computer Science Colloquium*, Claremont Colleges, December, 2001.

Evolving control strategies for a team of cooperating agents. *Computer Science Colloquium*, University of Dayton, Dayton, Ohio, November, 2000.

Trends in evolutionary robotics. *Midwest Artificial Intelligence and Cognitive Science Conference*, Fayetteville, Arkansas, April, 2000.

Adaptive robots: Learning from scratch vs Learning with existing knowledge. *Inquiry-Based Learning in Humans and Machines Series*, Hampshire College, December, 1997.

Learning to Plan with an Adaptive Robot. University of Hawaii at Hilo, November, 1997.

Integrating reaction and deliberation: Using learned strategies to bootstrap planning. *ACM Lecture Series*, Moravian College, February, 1997.

An incremental approach to developing intelligent neural network controllers for robots. *Naval Research Laboratory, Machine Learning Group*, Washington D.C., August, 1996.

Integrating reaction and deliberation: Using learned strategies to bootstrap planning. *Villanova University Computer Science Colloquium Series*, Villanova University, October, 1995.

A connectionist approach to building plans from the ground up. *Spring Colloquium Series*, Computer Science Department, Indiana University, March, 1995.

GRANTS AND AWARDS

National Humanities Center Grant, Responsible Artificial Intelligence Curriculum Design Project, 2022-2024. Working in conjunction with Krista Thomason in Philosohy to develop a new team-taught course covering the ethics and practice of AI.

Teagle Grant for Tri-College Student Learning Assessment, 2009-2011. Assessing problem-solving skills in students taking the introductory Computer Science course CPSC 21, working in conjunction with Tia Newhall.

HHMI Grant to develop a new computational biology course, working in conjunction with Richard Wicentowski. $86,170. 2008-2010.

NSF CCLI Education Materials Development and National Dissemination Grant. Principle Investigators: Douglas S. Blank, Kurt G. Konolige, Deepak Kumar, Lisa A. Meeden, and Holly Yanco. Beyond LEGOs: Hardware, Software and Curriculum for the Next Generation Robot Laboratory, $400,194. 2003-2006.

NEEDS 2005 Premier Award for Excellence in Engineering Education Courseware. Awarded to the Pyro software, which was developed through the support of NSF by Douglas S. Blank, Kurt G. Konolige, Deepak Kumar, Lisa A. Meeden, and Holly Yanco.

NSF ILI Grant. Principle Investigators: Deepak Kumar and Lisa Meeden. A robot-based laboratory for teaching Artificial Intelligence, $57,758. 1996-1998.

Mellon Trico Faculty Forum Award, $4,000. April 2002. Funds to create a *Developmental Robotics* course to be taught at both Bryn Mawr and Swarthmore in Spring 2003. Submitted with Douglas Blank and Deepak Kumar of Bryn Mawr College.

James A. Michener Faculty Fellowship, for second semester sabbatical support, 2004.

Eugene M. Lang Faculty Fellowship, for second semester sabbatical support, 1998.

Lindback Award for excellence in teaching, $4,000. June 2001.

First Place in the *Hors d'oeuvres Anyone?* and in the *Urban Search and Rescue* robot competitions held at AAAI, July 2000. Co-led (with Bruce Maxwell) a team of ten undergraduate students in creating the robot entries Alfredo, Santino, and Mario. Our team was also awarded the *Best Integrative Effort*.

First Place in the *Hors d'oeuvres Anyone?* robot competition held at AAAI, July 1999. Co-led (with Bruce Maxwell) a team of seven undergraduate students in creating the robot entry Alfred. Our team was also awarded the *Best Integrative Effort*.

PROFESSIONAL ACTIVITIES

External Departmental Reviews:

- Middlebury College Computer Science, Fall 2018 (Chair)
- Colorado College Math and Computer Science, 2015
- Wellesley College Computer Science, 2012
- Grinnell College Computer Science, 2008
- Bowdoin College Computer Science, 2002 (Chair)

Liberal Arts Computer Science Consortium Member: This group, which meets annually, is dedicated to supporting undergraduate computer science through active curriculum development and scholarly activity in the field of computer science education.

Journal Co-Editor: Special Issue of *Connection Science* on Developmental Robotics, Vol. 18, No. 2, 2006.

Program Committee: International Conference on Development, Learning, and Epigenetic Robotics (ICDL-EpiRob) 2015 Publications Chair, SIGCSE 2009 Birds of a Feather Co-Chair, International Symposium on Intelligent Automation and Control 2008, SIGCSE 2008 Panels and Special Sessions Chair, FLAIRS Conference, Special track on Artificial Intelligence Education, 2004 and 2005; GECCO Conference, Undergraduate Student Workshop, 2003; SIGCSE Workshop Chair, 2001; Special Issue of *Autonomous Robots Journal*, entitled *Learning in Autonomous Robots*, 1998; Genetic and Evolutionary Computation Conference, 1999; IEEE International Symposium on Computational Intelligence in Robotics and Automation, 1999.

Workshop Co-Chair:

Deep Learning in the Classroom: Workshop presented at *SIGCSE*, Baltimore, Maryland, February 2018. Co-led with Douglas Blank and James Marshall.

Developmental Robotics: Research workshop in the *AAAI Spring Symposium Series*, Stanford University, March 2005.

Pyro: Teaching workshop on integrating robotics into the computer science curriculum, Swarthmore College, August 2005; Bryn Mawr College, August 2004; and University of Massachusetts at Lowell, August 2003.

Robolearn: Research workshop on learning for autonomous robots, Key West, FL, May 1996.

Judge of Student Research Competition: Grace Hopper Conference, 2013.

Robot Competition Chair: AAAI Conference, 1999 and 2000.

Robot Competition Rules Committee: AAAI Conference, 1998.

Instructor: NSF Summer Faculty Enhancement Workshop on Teaching Undergraduate Artificial Intelligence. Temple University, June 1995, June 1996, and June 1997.

News Editor: For the quarterly magazine *Intelligence: New Visions of AI in Practice*, 1999.

Editorial Board: *International Journal on Knowledge-Based Intelligent Engineering Systems*, 2005-present; Special Issue of *Robotics and Autonomous Systems Journal*, entitled *Robot Learning: The New Wave*, 1996.

Advisory Board: *Machine Learning Laboratory Experiences for Introducing Undergrads to Artificial Intelligence*, $116,469 NSF grant, University of Hartford; *Agents for Change: Robotics for Girls*, $1,184,769 NSF Gender Equity grant, Institute for Research in Cognitive Science, University of Pennsylvania.

Grant Reviewer: National Science Foundation, *REU Site Competition* in the Directorate for Computer and Information Science, 2004; National Science Foundation, *Course, Curriculum, and Laboratory Improvement* Program, 1999.

Fellowship Reviewer: Computing Innovations Fellows Project, 2009; American Society for Engineering Education, Postdoctoral applications to the Office of Naval Research, 1996, 1997, and 2004.

Paper Reviewer: *American Association of Artificial Intelligence Conference*; *Adaptive Behavior*; *Cognitive Science*; *Computational Intelligence in Robotics and Automation Conference*; *Connection Science*; *Connection Science Special Issue on BioRobotics*; *Connection Science Special Issue on Developmental Robotics*; *Consortium for Computing in Small Colleges Northeastern Conference*; *Educational Advances in Artificial Intelligence Conference*; *FLAIRS Conference* Special track on Neural Networks; *GECCO Conference, IEEE Journal on Systems, Man, and Cybernetics*; *Informatica*; *International Conference on Artificial Neural Networks*; *International Joint Conference on Artificial Intelligence*; *Joint Conference on the Science and Technology of Intelligent Systems*; *Journal of Experimental and Theoretical Artificial Intelligence*; *Journal of Intelligent Systems*; *Journal of Robotics*; *Northeastern Conference of the Consortium of Computing in Small Colleges*; *Special Interest Group in CS Education Conference*.

Member: The American Association of Artificial Intelligence, The Association of Computing Machinery, Cognitive Science Society, and Sigma Xi.

OUTREACH

Workshop co-leader (with Tia Newhall) at the *Catalyst* Conference
   The goal is to foster an appreciation for science, math and engineering in 7th and 8th grade girls.
   Swarthmore, March 2015.

Robotics demonstration for 40 children at Trinity Cooperative Day Nursury in Swarthmore, July 2014

Girls in Focus with Technology (GIFT), Delaware Valley College, May 2013
   This event seeks to inspire girls to pursue careers in STEM-related fields. Presented on *Creating curious robots* in three sessions.

Workshop co-leader (with Tia Newhall) at the *Expanding Your Horizons* Conference
   Swarthmore College, 2008, 2009, and 2011.

Science for kids, Chester Children's Choir
   Co-taught a five week session on building and programming Lego robots,
   Swarthmore College, Summer 2007.

Robot demonstration for pre-school children
   Trinity Cooperative Day Nursery, Swarthmore PA, Fall 2006, Summer 2007, and Fall 2008.

Keynote speaker at the *Expanding Your Horizons* Conference
   Swarthmore College, March, 2006.

Robotics for Girls Program at the University of Pennsylvania
   Philadelphia, PA, June 2000

Agnes Irwin School's *Real Life, Real Women, Real Math*
   Philadelphia, PA, June 1997.

Lego robots with 5th grade class from Swarthmore Rutledge School
   Swarthmore, PA, January 1996.

Girl Scout Troop 272, *Women in Technology*
   Swarthmore, PA, November 1995.

SWARTHMORE COLLEGE ACTIVITIES

Swarthmore Summer Scholars Program

Instructed the lab science for 16 scholars in Summer 2022.

Instructed the lab science for 16 scholars in Summer 2018.

Tri-College Presentations

The Responsible Artificial Intelligence Initiative, with Krista Thomason in Philosophy, *Faculty Lunch Series*.
   Swarthmore College, October, 2022.

Swarthmore Summer Scholars Program, with Amy Vollmer, *Faculty Lunch Series*. Swarthmore College,
   October 2018.

Building brain-like models for machine learning *Science Cafe*, Swarthmore College, May 2014.

What's important in the discipline? Presented with Tia Newhall, Andrew Danner, and Ameet Soni. *Faculty Lunch Series*. Swarthmore College, December 2013.

CS21B: Introduction to CS with Applications to Biology. *Faculty Lunch Series*, Swarthmore College, April 2011.

Teagle Grant Report. *Invited Lunch.* Swarthmore College, March, 2011.

Curious robots. *Faculty Lunch Series*, Swarthmore College, September, 2009.

Creating a self-motivated robot. *Faculty Lunch Series*, Swarthmore College, March, 2006.

Memory, representation, and abstraction in ANN-controlled mobile robots.*Emergent Phenomena Research Group*, Bryn Mawr College, March, 2005.

Self-motivated, task-independent reinforcement learning for robots. *Cognitive Science Lunch Series*, Swarthmore College, October, 2004.

On-line, self-regulating robot development. *Emergent Phenomena Research Group*, Bryn Mawr College, June, 2004.

Bringing up robot: A developmental approach to artificial intelligence. Talk for Swarthmore College Alumni, Berkeley, California, November, 2003.

Will we meet HAL in 2001? *Alumni College*, Swarthmore College, June, 2000.

Integrating reaction and deliberation: A hybrid model for robot control. *Tri-College Research Symposium for the Cognitive Sciences*, Swarthmore College, November, 1996.

Incremental investigations into adaptive robot control. *Bryn Mawr and Haverford Colleges Mathematics and Computer Science Colloquium Series*, Bryn Mawr College, February, 1995.

Department Service

Assessment, coordinated the assessment of effectiveness of the lab component of our upper-level *CPSC 41 Algorithms* course regularly taught by Joshua Brody and Lila Fontes.

Off-Campus Study Coordinator, meet with students to determine credit pre-approval and post-approval, 2017-2019.

Faculty Teaching Mentor, work closely with new faculty (both visiting and tenure-track) discussing and observing teaching, 2015-2016, 2019-2022.

Grace Hopper Conference, applied for funding and organized trip to this celebration of women in computing:

- Houston, TX, October 2015. Ten students: two received external scholarships, eight received internal scholarships from a Swarthmore Alum and HHMI.
- Phoenix, AZ, October 2014. Eight students: two received external scholarships, two received internal scholarships provided by an alum, four received HHMI mini-grants of $1500 each.
- Minneapolis, MN, October 2013. Attended and co-organized with Tia Newhall. Eleven students: five received external scholarships, and six received HHMI mini-grants of $1500 each.

Women in CS Lunches, co-organized with Tia Newhall. Held once a semester. Ongoing since 2007.

College Service

CITO Search Committee, Spring 2022. Cognitive Science Colloquia Series (Co-Chair), Spring 1996.
Cognitive Science Concentration Creation, with R. Dufour, F. Durgin and T. Fernald, 1997.

Cognitive Science Tri-College Research Symposium(Co-Chair), Fall 1996.
College Judicial Committee 2015-2016.
Committee on Academic Requirements, 2013-2015.
Committee on Faculty Compensation, 2018-2021.
Committee on Faculty Procedures, 2021-2023.
Committee on Promotion and Tenure, 2009-2011, 2014-2015.
Committee on Wellbeing, Belonging and Social Life, 2017-2018.
Computer Services Committee, 1996.
Council on Educational Policy, 2006-2008, 2009-2011.
HHMI Steering Committee, 2006-2007, 2010-2012.
ITS Committee, 2011-2012.
Martin Renovation Steering Committee, 2019-2020.
Physical Education and Athletics Committee, 1995-1996, 1998-1999, 2003-2004.
Property Committee, 2000-2001.
Sigma Xi President 2006-2007; Vice President 2005-2006.
Science Center Classroom Committee (Co-Chair), 2000-2001.
Science Center User's Group Committee, 1999-2001, 2003-2004.
STEM Inclusive Excellence Center Committee, 2017-2018.
Task Force on Student Social Events and Community Standards (Co-Chair), 2018-2019.

Summer Research Students

2018: Kyle Richmond-Crosset

2014: Ravenna Thielstrom

2009: Rachel Lee and Ryan Walker

2007: George Dahl

2005: Ethan Jucovy and Ben Turner

2003: Matt Fiedler, Andrew John (high school student), Evan Moses, and Jeremy Stober

2002: Evan Moses, Daniel Sproul, and Cassandra Telenko (high school student)

2000: Ben Newman, Tom Stepleton, Gil Jones, and Nathaniel Fairfield

1999: Nii Saka Addo and Seth Olshfski

1997: Dave Bruemmer

1996: Ben Vigoda

1995: Sam Weiler

Honors Theses Supervised

- Francesco Massari (2021) Cognitive Science honors thesis. *Artificial Curiosity versus Empowerment for Reinforcement Learning in Sparse-Reward Environments*

- Jessica Berg (2020) Computer Science and Cognitive Science thesis. *Modeling Human Sentence Comprehension with LSTMs*

- Gabriel Meyer-Lee (2019) Cognitive Science thesis. *Learning neural architectures for knowledge transfer: Towards contextualized models*

- Ravenna Thielstrom (2016) Co-advised with Dan Grodner in Psychology. *Sinusoidal Robot Motion Suggests Emotional Attitudes*

- Max Korein (2011) *Speech Detection and Speaker Recognition for the Electronic Wheelchair Seathing Virtual Coach*

- George Dahl (2008) *An Online Variant of Cascade Correlation*

- Evan Moses (2004) *Developmental Robotics and the Governor Architecture*

- Jeremy Stober (2004) *The Governor Architecture: Avoiding Catastrophic Forgetting in Robot Learning*

- Chris Cutler (2002) *The Design and Implementation of a Web Language to Facilitate Two Dimensional Layout*

- Nathaniel Fairfield (2001) *Simple Landmark Localization on a Three-Layer Mobile Robot Architecture*

- Martin Krafft (2001) *A Neural Optimal Controller Architecture for Wayfinding Behavior*

- Benjamin Newman (2001) *In Search of the Elusive "Emergent Concept"*

- Edward Gilkison Jones (2001) *HYSTE: A HYbrid System for Thorough Exploration*

Courses Taught

COGS 1 Introduction to Cognitive Science

CPSC 10 Great Ideas in Computer Science

CPSC 21 Introduction to Computer Science

CPSC 21B Introduction to Computer Science: With Applications to Biology

CPSC 35 Data Structures and Algorithms

CPSC 37 The Structure and Interpretation of Computer Programs

CPSC 41 Analysis of Algorithms

CPSC 63 Artificial Intelligence

CPSC 75 Principles of Compiler Design and Construction

CPSC 81 Adaptive Robotics

CPSC 97 Senior Conference

CPSC 128 Computational Models of Learning

CPSC 129 Computational Models of Language