

Rhonda Hoenigman  
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College of Engineering and Applied Science  
University of Colorado, Boulder

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## RESEARCH INTERESTS

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Artificial intelligence, algorithms, complex systems modeling, cooperation dynamics in agent-based systems, resource use and sustainability, data science in sports

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## ACADEMIC POSITIONS

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**Associate Dean for Undergraduate Education** Aug 2019 – Present

College of Engineering and Applied Science  
*University of Colorado, Boulder*

Aug 2016 - Aug 2019

**Faculty Director of Undergraduate Education**

*University of Colorado, Boulder*

- Manage computer science undergraduate program that includes 2,000 majors, and 200+ minors
- Oversee curriculum development for majors and non-majors
- Allocate teaching resources - faculty and graduate and undergraduate course assistants - to undergraduate courses
- Supervise teaching faculty
- Collaborate with other units on campus on computing education

**Senior Instructor**

July 2018-Present

*University of Colorado, Boulder*

- Teach upper- and lower-division computer science classes to 50-200 students a semester
- Classes taught: Introduction to Programming, Data Structures, Discrete Structures, Introduction to Artificial Intelligence, Algorithms, Sabermetrics
- Manage course staff of 2-4 graduate and undergraduate course assistants and graders each semester

**Instructor**

Aug 2013 - July 2018

*University of Colorado, Boulder*

- Taught upper- and lower-division computer science classes to 300-500 students a semester
- Classes taught: Introduction to Programming, Data Structures, Discrete Structures, Introduction to Artificial Intelligence, Algorithms, Sabermetrics
- Manage course staff of 5-10 graduate and undergraduate course assistants and graders each semester

**Graduate Instructor/Lecturer**

Summer 2010, 2011, 2012, 2013

*University of Colorado, Boulder*

**GK-12 Fellow**

July 2009-2011

*University of Colorado, Boulder*

- NSF Funded program that placed computer science graduate students in K-12 classrooms
- Worked with a middle school science teacher to introduce more computational thinking into the life science curriculum

**Complex Systems Summer School**

June 2009

*Santa Fe Institute, Santa Fe, NM*

- Project-based introduction to complex behavior in mathematical, physical, living, and social systems

**Teaching Assistant** 2007 - 2008

*University of Colorado, Boulder*

**Research Assistant** 2008-2009

*University of Colorado, Boulder*

- PIs: Dr. Amer Diwan and Dr. Elizabeth Bradley
- Applied machine learning and non-linear dynamics techniques to study of computer system dynamics

**Research Assistant** 2006-2007

*San Diego State University*

- PI: Dr. Marie Roch
- Worked in speech processing lab on a collaborative project with Scripps Institution of Oceanography to identify *delphinid* species by their vocalizations

**Grader** 2006 - 2007

*San Diego State University*

## INDUSTRY EXPERIENCE

**Software Engineer** 2002-2006

*AMN Healthcare, San Diego, CA*

- Technologies: Web and client/server applications, Visual Basic, C#, ASP, SQL, Black-box and white-box testing methods

**Software Engineer** 2001-2002

*Independent Contractor, San Diego, CA*

- Technologies: Web and client/server applications in Visual Basic, VB Script, and HTML

**Software Engineer** 2001-2002

*Stellcom, San Diego, CA*

- Technologies: Visual Basic

**Programmer** 1997-2000

*ACCES I/O Products, San Diego, CA*

- Technologies: C/C++, register-level functionality, including analog/digital, digital/analog, interrupt capabilities, and RS232/485/422 protocols

**Editor** 1994-1997

*National Science Teachers Association, Arlington, VA*

## EDUCATION

**University of Colorado, Boulder** 2012

Department of Computer Science

PhD in Computer Science. Advisor: Dr. Elizabeth Bradley

*Thesis title: Optimizing implicit plant interactions to optimize water use on residential landscapes*

**San Diego State University** 2007

Department of Computer Science  
MS in Computer Science. Advisor: Dr. Marie Roch

*Thesis title: Support vector machine classification for applications of auditory scene analysis*

**Ohio University**

1994

Honors Tutorial College, Athens, Ohio.  
BS Journalism, minor in Environmental and Plant Biology  
Summa Cum Laude

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**PUBLICATIONS**

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- R. Hoenigman. Visualizing Data Structures. Lulu Publishing, Raleigh, NC, 2015.
- D. Grunwald, E. Boese, R. Hoenigman, A. Sayler, and J. Stafford. Personalized attention @ scale - Talk isn't cheap, but it's effective. *SIGCSE*, Kansas City, MO, 2015.
- C. Phillips, R. Hoenigman, and R. Higbee. Understanding the sustainability of retail food recovery. *PlosOne*, October 2013.
- R. Hoenigman, E. Bradley, and N. Barger. Water conservation through facilitation. In *Proceedings of the Twenty-Fifth AAAI Conference on Artificial Intelligence*, San Francisco, CA, pages 1337–1342, 2011.
- R. Hoenigman, E. Bradley, and A. Lim. Cooperation in bike racing – when to work together and when to go it alone, *Complexity* DOI: 10.1002/cplx.20372 (2011). Excerpted in *Complexity Digest*.
- R. Hoenigman and D. Crowder. Clever with weather, *Science Scope*, 34, pages 46-51, 2011.
- R. Hoenigman, E. Bradley, and N. Barger. Agent-Scapes—Designing water efficient residential landscapes using distributed agent-based optimization. In *Proceedings of the 12<sup>th</sup> Annual Conference Companion on Genetic and Evolutionary Computation Conference: Late Breaking Papers*, Portland, OR, pages 1777-1784, 2010.
- M.A. Roch, M.S. Soldevilla, R. Hoenigman, S.M. Wiggins, and J.A. Hildebrand. Comparison of machine learning techniques for the classification of echolocation clicks from three species of odontocetes, *Canadian Journal of Acoustics*, pages 41-47, 2008.
- R. Hoenigman, S. K. Madhusudhana, and J. Lewis. Investigations of the 0/1 multiple knapsack problem using a genetic algorithm. In *Proceedings of The International Conference on Artificial Intelligence*, Las Vegas, NV, 2007.

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**PRESENTATIONS AND POSTERS**

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- R. Hoenigman and C. Phillips. Understanding the dynamics of retail food recovery. Ignite talk, *Complex Systems Society*, Tempe, AZ, 2015.
- R. Hoenigman, E. Bradley, and N. Barger. An agent-based framework for designing water efficient residential landscapes, *SIAM Conference on Applications of Dynamical Systems (DS11)*, Snowbird, Utah, 2011.

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**GRANTS AND RESEARCH FUNDING**

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- R. Hoenigman and J. Turner. TRESTLE Course Transformation for Data Structures, 2017. \$1000.
- R. Hoenigman, P. Axelrad, D. Kotys-Schwartz, S. Miller, A. Parker and J. Stafford. NCWIT Mini-grant to increase female enrollments in computer science, 2015. \$8000.
- R. Hoenigman, C. Phillips, and H. Dansky. Boulder Food Rescue food waste audit. Funded by the City of Boulder, 2014. \$7500.

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**AWARDS**

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- R. Hoenigman, S. Miller, and A. Parker. NCWIT Extension Services Transformation Award, 2017. Second place. \$50,000.

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**SERVICE**

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Department of Computer Science Executive Committee	2016-2019
Department of Computer Science Curriculum Committee	2014-2019
Department of Computer Science Undergraduate Committee	2016-2019
Faculty search committee	2016
NCWIT Extension Services representative for Computer Science	2015-2016
Board of Directors, Boulder Food Rescue	2014-2016
New graduate student recruitment, University of Colorado	2008, 2009, 2010, 2011