

DAVID E. HIEBELER

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RESEARCH

Mathematical population ecology and epidemiology; effects of spatially structured environmental heterogeneities on population dynamics, using computational and mathematical stochastic spatial models. Cellular automata and complex adaptive systems; agent-based models.

EDUCATION AND AWARDS

Cornell University, Ithaca, NY 1995 – 2000
PhD in Applied Mathematics, August 2001. Thesis title: *Populations and the Evolution of Dispersal on Spatially Structured Heterogeneous Landscapes*
US Environmental Protection Agency STAR graduate fellowship, 1997 – 2000
NSF training grant fellowship in “The Dynamics of Heterogeneous Ecological and Evolutionary Systems,” 1995 – 1997
Harvard University, Cambridge, MA 1993–1995
M.S. in Applied Mathematics, June 1995
Rensselaer Polytechnic Institute, Troy, NY 1986–1990
B.S. in Computer Science, magna cum laude, December 1990.

ACADEMIC POSITIONS HELD

Professor	Fall 2017–present
Acting Department Chair	Jul 2018–Jun 2019
Associate Professor	Fall 2008–Fall 2017
Assistant Professor	Fall 2002–Fall 2008
<i>Dept. of Mathematics and Statistics</i>	University of Maine
• Courses taught: Calculus I (MAT126), Intro. to Principles of Statistical Inference (MAT232), Intro. to Differential Equations w/ Linear Algebra (MAT258), Differential Equations (MAT259), Linear Algebra (MAT262), Capstone Course in Math (MAT401), Differential Equations and Dynamical Systems (MAT451), Biological Modeling and Simulation (MAT486/586), Numerical Analysis (MAT487), and various topics courses (MAT400 and MAT500) including Complex Adaptive Systems and Advanced Linear Algebra.	
Cooperating Faculty	Fall 2011–present
<i>School of Computing and Information Science</i>	University of Maine
Cooperating Research Faculty	Spring 2008–present
<i>School of Biology and Ecology</i>	University of Maine
Visiting Scholar	Feb 2016–May 2016
<i>School of Mathematical Sciences</i>	Fudan University, Shanghai China
Adjunct Faculty	Summer 2008–Summer 2014
<i>Mathematical, Computational and Modeling Sciences Center</i>	Arizona State University
Visiting Lecturer	Fall 2000–Spring 2002
<i>Dept. of Biological Statistics and Computational Biology</i>	Cornell University

GRANTS AND AWARDS

External funding

- PI: NSF CAREER award DMS-0746603, “Dynamics of Hierarchical Household-Structured Epidemiological Models”, 9/1/2008 – 8/31/2013. \$400,000 (\$300K from NSF Division of Environmental Biology, and \$100K from Division of Mathematical Sciences).
- PI: NSF research grant DMS-0718786, “Spatial Population Models in Spatiotemporally Correlated Environments”, 9/1/2007 – 8/31/2010. \$179,997, (\$120K from NSF Division of Mathematical Sciences, and \$60K from Division of Environmental Biology).

- Co-PI: NSF, “Maine’s Sustainability Science Initiative,” 7/1/09 – 6/30/14. Mike Eckardt (PI). \$20,000,000. My allocated responsibility: 2%.
- Co-PI: Sea Grant, “An Agent-based Model of the Maine Lobster Fishery,” 2/1/04 – 1/31/07. Jim Wilson (PI), David Hiebeler (co-PI), Yong Chen (co-PI). \$93,000 Sea Grant Funds, plus other matching funds. My allocated responsibility: 25%.

Internal funding

- Faculty Summer Research Fund award, “Populations on Landscapes with Continuous Heterogeneous Habitat,” Summer 2014. \$7500, UMaine Office of the Vice President for Research.
- IT Faculty Technology Stipend, “Using an iPad as a Chalkboard Replacement,” Spring/Summer 2012. \$1250, UMaine Dept. of Information Technologies.
- IT Faculty Technology Stipend, “Bug-Sim: Foraging for Food in Spatially Structured Virtual Worlds,” Spring/Summer 2007. \$1250, UMaine Dept. of Information Technologies.
- Faculty Summer Research Fund award, “Pair Approximations of Biological Invasion Models on Clustered Heterogeneous Landscapes,” Summer 2005. \$7500, UMaine Office of the Vice President for Research.
- IT Faculty Technology Stipend, “Development of a ‘Complex Systems’ Demonstration Simulation Suite,” Spring/Summer 2004. \$1250, UMaine Dept. of Information Technologies.
- Learning Circles grant, “Beginning Development of a Demonstration Simulation Toolbox,” November 2003. PI: David Hiebeler (Math); co-PI’s: Larry Latour (Computer Science), Raymond O’Connor (Wildlife Ecology), Jim Wilson (Marine Sciences and Resource Economics), and Liying Yan (PhD student, Computer Science). \$500, UMaine Center for Teaching Excellence.

PUBLICATIONS AND PRESENTATIONS

Key: author worked on project as: ^h=high-school student; ^u=undergraduate student; ^g=graduate student

Refereed articles

1. D.E. Hiebeler, "Implications of Creation," *Idealistic Studies* **23(1)**, Winter 1993.
2. D.E.H., "Stochastic Spatial Models: From Simulations to Mean Field and Local Structure Approximations," *Journal of Theoretical Biology* **187**, 307–319 (1997), and presented at the annual meeting of the Ecological Society of America, Providence RI, Aug. 1996.
3. D.E.H., "Populations on Fragmented Landscapes with Spatially Structured Heterogeneities: Landscape Generation and Local Dispersal," *Ecology* **81(6)**, 1629–1641 (2000), and presented at the annual meeting of the Society for Mathematical Biology, Raleigh NC, Aug. 1997.
4. D.E.H., "Competition Between Near and Far Dispersers in Spatially Structured Habitats," *Theoretical Population Biology*, **66(3)**, 205–218 (2004).
5. D.E.H., "Spatially Correlated Disturbances in a Locally Dispersing Population Model," *Journal of Theoretical Biology*, **232(1)**, 143–149 (2005).
6. D.E.H., "A Cellular Automaton SIS Epidemiological Model with Spatially Clustered Recoveries," presented at the workshop on Modelling of Complex Systems by Cellular Automata, at the *International Conference on Computational Science*, Atlanta, GA, May 2005. Also published in refereed conference proceedings in *Lecture Notes in Computer Science*, **3515**, 360–367 (2005).
7. D.E.H., "Dynamics and Resistance to Neighborhood Perturbations of Discrete- and Continuous-Time Cellular Automata," *Journal of Cellular Automata*, **1(2)**, 125–139 (2006).
8. D.E.H., "Moment Equations and Dynamics of a Household SIS Epidemiological Model," *Bulletin of Mathematical Biology*, **68(6)**, 1315–1333 (2006).
9. D.E.H. and Amanda K. Criner^u, "Partially Mixed Household Epidemiological Model with Clustered Resistant Individuals," *Physical Review E*, **75**, 022901 (2007).
10. D.E.H., "Competing Populations on Fragmented Landscapes with Spatially Structured Heterogeneities: Improved Landscape Generation and Mixed Dispersal Strategies," *Journal of Mathematical Biology*, **54(3)**, 337–356 (2007).
11. D.E.H. and Benjamin R. Morin^g, "The Effect of Static and Dynamic Spatially Structured Disturbances on a Locally Dispersing Population," *Journal of Theoretical Biology*, **246(1)**, 136–144 (2007).
12. D.E.H., "Transient Dynamics and Quasistationary Equilibria of Continuous-time Linear Stochastic Cellular Automata Voter Models with Multiscale Neighborhoods," *Advances in Complex Systems*, **10(suppl. 1)**, 145–165 (2007).
13. D.E.H. and Nicholas E. Millett^u, "Pair and Triplet Approximation of a Spatial Lattice Population Model with Multiscale Dispersal Using Markov Chains for Estimating Spatial Autocorrelation," *Journal of Theoretical Biology*, **279(1)**, 74–82 (2011).
14. D.E.H., Isaac J. Michaud^{u,g}, Hamilton Hoxie Ackerman^u, Shannon Reed Iosevich^u, and Andre Robinson^u, "Multigeneration Reproduction Ratios and the Effects of Clustered Unvaccinated Individuals on Epidemic Outbreak," *Bulletin of Mathematical Biology*, **73(12)**, 3047–3070 (2011).
15. D.E.H. and Isaac J. Michaud^{u,g}, "Quantifying Spatial and Temporal Variability of Spatially Correlated Disturbances," *Ecological Modelling*, **240**, 64–73 (2012).

Refereed articles, continued

16. Carlos Hernandez-Suarez and D.E.H., “Modeling Species Dispersal with Occupancy Urn Models,” *Theoretical Ecology*, **5**(4), 555–565 (2012).
17. D.E.H., Isaac J. Michaud^g, Ben A. Wasserman^u, and Timothy D. Buchak^u, “Habitat Association in Populations on Landscapes with Continuous-valued Heterogeneous Habitat Quality,” *Journal of Theoretical Biology*, **317**, 47–54 (2013).
18. Jinbao Liao, Zhenqing Li, D.E.H., Yoh Iwasa, Jan Bogaert, and Ivan Nijs, “Species Persistence in Landscapes with Spatial Variation in Habitat Quality: A Pair Approximation Model,” *Journal of Theoretical Biology*, **335**, 22–30 (2013).
19. Jinbao Liao, Zhenqing Li, D.E.H., Magdy El-Bana, Gaby Deckmyn, and Ivan Nijs, “Modelling Plant Population Size and Extinction Thresholds from Habitat Loss and Habitat Fragmentation: Effects of Neighbouring Competition and Dispersal Strategy,” *Ecological Modelling*, **268**, 9–17 (2013).
20. D.E.H., Rachel M. Rier^g, Josh Audibert^u, Phillip J. LeClair^h, and Anna Webber^h, “Variability in a Community-Structured SIS Epidemiological Model,” *Bulletin of Mathematical Biology*, **77**(4), 698–712 (2015). DOI 10.1007/s11538-014-0017-9.
21. Jinbao Liao, Zhixia Ying, D.E.H., Yeqiao Wang, Takenori Takada, and Ivan Nijs, “Species Extinction Thresholds in the Face of Spatially Correlated Periodic Disturbance,” *Scientific Reports*, **5**, 15455 (2015). DOI 10.1038/srep15455.
22. Emily Silver Huff, Jessica E. Leahy, D.E.H., Aaron R. Weiskittel, and Caroline L. Noblet, “An Agent-Based Model of Private Woodland Owner Management Behavior Using Social Interactions, Information Flow, and Peer-To-Peer Networks,” *PLoS ONE*, **10**(11), e0142453 (2015).
23. D.E.H., Jennifer Houle^u, Frank Drummond, Peter Bilodeau^u, and Jeffery Merckens^u, “Locally Dispersing Populations in Heterogeneous Dynamic Landscapes with Spatiotemporal Correlations. I. Block Disturbance,” *Journal of Theoretical Biology*, **407**, 212–224 (2016).
24. D.E.H. and Jack L. Hill^g, “Locally Dispersing Populations in Heterogeneous Dynamic Landscapes with Spatiotemporal Correlations. II. Habitat Driven by Voter Dynamics,” *Journal of Theoretical Biology*, **407**, 81–89 (2016).
25. Jennifer D. McCabe^g, Brian J. Olsen, and D.E.H., “Wind Patterns as a Potential Driver in the Evolution and Maintenance of a North American Migratory Suture Zone,” *Evolution*, **70**(9), 2145–2154 (2016).
26. Jinbao Liao, Jiehong Chen, Zhixia Ying, D.E.H., and Ivan Nijs, “An Extended Patch-Dynamic Framework for Food Chains in Fragmented Landscapes,” *Scientific Reports*, **6**, 33100 (2016).
27. D.E.H., Andrew Audibert^h, Emma Strubell^u, and Isaac J. Michaud^g, “An Epidemiological Model of Internet Worms with Hierarchical Dispersal and Spatial Clustering of Hosts,” *Journal of Theoretical Biology*, **418**, 8–15 (2017). DOI 10.1016/j.jtbi.2017.01.035.
28. Alex W. Bajcz^g, D.E.H., and Francis A. Drummond, “*Grid-Set-Match*, an Agent-based Simulation Model, Predicts Fruit Set for the Lowbush Blueberry (*Vaccinium angustifolium*) Agroecosystem,” *Ecological Modelling*, **361**, 80–94 (2017).

Books

1. D.E.H., *R and MATLAB*, Chapman and Hall / CRC, 2015.

Other selected professional publications and presentations

1. D.E.H., "A Brief Overview of Cellular Automata Simulation Packages," *Physica D* **45**, 1990.
2. D.E.H. and R.C. Tatar, "Cellular Automata and Discrete Physics," published as chapter 12 of *Introduction to Nonlinear Physics*, edited by Lui Lam (Springer-Verlag, 1997), and presented at the *Winter School on Nonlinear Physics*, San Jose, CA, Jan. 1990.
3. D.E.H., "The Swarm Simulation System and Individual-Based Modeling," presented at and published in the proceedings of *Decision Support 2001: Advanced Technology for Natural Resource Management*, Toronto, Sep. 1994. Also published as Santa Fe Institute working paper 94-12-065.
4. D.E.H., "Spatially Structured Discrete Population Models," presented at the *International Conference on Mathematical Biology* held in Hangzhou, China, May 1997, and published in *Advanced Topics in Biomathematics*, edited by Lansun Chen, Shigui Ruan, and Jun Zhu (World Scientific, 1998).
5. D.E.H., "Dispersal on Structured Fragmented Landscapes," poster presented at the *EPA STAR Graduate Fellowship Conference*, July 1999.
6. D.E.H., "Modeling Invasions Between Near and Far Dispersers on Structured Heterogeneous Landscapes," presented at the *Beijing International Symposium on Biological Invasions*, Beijing, June 2004.
7. D.E.H. and Amanda Criner^u, "Household Epidemiological Models With Clustered Resistant Individuals," poster presented at the joint Society for Industrial and Applied Mathematics / Society for Mathematical Biology (SIAM/SMB) Conference on the Life Sciences, Raleigh, NC, Jul. 31 – Aug. 4, 2006.
8. D.E.H., "What do Birds, Plants and Internet Worms have in Common? Mixed Dispersal on Clustered Heterogeneous Landscapes," invited colloquium at the Colby College Mathematics Dept., March 2007.
9. D.E.H., "The Inseparability of Spatial and Temporal Clustering in a Population Model with Spatially Correlated Disturbances," presented at the Society for Mathematical Biology annual conference, Aug 2008, Toronto.
10. D.E.H., "Locally Dispersing Populations on Dynamic Spatiotemporally Structured Heterogeneous Landscapes," poster presentation at SIAM Conference on Life Sciences, Aug 2008, Montreal.
11. D.E.H., "Modeling Outbreaks in Agricultural Systems, Human Communities and Computer Networks," invited presentation to members of Congress, congressional staff, administration representatives and others at the Coalition for National Science Funding on Capitol Hill, Washington, DC, Mar 2009. I represented the American Mathematical Society.
12. D.E.H., "Modeling Outbreaks in Structured Populations and the Internet," invited colloquium at Center for Applied Mathematics, Cornell University, Nov 2009.
13. D.E.H., "Modeling Outbreaks In the Internet and Human Populations" invited colloquium at UMaine Presque Isle, Apr 2010.
14. D.E.H. and Isaac J. Michaud^g, "Targeted Treatment of Outbreaks in a Community-Structured Model," presented at the Eighth International Conference on Complex Systems, Jun/Jul 2011, Boston.
15. D.E.H., "Biological Dispersal Strategies of Internet Worms," presented at the Joint Mathematics Meeting, Jan 2012, Boston.
16. D.E.H., "Cellular Automata," in *Encyclopedia of Theoretical Ecology*, edited by Alan Hastings and Louis Gross (University of California Press, 2012).

Other selected professional publications and presentations, continued

17. D.E.H., “Biological Dispersal Strategies of Internet Worms,” invited plenary lecture presented at Workshop on Spatial Models of Micro and Macro Systems, Mathematical Biosciences Institute, Ohio State University, Apr 2012, Columbus OH.
18. D.E.H., “Ecological and epidemiological models in spatial and structured populations,” invited presentation at Workshop on Qualitative Theory of Differential Equations and Singular Perturbation Theory, Shanghai Jiaotong University, May 2016, Shanghai China.

Non-professional publications

1. D.E.H., “The Little Monkey’s Adventure,” (fiction, in Chinese), published in Xiao Peng You magazine, Shanghai, China, Sep. 1996.
2. D.E.H., “Why Did the Deer Stomp His Foot,” (nonfiction, in Chinese) published in Xiao Peng You magazine, Shanghai, China, June 1998.
3. Biweekly columnist for the Cornell Daily Sun newspaper, Fall 1999.
4. D.E.H., “Career Automata,” Science’s Next Wave, Feb. 6, 2004. Invited autobiographical article about the path leading to my research career.
5. D.E.H., “A Foreign Bigfoot Searches for Shoes,” (nonfiction, in Chinese with translation assistance from Yanlin Ding), in Xin1 Min2 Wan3 Bao4 (“Xinmin Evening News” newspaper), Shanghai, China, Oct. 29 2005.
6. D.E.H., “Measure Maine’s Coast,” Letter to the Editor published in the *Bangor Daily News*, Friday June 2, 2006. Letter regarding fractal geometry.

SERVICE

- Manuscript referee for the following journals since Fall 2002 (66 in total):
American Naturalist (5), Annals of Applied Probability, Applied Mathematics and Computation, Biosystems, Bulletin of Mathematical Biology, Communications in Nonlinear Science and Numerical Simulations, Computers and Electronics in Agriculture, Ecological Modelling (6), Ecology Letters, Ecology, Ecosystems (3), Epidemiology and Infection, International Journal of Applied Mathematics and Statistics, International Journal of Modern Physics C, Journal of Biological Dynamics (2), Journal of Mathematical Biology, Journal of Mathematics and Culture, Journal of Theoretical Biology (15), Landscape Ecology (2), Mathematical Biosciences and Engineering, Physica A (3), Physics Letters A (3), Plant Ecology (3), PLOS ONE (2), SIAM Journal on Applied Dynamical Systems (2), Theoretical Population Biology (4), Theoretical Ecology (2)
- Grant proposal reviewer for the following agencies:
 - ◊Israel Science Foundation, May 2006
 - ◊National Science Foundation: ad hoc reviews in Sep 2006, Mar 2007, Feb 2008, Sep 2008, Jun 2012, Sep 2012, May 2015
 - ◊National Science Foundation: review panel member in April 2008, April 2009, April 2013
- Invited member of the Scientific Committee for ACRI, the Seventh International Conference on Cellular Automata for Research and Industry (Perpignan, France, Sept 20-23, 2006).
- Member of External Advisory Board for the Ecosystems Informatics IGERT program at Oregon State University, Fall 2006–Spring 2007.
- Served on department faculty hiring committee, 2002/2003, 2004/2005, 2012/2013, 2013/2014, 2016/2017(×2), 2017/2018.
- Department representative at University of Maine open houses for prospective students and luncheons for accepted students, Summer 2009–Fall 2015.
- Chair of department faculty peer committee, Fall 2013–Spring 2015, Fall 2016–present.

OUTREACH

- Research advisor and lecturer at the Mathematical and Theoretical Biology Institute (MTBI) at Arizona State University, Summers of 2006, 2007, and 2008.
- Ran an interactive math/computing workshop for 24 seventh-grade students from the NYC Columbia Secondary School for Math, Science, and Engineering, Jun 2009.
- Ran an interactive math/computing workshop for K-12 students and teachers for “Imagine Math Day 2010” at The University of Maine Presque Isle, Apr 2010.
- Ran workshops on “Simulating and Modeling the Natural World with Math and Computers,” at the following venues:
 - 4-H @ UMaine (for K-12 students). May 2011, 2012, 2015.
 - To 11 high-school students at the UMaine Hutchinson Center in INT 188 (Introduction to Integrated Science and Career Exploration / Laboratory), July 2014.
 - Expanding Your Horizons conference (for middle-school girls, to encourage interest in STEM). I had 74 students in three workshops. March 2015.
 - Maine Science Festival (for the general public; approx. 40 people). March 2015.
- Participated regularly (roughly twice per week) in “Technology and Engineering I: MATLAB and Analysis” class at Bangor High School’s STEM Academy, Jan–Jun 2013. Participated in their classes again in Fall 2015.
- Released a mobile simulation app available on Apple’s App Store for iPad, iPhone, and iPod Touch, and on Google Play for Android devices, May 2011–present. (Search for “Hiebeler” or for “SPEEDSim” on either store.)
- Created an interactive (iPad-based) exhibit “Mathematical Patterns in Nature: Exploring Dynamical Models” on display at the Maine Discovery Museum, a children’s museum in Bangor, ME. July 2015 – present.

STUDENT ADVISING

Advisor for the following graduate students:

Current: (None at this time)

Previous: • Ben Morin (M.A., Mathematics and Statistics), Fall 2004–Spring 2006.

• Andrew Johnson (M.S., Ecology and Environmental Science), Fall 2008–Fall 2010.

• Isaac Michaud (M.A., Mathematics and Statistics), Summer 2009–Fall 2011.

• Ben Morin (committee co-chair, PhD, Applied Math for Life & Social Sciences, Arizona State Univ.), Spring 2011–Spring 2012.

• Jack Hill (M.A., Mathematics and Statistics), Fall 2009–Fall 2014.

• Rachel Rier (M.A., Mathematics and Statistics), Spring 2011–Spring 2013, and Fall 2014.

Advisor for the following undergraduate honors projects:

Current: • Maddy Dorr (B.A., Mathematics and Statistics), Fall 2018–present.

Previous: • Jennifer Houle (B.A., Mathematics and Statistics), Fall 2005–Spring 2006.

• Isaac Michaud (B.A., Mathematics and Statistics), Fall 2008–Spring 2009.

• Nicholas Millett (B.A., Mathematics and Statistics), Fall 2009–Spring 2010.

• Emma Strubell (committee co-chair, B.S., Computer Science), Fall 2011–Spring 2012.

Member of the following graduate student committees:

Current: • Benjamin Seliger (PhD, Ecology and Environmental Science), Fall 2015–present.

• Michael Torre (PhD, Marine Biology), Spring 2016–present.

• Sonjia Birthisel (PhD, Ecology and Environmental Science), Spring 2017–present.

• Brad Erdman (PhD, Ecology and Environmental Science), Spring 2017–present.

• Cameron Hodgdon (PhD, Marine Biology), Fall 2018–present.

• Luoliang Xu (PhD, Ecology and Environmental Science), Fall 2018–present.

Previous: • Medea Steinman (M.S., Wildlife Ecology), Fall 2003–Spring 2004.

• Debra Kenneway (M.S., Physics), Fall 2003–Fall 2004.

• Dianna Queheillalt (PhD, Wildlife Ecology), Fall 2003–Spring 2005.

• Fred Beaudry (PhD, Wildlife Ecology), Fall 2003–Fall 2007.

• Liying Yan (PhD, Interdisciplinary Program), Summer 2004–Spring 2007.

• Andrew Paradis (PhD, Physics), Fall 2004–Spring 2008.

• Rodney Jacobs (M.S., Computer Science), Spring 2005–Fall 2005.

• David Patrick (PhD, Wildlife Ecology), Fall 2005–Spring 2007.

• Chenglu Dai (M.A., Mathematics and Statistics), Fall 2007–Summer 2008.

• Thomas Stone (PhD, Physics), Spring 2008–Summer 2010.

• Derek Olson (M.S., Marine Biology / Marine Policy), Summer 2010–Fall 2016.

• Joseph Pekol (M.S., School of Forest Resources), Summer 2010–Fall 2011.

• Najet Bichraoui (PhD, Forest Resources), Spring 2011–Spring 2012.

• Yosef Manik (PhD, Ecology and Environmental Science), Spring 2011–Spring 2013.

• Shannon Chapin (M.S., Ecology and Environmental Science), Spring 2012.

• Claire Westervelt (M.S., Earth Sciences), Fall 2012–summer 2013.

• Britt Cline (PhD, Wildlife Ecology), Spring 2011–Summer 2014.

• Emily Silver (PhD, Forest Resources), Fall 2013–Spring 2015.

• Matthew Ludden (M.S., Physics), Fall 2014–Summer 2015.

• Binod Neupane (PhD, Ecology and Environmental Science), Spring 2013–Fall 2015.

• Ethan Tremblay (M.S., Resource Economics & Policy), Fall 2016–Spring 2017.

STUDENT ADVISING, CONTINUED

Member of the following undergraduate honors thesis committees:

Current: (None at this time)

Previous: • Roy Gott (Computer Science), Fall 2003–Spring 2004.

- David Gosselin (Computer Science), Fall 2006.
- Matt Dube (Mathematics), Fall 2006–Spring 2007.
- Benjamin Lakin (Mechanical Engineering), Fall 2006–Spring 2007.
- Jing Ling (Computer Engineering), Fall 2006–Spring 2007.
- Mark Larsen (Computer Science), Fall 2006–Fall 2007.
- Robert Lawlis (Mathematics), Spring 2008.
- Chelsea Lucas (Ecology & Environmental Sciences), Spring 2008.
- Yin Chiu (Mathematics), Fall 2009–Spring 2010.
- George Cooper Jr. (Biology), Fall 2010–Spring 2011.
- Sean Hardy (Mathematics), Fall 2012–Spring 2013.
- Hannah Dewey (Mathematics), Spring 2014–Summer 2014.
- Shayne Plourde (Mathematics), Fall 2014–Spring 2015.
- Kaitlyn Lavalley (Economics / Mathematics), Fall 2016–Spring 2017.

Mentor/advisor for the following undergraduate research assistants (^h=high-school student):

Andrew Audibert^h, Josh Audibert, Peter Bilodeau, Tim Buchak, Yin Chiu,
Ashley Coe, Amanda Criner, Nathan Dunn, David Gosselin, Jack Hill, Jennifer Houle,
PJ LeClair^h, Avner Maiberg, Jeff Merckens, Isaac Michaud, Errol Millios, Nick Millett,
Pamela Reitsma, Rachel Rier, Tyler Rigazio, Sonia Rode, Emma Strubell, Ben Wasserman,
Anna Webber^h

OTHER TEACHING EXPERIENCE

Teaching Assistant

BIOGD481: Population Genetics

Fall 1999
Cornell University

Teaching Assistant

CS100b: Introduction to Computer Programming (in Java)

Fall 1997
Cornell University

Teaching Fellow

AM111: Introduction to Scientific Computing

Spring 1995
Harvard University

OTHER WORK EXPERIENCE

Research Assistant and Programmer Oct 1992–Sept 1993, summer 1994
Santa Fe Institute, Santa Fe, NM

- Designed and implemented the prototype Swarm simulation environment for agent-based modeling (see www.swarm.org).
- Worked with researchers and students using Swarm for studying economic models, emergence of hierarchical structures in artificial chemistries, and social insect behavior.

Applications Engineer December 1990–October 1992
Thinking Machines Corp., Cambridge, MA

Research Assistant and Programmer May 1989–August 1990
*Center for Nonlinear Studies, Theoretical Division, and Advanced Computing Lab
Los Alamos National Laboratory, Los Alamos, NM*

- Developed lattice-based modeling software on Connection Machine supercomputer.

COMPUTER SKILLS

Languages/software: C, MATLAB, R, Perl, C++, Java, csh, LaTeX, HTML, PostScript.
Systems: Strong Unix skills (Mac OS-X, Linux, Solaris, SunOS), X11.

PROFESSIONAL MEMBERSHIPS

Ecological Society of America
Society for Mathematical Biology
Society for Industrial and Applied Mathematics

OTHER

Citizenship: USA by birth.
Languages: English, some Mandarin Chinese.