

Mary Elaine Califf

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Education

Ph.D. in Computer Sciences, University of Texas at Austin, 8/98. Dissertation: "Relational Learning Techniques for Natural Language Information Extraction."

M.S. in Computer Science, Baylor University, 1993.

M.A. in English, Baylor University, 1989.

B.A. in English, Baylor University, 1985.

Research Interests

Artificial Intelligence, particularly Machine Learning and Natural Language Processing
Computer Science Education

Professional Experience

08/98-present Assistant/Associate Professor
School of Information Technology, Illinois State University

07/14-06/19 Director
School of Information Technology, Illinois State University

01/13-06/14 Interim Director
School of Information Technology, Illinois State University

12/10-3/11 Acting Director
School of Information Technology, Illinois State University

Summer 1998 and Summer 1997
Graduate Research Assistant
Dept. of Computer Sciences, The University of Texas at Austin

Worked with my dissertation advisor, Raymond Mooney, on research in the areas of machine learning and natural language processing.

- 09/94-05/95 Graduate Teaching Assistant
Dept. of Computer Sciences, The University of Texas at Austin
- In the fall, taught two discussion sections for the beginning programming course (taught in Pascal). In the spring, I was teaching assistant for an honors seminar on women in science, team-taught by members of three departments, include computer sciences.
- 05/92-5/94 Editor, Frameworks Magazine
MacApp Developers' Association
- Worked part-time editing the magazine which was aimed at Macintosh software developers. This included quite a bit of writing, including reviews of new development tools and languages.
- 05/93-8/93 Programmer
Applied Network Technologies
- Did programming for a startup in Waco, Texas that is now part of CBORD, Inc..
- 09/92-5/93 Graduate Assistant
Center for Computing and Information Systems, Baylor University
- Continued duties of previous position.
- 02/90-08/92 Programmer
Center for Computing and Information Systems, Baylor University
- Worked in the administrative computing section. Primary task was the development of Macintosh programs to provide appropriate interfaces to administrative data for academic personnel. Also taught several classes on object-oriented programming, C++, and GUI programming for colleagues in the center. Duties also included other administrative programming as needed.
- 09/89-12/89 Graduate Teaching Assistant
Dept. of Engineering and Computer Science, Baylor University
- Taught lab for the computer course for education majors.
- 06/88-08/89 Part-time Library Assistant
Armstrong-Browning Library, Baylor University
- Helped run the main floor of the Armstrong-Browning Library: training and supervising student workers, giving tours, developing training documents, creating brochures, and filling in for the librarian as needed.
- 01/88-05/88 Graduate Assistant
English Department, Baylor University
- Developed software for use in the Writing Center.
- 09/86-12/87 Graduate Teaching Assistant
English Department, Baylor University
- Taught two sections per semester of freshman composition courses.

09/85-05/86 Graduate Research Assistant
English Department, Baylor University

Worked as a research assistant for one of the English professors, primarily helping with his comprehensive bibliography of Byron materials.

Professional Societies

American Association for Artificial Intelligence
Association for Computational Linguistics
Association for Computing Machinery

Publications/Presentations

1. Califf, Mary Elaine and Nick Dunne. (2022) Feedback in Context: Using a Code Review Tool for Program Grading. In *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education V.1 (SIGCSE 2022), March 3-5, Providence, RI, USA*. ACM, New York, NY, USA, 6 pages.
<https://doi.org/10.1145/3478431.3499402>
2. Alberto Lavelli, Mary Elaine Califf, Fabio Ciravegna, Dayne Freitag, Claudio Guiliano, Nicholas Kushmerick, Lorenza Romano, and Neil Ireson. (2009) Evaluation of Machine Learning-based Information Extraction Algorithms: Criticisms and recommendations. *Language Resources and Evaluation*. 42(4).
3. Califf, Mary Elaine. (2008) Combining Rules and Naïve Bayes for Disease Classification. In *Proceedings of the Second i2b2 Workshop on Challenges in Natural Language Processing for Clinical Data*. AMIA 2008. Washington, DC.
4. Califf, Mary Elaine, Mary Goodwin and Jake Brownell. Helping him see: Guiding a visually impaired student through the computer science curriculum. *Proceedings of the 39th SIGCSE Technical Symposium on Computer Science Education*. Portland, OR, Mar 12-15, 2008.
5. Goodwin, Mary and Mary Elaine Califf. An assessment of the impact of time management training on success in a time-intensive course. *Journal on Excellence in College Teaching*. 17(2). 2007.
6. Ireson, Neil, Fabio Ciravegna, Mary Elaine Califf, Dayne Freitag, Nick Kushmerick, and Alberto Lavelli. Evaluating machine learning for information extraction. *Proceedings of the 22nd International Conference on Machine Learning (ICML 2005)*. Bonn, Germany, Aug 7-11, 2005.
7. Califf, Mary Elaine and Mary Goodwin. Effective incorporation of ethics into courses that focus on programming. *Proceedings of the 36th SIGCSE Technical Symposium on Computer Science Education*. St. Louis, MO, Feb 23-27, 2005.

8. Goodwin, Mary and Mary Elaine Califf. Preliminary findings on the significance of learning styles over time. Presented to the International Society for the Scholarship of Teaching and Learning Inaugural Meeting. Bloomington, Indiana. October, 2004.
9. Alberto Lavelli, Mary Elaine Califf, Fabio Ciravegna, Dayne Freitag, Claudio Giuliano, Nick Kushmerick, and Lorenza Romano. IE evaluation: Criticisms and recommendations. In *Proceedings of the AAAI-04 Workshop on Adaptive Text Extraction and Mining (ATEM-2004)*, San Jose, California, July, 2004.
10. Alberto Lavelli, Mary Elaine Califf, Fabio Ciravegna, Dayne Freitag, Claudio Giuliano, Nicholas Kushmerick, and Lorenza Romano. A Critical Survey of the Methodology for IE Evaluation. In *Proceedings of the 4th International Conference on Language Resources and Evaluation*, Lisbon, Portugal, May, 2004.
11. Mary Elaine Califf and Raymond J. Mooney. Bottom-Up Relational Learning of Pattern Matching Rules for Information Extraction. *Journal of Machine Learning Research*, 4(2003): 177-210.
12. Mary Elaine Califf. Efficient and Effective Induction of First Order Decision Lists. In *Proceedings of the Thirteenth International Conference on Inductive Logic Programming*. Sydney, Australia, July, 2002.
13. Mary Elaine Califf and Mary Goodwin. "Testing Skills and Knowledge: Introducing a Laboratory Exam in CS1. In *Proceedings of the 33rd SIGCSE Technical Symposium on Computer Science Education*. Covington, Kentucky, pp. 217-221, March 2002.
14. Cynthia A. Thompson and Mary Elaine Califf. Improving Learning by Choosing Examples Intelligently in Two Natural Language Tasks. In *Learning Language in Logic*, J. Cussens and S. Džeroski(Eds), pp. 279-299, Springer, Berlin, 2000.
15. Cynthia A. Thompson, Mary Elaine Califf and Raymond J. Mooney. Active Learning for Natural Language Parsing and Information Extraction. In *Proceedings of the Sixteenth International Conference on Machine Learning (ICML99)*. Bled, Slovenia, pp. 406-414, June 1999.
16. Mary Elaine Califf and Raymond J. Mooney. Relational Learning of Pattern-Match Rules for Information Extraction. In *Proceedings of the Sixteenth National Conference on Artificial Intelligence (AAAI99)*. Orlando, Florida, pp. 328-334, July 1999.
17. Mary Elaine Califf and Raymond J. Mooney. Advantages of Decision Lists and Implicit Negatives in Inductive Logic Programming. *New Generation Computing*, 16 (1998): 263-281.
18. Mary Elaine Califf and Raymond J. Mooney. Applying ILP-based Techniques to Natural Language Information Extraction: An Experiment in Relational Learning. In *Working Notes of the IJCAI-97 Workshop on Frontiers of Inductive Logic Programming*. Nagoya, Japan, August, 1997.

19. Mary Elaine Califf and Raymond J. Mooney. Relational Learning of Pattern-Match Rules for Information Extraction. In *Working Papers of the ACL-97 Workshop in Natural Language Learning*. Madrid, Spain, July, 1997.
20. Mary Elaine Califf and Raymond J. Mooney. Learning the Past Tense of English Verbs Using Inductive Logic Programming. In *Connectionist, Statistical, and Symbolic Approaches to Learning for Natural Language Processing*, S. Wermter, E. Riloff, and G. Scheler (Eds.), pp. 370-384, Springer, Berlin, 1996.
21. Raymond J. Mooney and Mary Elaine Califf. Induction of First-Order Decision Lists: Results on Learning the Past Tense of English Verbs. *Journal of Artificial Intelligence Research*, 3 (1995): 1-23.
22. John M. Zelle, Cynthia A. Thompson, Mary Elaine Califf and Raymond J. Mooney. Inducing Logic Programs without Explicit Negative Examples. In *Proceedings of the Fifth International Inductive Logic Programming Workshop*. Leuven, Belgium, September, 1995.
23. Mary Elaine Califf. An Exploration of Similarity Based Learning as an Aid to Network Monitoring. Master's Thesis, Baylor University, 1993.
24. Mary Elaine Califf. No Mere Farce: Aspects of Shakespearean Romantic Comedy in *The Merry Wives of Windsor*. Master's Thesis, Baylor University, 1989.
25. Mary Elaine Califf. Confronting the Shadow: Individuation in 'The Piazza'. Presented at the Conference of College Teachers of English, 1988.
26. Mary Elaine Califf. Appearance and Reality in Phillip Massinger's *The City Madam*. Presented at the South Central Renaissance Conference, 1987.

External Grants Funded

“Collaborative Research: ITWF: Building Communities: Recruiting and Retention of Underrepresented Groups in Computer Science” A grant to encourage recruitment and retention of women and underrepresented minorities in computing disciplines. It was a linked grant with several schools involved, with the University of Illinois at Urbana-Champaign as the lead institution. The grant was funded for 4 years by NSF, beginning August, 2004. I was the PI at Illinois State University. The total amount for Illinois State's grant is \$86,057.

Internal Grants Funded

“A Comparison of Learning Algorithms for Information Extraction,” URG, \$5000, 2000.

“Applied Computer Science: Student Learning Styles and Success, Including Analysis of Preferred Teaching Styles,” A project to examine the impact of teaching and learning styles on success in the introductory programming sequence in particular, co-PI with Mary Goodwin, Cross Chair in Scholarship of Teaching and Learning Small Grant Program, \$4000. 2003.

“Problem Sets for Beginning Programming Courses,” co-PI with Mary Goodwin, CTLT Teaching and Learning Development Grant, \$2000. 2008.

Workshops Organized

“Information Extraction Beyond the Document,” COLING/ACL 06 Workshop. Sydney, Australia, July 22, 2006. Organizers: Mary Elaine Califf, Mark A. Greenwood, Mark Stevenson, and Roman Yangarber.

“Machine Learning for Information Extraction,” AAAI-99 Workshop. Orlando, FL, July 19, 1999. Organizers: Mary Elaine Califf (chair), Dayne Freitag, Nicholas Kushmerick, and Ion Muslea.

University Courses Taught

Undergraduate

Structured Problem Solving Using the Computer (CS1)
Introduction to Data Structures
Algorithms and Data Structures
Concepts of Programming Languages
Introduction to Artificial Intelligence
Data Mining
Machine Learning
Foundations of Inquiry (freshman seminar)

Graduate

Artificial Intelligence and Expert Systems

Thesis Supervision

Mary Goodwin, An Investigation in the Effect of Time Management Training on the Success Rate in Beginning Programming Courses, 2004.

Vajesh Durbal, An Application of Inductive Logic Programming Techniques to Data Mining, 2004.

Awards

Voted Outstanding Faculty Member by School of Information Technology Freshmen, 2007.

Voted Outstanding Faculty Member by School of Information Technology Sophomores, 2006.

Voted Outstanding Faculty Member by School of Information Technology Seniors, 2005.

Voted Outstanding Faculty Member by School of Information Technology Juniors, 2004.

Recognized at Mortar Board Faculty Appreciation event in Spring, 2002.

Recognized at Mortar Board Faculty Appreciation event in Spring, 2001.

Voted Outstanding Faculty Member by Applied Computer Science Department Freshmen, 2000.

Selected Service Assignments

Associate Director of the School of Information Technology, March, 2011- Dec, 2012

This included periods as Acting Director varying from a few days to as much as five weeks at a time.

Intellectual Property Committee 2011-present

Academic Planning Committee, 2011-2013

College Faculty Status Committee, 2010-2012

University Curriculum Committee, 2006-2009; Chair Spring, 2007

College Curriculum Committee, 2001-2006; Chair 2005-2006

IT School Curriculum Committee, 2000-2007, 2009-Fall, 2010; Chair 2003-2005, 2006-2007, 2009-Fall, 2010

IT School Faculty Status Committee, 2006-2008

Honors Council, 2004-2007, 2009-2012

University Hearing Panel, 2002-2003

SCERB, 2003-2004

Primary writer of all four School of Information Technology program reviews in 2005

Primary writer of the School of Information Technology's computer science accreditation self-studies in 2002 and 2008

Representative to IAI Computer Science Panel 2003-2011; 2015-present

ACM Programming Teams coach, 1998-2003

Baptist Student Union/Baptist Collegiate Ministries/Mosaic Faculty Advisor, 1998-2013

Reviewing

Journals for which I have reviewed manuscripts

- International Journal of Human-Computer Studies
- Machine Learning
- Computational Intelligence
- Journal of Machine Learning Research

- Transactions on Knowledge and Data Engineering

Conferences for which I have reviewed papers

- IJCAI (International Joint Conference on Artificial Intelligence)
- AAAI (Association for the Advancement of Artificial Intelligence)
- ACL (Association for Computational Linguistics)
- ICDM (International Conference on Data Mining)
- SIGCSE (Special Interest Group on Computer Science Education)
- PAKDD (Pacific-Asia Conference on Knowledge Discovery and Data Mining)
- KDD (Knowledge Discovery and Data Mining)
- EMNLP (Empirical Methods for Natural Language Processing)