

THOMAS SYLVESTER ARMSTRONG

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EDUCATION

- 2008
(expected) Ph.D. in Computer Science
University of Maryland Graduate School, Baltimore
- Dissertation – *From Sensors to Structures: Grounded Lexical Acquisition and Grammar Learning*
Committee – Tim Oates (advisor), Colin de la Higuera, Tim Finin, Charles Nicholas, Janet Rutledge
- 2002 B.Sc., Computer Science
University of Massachusetts Amherst
- 2002 B.Sc., Linguistics (major); Mathematics (major)
University of Massachusetts Amherst

RESEARCH APPOINTMENTS

- 2002 – Present Graduate Research Assistant
Cognition, Robotics, and Learning Lab (CORAL)
Department of Computer Science and Electrical Engineering
University of Maryland, Baltimore County
- 2004 Engineering Intern
Machine Translation Group
Google Inc.
- 2001 – 2002 Research Assistant
Experimental Knowledge Systems Lab (EKSL)
Department of Computer Science
University of Massachusetts Amherst
- 2000 – 2001 Laboratory Assistant
Language Acquisition Lab
Department of Linguistics
University of Massachusetts Amherst

TEACHING APPOINTMENTS

2008	Instructor Computer Science 461: Database Management Systems University of Maryland, Baltimore County
2005	Guest Lecturer Computer Science 341H: Data Structures University of Maryland, Baltimore County
2004	Instructor Computer Science 203: Discrete Structures University of Maryland, Baltimore County
2004 – 2005	Volunteer Client Computer Science 345: Software Engineering University of Maryland, Baltimore County
2003	Organizer Summer Seminar: Randomized Algorithms University of Maryland, Baltimore County
2002 – 2003	Teaching Assistant Computer Science 421: Operating Systems University of Maryland, Baltimore County
2000 – 2001	Teaching Assistant Mathematics 128: Calculus for Life and Social Sciences II University of Massachusetts Amherst

RESEARCH AND TEACHING INTERESTS

- Machine learning; robotics
- Data mining; multimedia databases
- Language learning
- Formal language theory

PUBLICATIONS

Articles in Preparation

- 2007 "CAIN: An Algorithm for Inferring Mildly Context-Sensitive Grammars," with L. Becerra-Bonache, T. Oates, and M. Atamas. Submitted to the *Journal of Machine Learning Research (JMLR)*.
- "From Lexical Semantics to Syntax: On the Role of Grounded Meaning in Learning Context-Free Grammars," with T. Oates, V. Bhat, and D. Desai. Submitted to the *Journal of Artificial Intelligence Research (JAIR)*.

Book Reviews

- 2007 *J. Gerard Wolff. Unifying Computing and Cognition: The SP Theory and Its Applications. Artificial Intelligence, Vol. 171(18): 1122-1123, 2007.*

Peer-Reviewed Articles

- 2008 Learning in the Lexical-Grammatical Interface, with T. Oates. *Proceedings of the 21st International Florida Artificial Intelligence Research Society Conference.*
- 2007 "RIPTIDE: Segmenting Data Using Multiple Resolutions," with T. Oates. *Proceedings of the 6th IEEE International Conference on Development and Learning (ICDL-07).*
- "UNDERTOW: Multi-Level Segmentation of Real-Valued Time Series," with T. Oates. *Proceedings of the 22nd AAAI Conference on Artificial Intelligence (AAAI-07) Student Abstract.*
- "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 (PAIR) at the 22nd Conference on Artificial Intelligence (AAAI-07).*
- 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 (PKDD-06).*
- "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 (ICGI-06).*
- 2005 "Learning by Doing and Knowledge Transfer," with B. Krueger, T. Oates, P. Cohen, and C. Beal. *Proceedings of the 19th International Joint Conference on Artificial Intelligence (IJCAI-05) Poster Track.*

“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 (IJCAI-05)*.

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 (AAAI-04)*.

“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 (AAAI)*.

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 (ECML-03) and the 7th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD-03)*.

SPONSORED RESEARCH ACTIVITY

2007 “From Sensors to Syntax and Semantics: Learning Situated Language.” National Science Foundation: Information and Intelligent Systems Program. Other Personnel; Tim Oates (Co-Pi), Yu-Han Chang (Co-Pi), Paul Cohen (Co-Pi). Under review, October 26, 2007. \$900,000.

2001 – 2002 “Maps for Verbs: Learning Verb Meanings from Dynamics.” Source: Microsoft Corporation. \$5,000.

UNIVERSITY SERVICE

University of Maryland, Baltimore County

- 2006 Director of Graduate Enrollment Search Committee
Promotion and Tenure Committee, CSEE Department
- 2004 – 2005 *President*, Graduation Student Association (\$300,000 budget)
President's University Steering Committee
Provost's Planning Leadership Team
University Graduate Council
Academic Integrity Executive Committee
- 2003 – 2004 *Vice-President*, Graduate Student Association
Promotion and Tenure Committee, CSEE Department

HONORS AND AWARDS

- 2005 *Graduate Student Leader of the Year*, University of Maryland, Baltimore County
Student Blogger, Twentieth National Conference on Artificial Intelligence.
- 2004 *KDNet Travel Grant*, Seventh International Colloquium on Grammatical Inference
- 2002 *Senior Leadership Award*, University of Massachusetts Amherst
- 2001 *Gerald F. Scanlon Student Employee of the Year*, University of Massachusetts Amherst

REVIEWING

- 2008 *Program Committee*, Artificial Intelligence and the Web (AIW) Track, AAAI Conference on Artificial Intelligence
- 2007 *External Reviewer*, Information Sciences Journal
External Reviewer, International Conference on Development and Learning (ICDL)
External Reviewer, Conference on Computational Natural Language Learning (CoNNL)
- 2006 *Reviewer*, Journal of Applied Artificial Intelligence – Special Issue
External Reviewer, International Colloquium on Grammatical Inference (ICGI)

External Reviewer, International Conference on Development and Learning (ICDL)

2005 *External Reviewer, National Conference on Artificial Intelligence (AAAI)*
External Reviewer, International Joint Conference on Artificial Intelligence (IJCAI)
External Reviewer, International Conference on Machine Learning (ICML)

PROFESSIONAL AFFILIATIONS

- Association for the Advancement of Artificial Intelligence (AAAI)
- Special Interest Group on Computational Semantics (SIGSEM)
- International Community of Grammatical Induction (ICGI)

EMPLOYMENT EXPERIENCE

2004 – 2006 Programmer
Academic Integrity Project
University of Maryland Graduate School, Baltimore

2002 Staff Assistant
Office of the Honorable Robert P. Spellane
The Great and General Court of the Commonwealth of Massachusetts

2000 – 2001 Web Application Developer
Center for Computer-Based Instructional Technology
Department of Computer Science
University of Massachusetts Amherst