Tom Armstrong

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Education

2008 PhD in Computer Science, *University of Maryland Graduate School, Baltimore*
2002 BSc in Computer Science, *University of Massachusetts Amherst*
BSc in Linguistics; Mathematics, *University of Massachusetts Amherst*

Current Appointments

2014- Associate Professor of Computer Science, *Wheaton College, Norton, MA*

Previous Appointments

2008-2014 Assistant Professor of Computer Science, *Wheaton College, Norton, MA*
2011 Fulbright-Nehru Visiting Lecturer, *Hemchandracharya North Gujarat University, India*
2011 Research Associate, *CoRaL Lab, University of Maryland, Baltimore County*
2004 Engineering Intern, *Google Inc.*, Mountain View, California
2004, 2008 Instructor, *University of Maryland, Baltimore County*
2002-2008 Research Assistant, *CoRaL Lab, University of Maryland, Baltimore County*
2001-2002 Research Assistant, *Experimental Knowledge Systems Lab, UMass Amherst*
2000-2001 Laboratory Assistant, *Language Acquisition Lab, Department of Linguistics, UMass Amherst*
Web Application Developer, *Center for Computer-Based Instructional Technology, UMass Amherst*

Grants & Fellowships

External

2011 **Fulbright-Nehru Scholar,** *The J. William Fulbright Foreign Scholarship Board*

Collaborative Research Experience for Undergraduates (CREU), with T. Oates and P. Hu, *Computing Research Association*. $31,000

US-Egypt Science & Technology Junior Scientist Award, *US-Egypt S&T Fund*. $20,000

2010 **Marion and Jasper Whiting Fellowship,** *Marion and Jasper Whiting Foundation*. $5,700

Amazon Web Services Teaching Grant, *Amazon.com, Inc.* $1,300

Sponsored Travel to the Association for Computing Machinery Awards Banquet, *Association for Computing Machinery*

2009 **Elastic Compute Cloud (EC2) Credits,** *Amazon.com, Inc.* $800

2005 **Sponsored Travel to the 20th National Conference on Artificial Intelligence,** *American Association for Artificial Intelligence*

2004 **Sponsored Travel to the 7th International Colloquium on Grammatical Inference,** *Knowledge Discovery Network of Excellence*

2001-2002 **"Maps for Verbs: Learning Verb Meanings through Dynamics."** *Microsoft Corp*. $5,000

Internal

2013–2014 **LIS / LTLC Academic Technology Funds,** *WHALE MakerSpace*. $4,000

2012–2013 **Mellon Curriculum Research Award.** $3,000

LIS / LTLC Academic Technology Funds, *WHALE: Fiberspace*. $4,000

Connections v2.0, *Wheaton College Makerspace* (PI; Co-PI: Mark LeBlanc). $10,000

Course Transformation Award. $1,000

LIS / LTLC Academic Technology Funds, *WHALE: iLab*. $4,000

2011–2012 **Mellon Summer Faculty Research Award.** $3,000

LIS / LTLC Academic Technology Funds, *WHALE: iLab*. $2,000

2008/2011 **Wheaton Research Partnership**. $1600

2011 **Provost Faculty Summer Research Award.** $3,000

Wheaton Robotics Laboratory Funding. $4,000

2010 **Sponsored Group Travel to the Mass. Museum of Contemporary Art,** *Arts in the City.* $700

2009 **Time Series Data Mining,** *Mars Student/Faculty Research Fellowship.* $5,000

2009–2010 **Wheaton Robotics Laboratory Funding.** $15,000

Honors & Awards

2010 **Invitation to the Association for Computing Machinery Awards Banquet,** *ACM*
Invitation to the Posse Career Program Internship Celebration, *Posse Foundation*
2005 **Graduate Student Leader of the Year,** *University of Maryland, Baltimore County*
2002 **Senior Leadership Award,** *University of Massachusetts Amherst*
Gerald F. Scanlon Student Employee of the Year, *University of Massachusetts Amherst*

Publications & Talks

Refereed Conferences

2011 **Unsupervised Discovery of Phoneme Boundaries in Multi-Speaker Continuous Speech,** with S. Antetomaso. *Proceedings of the Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics*

Classification of Patients Using Novel Multivariate Time Series Representations of Physiological Data, with P. Ordóñez, T. Oates, and J. Fackler. *Proceedings of the 10th International Conference on Machine Learning and Applications*

Unsupervised Discovery of Motifs Under Amplitude Scaling and Shifting in Time Series Databases, with E. Drewniak. *Proceedings of the 7th International Conference on Machine Learning and Data Mining in Pattern Recognition*

2010 **Robotics and Intelligent Systems for Social and Behavioral Science Undergraduates**. *Proceedings of the 15th Annual Conference on Innovation and Technology in Computer Science Education*

Connecting Across Campus, with M. LeBlanc and M. Gousie. *Proceedings of the 41st ACM Technical Symposium on Computer Science Education*

2008 **Learning in the Lexical-Grammatical Interface,** with T. Oates. *Proceedings of the 21st International Florida Artificial Intelligence Research Society Conference*

Which Came First, the Grammar or the Lexicon?, with T. Oates. *Proceedings of the 9th International Colloquium on Grammatical Inference*

Lexical and Grammatical Learning, with T. Oates. *Proceedings of the 23rd AAAI Conference on Artificial Intelligence (doctoral student abstract)*

2007 **RIPTIDE: Segmenting Data Using Multiple Resolutions,** with T. Oates. *Proceedings of the 6th IEEE International Conference on Development and Learning*

UNDERTOW: Multi-Level Segmentation of Real-Valued Time Series, with T. Oates. *Proceedings of the 22nd AAAI Conference on Artificial Intelligence (doctoral student abstract)*

2006 **Discovering Patterns In Real-valued Time Series**, with J. Catalano and T. Oates. *Proceedings of the 10th European Conference on Principles and Practice of Knowledge Discovery in Databases*

Inferring Grammars for Mildly Context-Sensitive Languages in Polynomial-Time, with T. Oates, L. Becerra-Bonache, and M. Atamas. *Proceeding of the 8th International Colloquium on Grammatical Inference*

2005 **Transfer in Learning by Doing**, with B. Krueger, T. Oates, P. Cohen, and C. Beal. *Proceedings of the 19th International Joint Conference on Artificial Intelligence (poster track)*

2004 **On the Relationship Between Lexical Semantics and Syntax for the Inference of Context-Free Grammars**, with T. Oates, J. Harris, and M. Nejman. *Proceedings of the 19th National Conference on Artificial Intelligence*

Book Reviews

2007 **J. Gerard Wolff, Unifying Computing and Cognition**. *Artificial Intelligence* 171(18) : 1122-1123

Refereed Workshops

2013 **Multivariate Methods for Classifying Physiological Data**, with P. Ordóñez, T. Oates, J. Fackler, and C.U. Lehmann. *Working Notes of the SDM 2013 Workshop on Data Mining for Medicine and Healthcare*

2011 **Using Modified Multivariate Bag-of-Words Models to Classify Physiological Data,** with P. Ordóñez, T. Oates, and J. Fackler. *Working Notes of the 5th International Workshop on Mining Multiple Information Sources*

An Architecture for Bootstrapping Lexical Semantics and Grammatical Structures, with T. Oates. *Proceedings of the IEEE International Conferences on Web Intelligence and Intelligent Agent Technology Workshop on Learning, Agents and Formal Languages*

2010 **Accessible robotics and intelligent systems for social science undergraduates: poster session**. *Journal of Computing Sciences in Colleges* 25(6)

2007 **Models of Strategic Deficiency and Poker**, with G. Chaddock, M. Pickett, and T. Oates. *Working Notes of the Workshop on Plan, Activity, and Intent Recognition at the 22nd Conference on Artificial Intelligence*

2005 **A Polynomial Time Algorithm for Inferring Grammars for Mildly Context-Sensitive Languages**, with T. Oates, L. Becerra-Bonache, and M. Atamas. *Working Notes of the Workshop on Grammatical Inference Applications: Successes and Future Challenges at the 19th International Joint Conference on Artificial Intelligence*

2004 **Meaning to Learn: Bootstrapping Semantics to Infer Syntax**, with T. Oates. *Working Notes of the Language Learning Spring Symposium of the American Association for Artificial Intelligence*

2003 **Leveraging Lexical Semantics to Infer Context-Free Grammars**, with T. Oates, J. Harris, and M. Nejman. *Working Notes of the Workshop on Context-Free Grammar Learning at the 14th European Conference on Machine Learning and the 7th European Conference on Principles and Practice of Knowledge Discovery in Databases*

Refereed Panels

2013 **Getting Out of the Shallow End: Techniques for empowering and encouraging underrepresented women in computing**, with J. Margolis, K. Alkoby, K. Krishnaswamy, and P. Ordóñez. To appear in the *Proceedings of the 2013 Grace Hopper Celebration of Women in Computing*

Fulbrights Abroad in Computer Science, with M. Boutell and L. Ott. *Proceedings of the 44th ACM Technical Symposium on Computer Science Education*

Presentations & Invited Talks

2012 **Faculty Life at a Liberal Arts College** with G. Sahar and E. McBreen. *The Harriet W. Sheridan Center for Teaching and Learning, Brown University*

2011 **Mining Multivariate Vital Signs Data & Fulbright/USIEF Outreach**

- *Indus Institute of Technology & Engineering, Ahmedabad, Gujarat, India*
- *Kadi Sarva Vishwavidyalaya University, Gandhinagar, Gujarat, India*
- *Congruence with Excellence, Ahmedabad Management Association, Ahmedabad, Gujarat, India*
- *Maharshi Dayanand Saraswati University, Ajmer, Rajasthan, India*
- *Janardan Rai Nagar Rajasthan Vidyapeeth University, Udaipur, India*

2009 **Unsupervised Motif Discovery in Real-Valued Time Series Databases.** *Mathematics & Computer Science Departmental Seminar Series*

Studio-Based Learning for "Robots, Games, and Problem Solving (CS1)." *Studio-Based Learning in Computing Education*

Teaching

Wheaton College

	F08	S09	F09	S10	F10	S11	F11	S12	F12	S13	F13
Catalog Courses											
FSEM 101									●		
COMP 106	●										
COMP 111		●		●	●						
COMP 115			●	●							●
COMP 116								●		●	
COMP 155			●								
COMP 315		●									
COMP 325	●				●						
COMP 345									●		
COMP 375					●						●
COMP 401								●		●	
Additional Courses											
INT 098			●	●						●	
COMP 098/099					●					●	
COMP 198				●							
COMP 299				●				●			●
COMP 399		●	●	●						●	

Independent Study & Overload Course Topics

- INT 098: Language & Logic: Computational Semantics; Representation & Memory
- COMP 098/099: Project Euler; MOOC Language Practicum; Robotics
- COMP 198: StarCraft
- COMP 299: Artificial Intelligence and Science Fiction; Making; Future Interactions
- COMP 399: Multi-Agent Systems; Grammatical Inference; Social Network Analysis; Ethical Hacking

Hemchandracharya North Gujarat University

- MScIT 902/MCA 52: Artificial Intelligence

University of Maryland, Baltimore County

- CMSC 461: Introduction to Database Management Systems
- CMSC 203: Introduction to Discrete Structures

Student Research & Mentoring

PhD Dissertation Committees

- Sourav Mukherjee, UMBC '10, *Stochastic Graph Grammars: Parameter Learning And Applications*

Undergraduate Thesis Committees

- Stephanie Antetomaso, Wheaton '12, *Computational Methods of Authorship Attribution*
- Nicholas Faulconer, Wheaton '12 *Design and Comparison of Parallel Ray-Tracing Algorithms*
- Sean Feeney, Wheaton '11, *Analysis of Population Trends Among Eight Wintering Bird Species in Eastern Massachusetts Using CBC Data*

Undergraduate Research (Ongoing)

- Emma Hartman (**Trustee Scholar**), Wheaton '14, *Vital Signs Data Mining*
- Claudia D'Adamo, Wheaton '13, *Multivariate Time Series Data Mining*

Undergraduate Research (Completed)

- Stephanie Antetomaso (**Balfour Scholar**), Wheaton '12, *Phoneme Discovery in Speech*
- Sedra Davis (**Posse Scholar**), Wheaton '14, *Multivariate Time Series Data Mining*
- Anthony Castellani (**Balfour Scholar**), Wheaton '13, *Mobile Robot Symbol Grounding*
- Chris DeMolles (**Balfour Scholar**), Wheaton '13, *Mobile Robot Symbol Grounding*
- Nathaniel Hunt, Wheaton '13, *Mobile Robot Symbol Grounding*
- Anthony Castellani (**Balfour Scholar**), Wheaton '13, *Mobile Robot Symbol Grounding*
- Jose Rosario, Wheaton '12 (**Posse Scholar**), *Mobile Robot Symbol Grounding*
- Eric Drewniak (**Community Scholar**), Wheaton '11, *Time Series Data Mining*
- Neil Kathok, Wheaton '10, *Analyzing Lexicons of Regular Languages*
- Sam Von Ehren, Wheaton '10, *Opponent Modeling in Prisoner's Dilemmas*
- Michael Patoka, UMBC '08, *Bootstrapping Syntax and Semantics*
- Michael Atamas, UMBC '08, *Mildly Context-Sensitive Grammar Learning*
- Justin Harris (**Meyerhoff Scholar**), UMBC '03, *Context-Free Grammar Learning*
- Mark Nejman, UMBC '03, *Context-Free Grammar Learning*

Student Publications & Presentations

2012 Claudia D'Adamo and Sedra Davis. **Learning to Classify Robot Sensory Experiences Using Bags of Patterns**. *Grace Hopper Celebration of Women in Computing (poster)*

Anthony Castellani, Claudia D'Adamo, and Sedra Davis. **Learning to Classify Robot Sensory Experiences Using Bags of Patterns**. *17th Annual Conference of the Northeast Region of the Consortium for Computing Sciences in Colleges (poster)*

2011 Stephanie Antetomaso. **Unsupervised Phoneme Segmentation in Continuous Speech**. *Grace Hopper Celebration of Women in Computing (poster)*

Stephanie Antetomaso. **Unsupervised Phoneme Segmentation in Continuous Speech**. *16th Annual Conference of the Northeast Region of the Consortium for Computing Sciences in Colleges (poster)*

- Consortium for Computing Sciences in Colleges Northeast Region Conference Student Poster Competition – **Second Place**
- Grace Hopper Celebration of Women in Computing Student Research Competition – **First Place**

2010 Eric Drewniak. **Unsupervised Discovery of Motifs with Amplitude Shifting and Scaling**. *Proceedings of the 41st ACM Technical Symposium on Computer Science Education*

- SIGCSE Student Research Competition – **Second Place**
- ACM Student Research Competition Grand Finals – **Third Place**

Eric Drewniak. **Unsupervised Discovery of Motifs with Amplitude Shifting and Scaling**. *15th Annual Conference of the Northeast Region of the Consortium for Computing Sciences in Colleges (poster)*

Service

Wheaton College

2011–2012 Library and Information Services (LIS) in the Curriculum Working Group

2009–2011 Faculty Workload and Economic Status Committee

2009 Website Renovation Working Group

2009–2011 Advisor to *Spectrum House*, LGBTQA-themed campus residence

2008– Safe Zone Trained, in support of the LGBTQA community

University of Maryland, Baltimore County

2006–2007 Director of Graduate Enrollment Search Committee

Promotion and Tenure Committee, *Computer Science & Electrical Engineering Department*

2004–2005 President, *Graduate Student Association* ($300,000 budget)

President's University Steering Committee

Provost's Planning and Leadership Team

2003–2004 Vice President, *Graduate Student Association*
Promotion and Tenure Committee, *Computer Science & Electrical Engineering Department*

Program Committees

2012 11th International Colloquium on Grammatical Inference (ICGI)
2008 AI and the Web Track at the 23rd Conference on Artificial Intelligence (AAAI)

Reviewing

2013 Reviewer, *Machine Learning: Grammatical Inference* (Special Issue)
2012 Reviewer, *11th International Colloquium on Grammatical Inference (ICGI)*
Reviewer, *ACM Technical Symposium on Computer Science Education*
Reviewer, *Conference on Innovation and Technology in Computer Science Education*
2011 Reviewer, *ACM Technical Symposium on Computer Science Education*
2010 Reviewer, *Conference on Innovation and Technology in Computer Science Education*
Reviewer, *Choice: Current Reviews for Academic Libraries*
Reviewer, *Leverhulme Trust*
Reviewer, *Consortium for Computing Sciences in Colleges — Northeastern Region*
2009 Reviewer, *Neural Computation (The MIT Press)*
Reviewer, *International Conference on Machine Learning*
Reviewer, *Consortium for Computing Sciences in Colleges — Northeastern Region*
2008 Reviewer, *International Conference on Development and Learning*
External Reviewer, *International Colloquium on Grammatical Inference*
2007 External Reviewer, *Information Sciences Journal*
External Reviewer, *International Conference on Development and Learning*
External Reviewer, *Conference on Computational Natural Language Learning*
2006 Reviewer, *Journal of Applied Artificial Intelligence – Special Issue*
External Reviewer, *International Colloquium on Grammatical Inference*
2005 External Reviewer, *National Conference on Artificial Intelligence*
External Reviewer, *International Joint Conference on Artificial Intelligence*
External Reviewer, *International Conference on Machine Learning*

Professional Development

2009 40th ACM Technical Symposium on Computer Science Education
NITLE Workshop: Teaching Science in the Digital Age