

# Eric R. Eaton

---

University of Maryland Baltimore County  
Department of Computer Science and Electrical Engineering  
1000 Hilltop Circle; Baltimore, MD 21250

Fax: (410) 455-3969  
E-mail: EricEaton@umbc.edu  
Website: <http://maple.cs.umbc.edu/~ericeaton/>

---

*Updated June 23, 2008*

## RESEARCH INTERESTS

Artificial intelligence and machine learning. Primary interests include knowledge transfer, life-long learning, interactive AI, multitask learning, constrained clustering, preference learning, human-computer interaction, and intelligent interfaces. Other interests include applications of AI and computer science to medicine, search and rescue, and space exploration.

## EDUCATION

- In Progress    **Ph.D. candidate in computer science**  
University of Maryland Baltimore County, Baltimore, MD  
Thesis Topic: *Knowledge Transfer using Multiresolution Learning*  
Committee: Drs. Marie desJardins (chair), Timothy Finin, Terran Lane, Tim Oates, and Yun Peng.  
GPA: 4.00/4.00
- Dec. 2005    **M.S. in computer science**  
University of Maryland Baltimore County, Baltimore, MD  
Thesis: *Clustering with Propagated Constraints*  
Committee: Drs. Marie desJardins (chair), Timothy Finin, and Tim Oates.  
GPA: 4.00/4.00
- May 2003    **B.S. *summa cum laude* in computer science**  
University of Maryland Baltimore County, Baltimore, MD  
Certificate of General Honors from UMBC Honors College. Minor field of study: psychology.  
GPA: 4.00/4.00

## PROFESSIONAL EXPERIENCE

- 1/2003 – Present    **Research Assistant**  
*MAPLE Research Group, University of Maryland Baltimore County, Baltimore, MD*  
Primary Investigator: Dr. Marie desJardins. Conducted research on knowledge transfer and life-long learning, preference learning, constrained clustering, and incremental learning in the presence of context changes.
- 1/2005 – 1/2008    **Part-time Instructor**  
*Computer Science Department, University of Maryland Baltimore County, Baltimore, MD*
- 5/2004 – 1/2008    **System Administrator**  
*MAPLE and CoRaL Laboratories, University of Maryland Baltimore County, Baltimore, MD*  
Maintained, upgraded, and expanded a network of over twenty computers, one Mac G5 server, and one Dell Workstation. The system is a mix of Fedora Linux, Windows, and Mac machines that provides transparent file access and authentication across operating systems.
- 6/2002 – 5/2003    **Undergraduate Research Assistant**  
*Computer Science Department, University of Maryland Baltimore County, Baltimore, MD*  
Primary Investigator: Dr. Padmavathi Mundur. Developed a multi-tier network architecture for video communication systems. Simulated and evaluated the architecture using the ns2 network simulator.

- 6/2002 – 8/2002,  
1/2003      **Computer Science Intern**  
*Millennium Chemicals, Baltimore Research Center, Glen Burnie, MD*  
Added features and increased efficiency of the Laboratory Information Management System developed during my internship in the year 2000; additional features included reporting capabilities, file attachments, streamlined user interfaces, a help system, and security enhancements. Worked as the only computer scientist on the project after the project manager departed in 2001.
- 6/2001 – 8/2001      **Computer Science Intern**  
*Cingular Wireless, Network Operations Center, Hanover, MD*  
Developed a web-based Personnel Directory using ASP and SQL Server. Designed and developed several Information Management Systems using ASP, SQL Server, and Remedy Action-Request System. Designed and executed computer-aided data filtering to populate a network circuit database for the Northeast region of Cingular Wireless.
- 6/2000 – 8/2000      **Computer Science Intern**  
*Millennium Inorganic Chemicals, Baltimore Research Center, Glen Burnie, MD*  
Worked on a development team designing and implementing a Laboratory Information Management System using Oracle 8i Web Applications server. Designed and implemented the logical database design and web-based graphical user-interface.

### **TEACHING EXPERIENCE**

- Fall 2007      Instructor, CMSC 471: Artificial Intelligence (undergraduate upper-level elective), UMBC.  
Fall 2006      Instructor, CMSC 121: Introduction to UNIX (2 sections), UMBC.  
Fall 2005      Instructor, CMSC 121: Introduction to UNIX, UMBC.  
Spring 2005    Instructor, CMSC 203: Discrete Structures (undergraduate requirement), UMBC.

### **GUEST LECTURES**

- Fall 2007      *Counting and Probability*, CMSC 203: Discrete Structures, UMBC.  
Fall 2005      *Proof by Induction*, CMSC 203: Discrete Structures, UMBC.  
                    *First-Order Logic and Logical Inference*, CMSC 671: Artificial Intelligence, UMBC.  
Fall 2004      *Mathematics in  $\LaTeX$* , CMSC 203: Discrete Structures, UMBC.

### **OTHER TEACHING AND MENTORING ACTIVITIES**

- “Customer” for software development teams, CMSC 345: Software Design and Development, UMBC (S’2007, S’2006, S’2005, F’2004, S’2004).
- Academic adviser for incoming UMBC undergraduates and transfer students (2004–2005).
- Graduate student mentor for the UMBC CSEE Department (2004–2005).

### **SUBMITTED PUBLICATIONS**

Kiri Wagstaff, Marie desJardins, and Eric Eaton. (2008). “Modeling and learning user preferences over sets.” Submitted to the *Machine Learning Journal*.

Joseph Montminy, Fusun Sirin-Yaman, Eric Eaton, Marie desJardins, and Kiri Wagstaff. (2008). “Improved information retrieval through set-based preference learning.” Submitted to the 2008 Conference on Information and Knowledge Management (CIKM-08).

---

**PUBLICATIONS IN PREPARATION**

- Eric Eaton, Marie desJardins, and Terran Lane. (2008). “Directed knowledge transfer.” In preparation.
- Eric Eaton and Marie desJardins. (2008). “Boosting to identify relevant source data for instance-level transfer.” In preparation.
- Kiri Wagstaff, Marie desJardins, Eric Eaton, and J.C. Montminy. (2008). “Learning and visualizing user preferences over sets.” In preparation.

**REFEREED PUBLICATIONS**

- Eric Eaton, Marie desJardins, and Terran Lane. (2008). “Modeling transfer relationships between learning tasks for improved inductive transfer.” To appear in *Proceedings of the 2008 European Conference on Machine Learning*, September 15–19, Antwerp, Belgium. *Acceptance rate: 20%*.
- Eric Eaton. (2008). “Gridworld search and rescue: A project framework for a course in artificial intelligence.” To appear in *Proceedings of the AAAI-08 AI Education workshop*, July 13-14, Chicago, IL.
- Eric Eaton, Marie desJardins, and Terran Lane. (2008). “Using functions on a model graph for inductive transfer.” In the *Northeast Student Colloquium on Artificial Intelligence (NESCAI-08)*, May 2–4, Ithaca, NY.
- Eric Eaton, Marie desJardins, and John Stevenson. (2007). “Using multiresolution learning for transfer in image classification.” In *Proceedings of the Twenty-Second Conference on Artificial Intelligence (AAAI-07) [Student Abstract]*, July 22-26, Vancouver, British Columbia, Canada.
- Eric Eaton. (2006). “Multi-resolution learning for knowledge transfer.” In *Proceedings of the Twenty-First Conference on Artificial Intelligence (AAAI-06) [Doctoral Consortium]*, July 16-20, Boston, MA.
- Eric Eaton and Marie desJardins. (2006). “Knowledge transfer with a multiresolution ensemble of classifiers.” In *Proceedings of the ICML-06 Workshop on Structural Knowledge Transfer for Machine Learning*, June 29, Pittsburgh, PA.
- Marie desJardins, Eric Eaton, and Kiri Wagstaff. (2006). “Learning user preferences for sets of objects.” In *Proceedings of the International Conference on Machine Learning (ICML-06)*, June 25–29, Pittsburgh, PA. *Acceptance rate: 20%. Awarded recognition as a NASA Tech Brief in 2008.*
- Eric Eaton. (2005). *Clustering with Propagated Constraints*. Master’s Thesis, University of Maryland Baltimore County.
- Marie desJardins, Eric Eaton, and Kiri Wagstaff. (2005). “A context-sensitive and user-centric approach to developing personal assistants.” In *Proceedings of the AAAI Spring Symposium on Persistent Assistants*, March 21–23, Stanford, CA, 98–100.

**POSTER PRESENTATIONS**

- Eric Eaton and Padma Mundur. (2003). “A multi-tier architecture for video communication systems.” Computer Science and Electrical Engineering Student Research Conference, University of Maryland Baltimore County, May 14, Baltimore, MD.
- Eric Eaton and Padma Mundur. (2003). “A multi-tier architecture for video communication systems.” Undergraduate Research and Creative Achievement Day, University of Maryland Baltimore County, April 30, Baltimore, MD.

**PUBLISHED SOFTWARE**

- Eric Eaton. (2008). *Gridworld search and rescue: a project framework for a course in artificial intelligence*.

This educational software allows students to develop an intelligent agent for a Search and Rescue application in a partially observable gridworld. It allows students to focus on high-level AI issues for solving the problem rather than low-level robotic navigation. It was used as the semester project for CMSC 471 (Artificial Intelligence) in Fall 2007 at UMBC. The simulation framework is available at <http://maple.cs.umbc.edu/~ericeaton/searchandrescue/>.

**COMPUTER SCIENCE SKILLS**

Programming Languages:	Java, Matlab, Lisp, C, C++, VC++, Visual Basic, ASP, PL/SQL, VHDL, Intel x86 Assembly, MIPS Assembly, TCL/TK.
GUI Development:	Java, Visual Basic, Oracle Applications Server, Remedy.
Operating Systems:	Linux, MS Windows (9.x, 2000, XP, Vista), MS Dos, Mac OS X.
Business Systems:	Oracle 8i Applications Server, Oracle 8i Database, MS SQL Server, Remedy.
Advanced Coursework:	Machine Learning, Multiagent Systems, Agent Architectures, Emergence and Artificial Intelligence, Natural Language Processing, Robotics, Graphics, Operating Systems, Computer Architecture, Algorithms.
AI Software:	Weka Machine Learning Toolkit, SOAR, ACT-R.

**AWARDS**

- NASA Tech Brief Award for “Learning user preferences for sets of objects,” \$350. February 2008.
- Verizon Graduate Fellowship, \$3,000. Duration: August 2005 – January 2006.
- Goddard Earth Sciences and Technology Graduate Fellowship, \$60,000 plus tuition and benefits. Duration: August 2003 – August 2005.

**HONORS**

- UMBC Honors College Certificate of General Honors (May 2003).
- UMBC Outstanding Achievement in Computer Science Award (2003).
- Lockheed Martin Scholar (2001–2002).
- UMBC Presidential Fellow (1999–2003).
- UMBC Honors College Scholar (1999–2003).
- Maryland Science and Technology Scholar (1999–2003).
- National Merit Scholar: Semi-Finalist (1998).
- Maryland Distinguished Scholar: Honorable Mention (1998).

**AFFILIATIONS**

- MultiAgent Planning and LEarning (MAPLE) Research Group, UMBC.
- Cognition Robotics and Learning (CoRaL) Research Group, UMBC.
- Goddard Earth Sciences and Technology Center, UMBC.
- Association for the Advancement of Artificial Intelligence (AAAI) (2005–2008).
- Association for Computing Machinery (ACM), Student Member (2002–2003).
- Phi Kappa Phi, Mathematics National Honors Society.
- Upsilon Pi Epsilon, Computer Science National Honors Society.

**PROFESSIONAL ACTIVITIES****UMBC Service:**

- Revised CS Graduate Student Handbook and Progress Checklists (2007).
- Member, Provost’s Student Advisory Committee (2004–2005).
- Student Member, CSEE Department Promotion and Tenure Committee (Fall 2004, Fall 2003).
- Co-Organizer, CSEE Department “Hi-Tea” Weekly Social Forum (Spring 2007, Fall 2006, Fall 2004, Spring 2004).
- CSEE Representative, Graduate School Horizons program (Summer 2004, Summer 2003).
- Panelist, College of Engineering and Information Technology Summer Preview Days (Summer 2004).
- Sole Student Member, CSEE Department Chair Search Committee (Fall 2003).

---

**Professional Service:**

- Co-Reviewer, AAAI-05, the Twentieth International Conference on Artificial Intelligence (2005).
- Co-Reviewer, ICML-05, the Twenty-Second International Conference on Machine Learning (2005).
- Co-Reviewer, IJCAI-05, the International Joint Conference on Artificial Intelligence (2005).
- Judge, the Twenty-Sixth Annual UMB/UMBC Graduate Research Conference (2004).
- Co-Reviewer, ICML-04, the Twenty-First International Conference on Machine Learning (2004).
- Conference Registration Assistant and Session Chair (Bayes Nets, Noise/Imperfect Data), ICML-03, the Twentieth International Conference on Machine Learning (2003).

**REFERENCES**

Dr. Marie desJardins, Associate Professor  
Department of Computer Science and Electrical Engineering  
University of Maryland Baltimore County  
1000 Hilltop Circle, Baltimore, MD 21250  
Work: 410-455-3967  
E-mail: mariedj@cs.umbc.edu

Dr. Tim Oates, Associate Professor  
Department of Computer Science and Electrical Engineering  
University of Maryland Baltimore County  
1000 Hilltop Circle, Baltimore, MD 21250  
Work: 410-455-3082  
E-mail: oates@cs.umbc.edu

Dr. Kiri Wagstaff, Principal Investigator  
Machine Learning Systems Group  
NASA Jet Propulsion Laboratory  
4800 Oak Grove Drive, Pasadena, CA 91109  
Work: 818-393-6393  
E-mail: kiri.wagstaff@jpl.nasa.gov

Dr. Laurine Ottmar, Superintendent  
Analytical Research Department  
Millennium Chemicals, Baltimore Research Center  
6752 Bay Meadows Drive, Glen Burnie, MD 21060  
E-mail: laurine.ottmar@millenniumchem.com