

## DANIEL LOWD

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## INTERESTS

Machine learning, data mining, and artificial intelligence.

## EDUCATION

2003–Present: **University of Washington**, Seattle, WA

Ph.D. in Computer Science and Engineering, 2009 (expected)

M.S. in Computer Science and Engineering, June 2005

Advisor: Pedro Domingos.

Committee members: Rajesh Rao, Andrew McCallum, and Mark S. Handcock.

1999–2003: **Harvey Mudd College**, Claremont, CA.

B.S. in Mathematics/Computer Science with “High Honors.”

## SCHOLARSHIPS, HONORS, AND AWARDS

Microsoft Research Fellow, sponsored by Live Labs (2007–2008)

National Science Foundation Graduate Research Fellowship (2003–2006)

ICML Student Volunteer (2005)

KDD Travel Award (2005)

ACM ICPC Regional Programming Competition: 6th place (2002); 5th place (2000,2001)

Harvey Mudd College Dean’s List (5 semesters) (2000–2002)

Jean and Joe Platt Freshman of the Year (2000)

Letter of Commendation, Freshman Division (2000)

Harvey S. Mudd Merit Award (1999–2003)

National Merit Scholar (1999–2003)

Valedictorian, Lynbrook High School (1999)

## PROFESSIONAL EXPERIENCE

September 2003 – Present: Research assistant for Pedro Domingos at University of Washington.

Developed faster machine learning algorithms, more flexible probabilistic models, and methods for learning models with efficient inference.

Summer 2008: Intern at SmartDesktop division of Pi Corporation, Seattle, WA.

Developed and evaluated automatic methods for desktop activity recognition.

Summer 2004: Intern at Microsoft Research with Christopher Meek in Redmond, WA.

Developed simple yet effective attacks against linear spam filters, testing filter robustness and promoting the development of more secure spam filters.

June 2002 – September 2003: Research assistant for Jon Herlocker at Oregon State University.

Conducted a third-party evaluation of prominent collaborative filtering algorithms. Funded by the NSF through the REU program.

Summer 2001: Intern at Green Hills Software in Santa Barbara, CA.

Invented and implemented a binary diff algorithm, reducing code update time by 90-97% for embedded targets. Ported a linker from Solaris to vxWorks and reduced code size by 80% for use on JPL's Mars Expedition Rover. Ran automated compiler validations for R6K architecture and implemented appropriate fixes in library code.

Summer 2000: Intern at Adobe Systems in San Jose, CA.

Added XML support to Adobe Acrobat's Webcapture plug-in.

Summer 1999: Intern at Spyglass in Los Gatos, CA.

Assisted in the development of a Windows CE application for physical therapists.

## **PROFESSIONAL SERVICE**

### **Reviewer:**

Journal of Machine Learning (JMLR)  
Data Mining and Knowledge Discovery (DMKD) journal  
Machine Learning journal  
IEEE Security & Privacy  
ACM SIGKDD Explorations  
2008 International Conference on Machine Learning (ICML)  
Neural Information Processing Systems (NIPS) 2006 conference  
2006 ACM Conference on Electronic Commerce

### **Program Committee:**

AAAI 2006 conference

## **INVITED TALKS**

"Foundations of Adversarial Machine Learning"

University of Cagliari. July, 2008.

"Adversarial Learning"

Oregon State University, Machine Learning Reading Group. June, 2006.

## **SOFTWARE RELEASED**

Alchemy: Algorithms for statistical relational AI

<http://alchemy.cs.washington.edu>

(Along with various other contributors.)

NBE: A Bayesian learner with very fast inference

<http://www.cs.washington.edu/ai/nbe>

CoFE: COLlaborative Filtering Engine

<http://eecs.oregonstate.edu/iis/CoFE/>

(Along with various other contributors. No longer supported.)

## BOOKS

1. P. Domingos and D. Lowd, *Markov Logic: An Interface Layer for AI*, Morgan & Claypool. To appear.

## BOOK CHAPTERS

1. P. Domingos, D. Lowd, S. Kok, H. Poon, M. Richardson and P. Singla, “Just Add Weights: Markov Logic for the Semantic Web,” in *Uncertainty Reasoning for the Semantic Web I*, edited by P. Costa, C. d’Amato, N. Fanizzi, K. B. Laskey, K. J. Laskey, T. Lukasiewicz, M. Nickles and M. Pool, Springer. To appear.
2. P. Domingos, S. Kok, D. Lowd, H. Poon, M. Richardson and P. Singla, “Markov Logic,” in *Probabilistic Inductive Logic Programming* (pp. 92-117), edited by L. De Raedt, P. Frasconi, K. Kersting and S. Muggleton, Springer, 2008.

## REFEREED CONFERENCE PUBLICATIONS

1. D. Lowd and N. Kushmerick, “Using Saliency to Segment Desktop Activity into Projects,” in *Proceedings of the Thirteenth International Conference on Intelligent User Interfaces*, Sanibel Island, Florida, 2009. To appear.
2. D. Lowd and P. Domingos, “Learning Arithmetic Circuits,” in *Proceedings of the Twenty-Fourth Conference on Uncertainty in Artificial Intelligence* (pp. 383-392), Helsinki, Finland, 2008.
3. D. Lowd and P. Domingos, “Efficient Weight Learning for Markov Logic Networks,” in *Proceedings of the Eleventh European Conference on Principles and Practice of Knowledge Discovery in Databases* (pp. 200-211), Warsaw, Poland, 2007.
4. D. Lowd and P. Domingos, “Recursive Random Fields,” in *Proceedings of the Twentieth International Joint Conference on Artificial Intelligence* (pp. 950-955), Hyderabad, India, 2007.
5. D. Lowd and P. Domingos, “Naive Bayes Models for Probability Estimation,” in *Proceedings of the Twenty-Second International Conference on Machine Learning* (pp. 529-536), Bonn, Germany, 2005.
6. D. Lowd and C. Meek, “Good Word Attacks on Statistical Spam Filters,” in *Proceedings of the Second Conference on Email and Anti-Spam*, Palo Alto, CA, 2005.
7. D. Lowd and C. Meek, “Adversarial Learning,” in *Proceedings of the Eleventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, Chicago, IL, 2005.

## REFEREED WORKSHOP PUBLICATIONS

1. D. Lowd, C. Meek and P. Domingos, “Foundations of Adversarial Machine Learning,” in *NIPS-2007 Workshop on Machine Learning in Adversarial Environments for Computer Security*, Vancouver, Canada, 2007.
2. D. Lowd and P. Domingos, “Recursive Random Fields,” in *Proceedings of the ICML-2006 Workshop on Open Problems in Statistical Relational Learning*, Pittsburgh, PA, 2006.