

Mary McGlohon

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RESEARCH INTERESTS Graph mining, data mining for social networks and social media, propagation patterns of viruses/information in networks, applications of data mining with respect to marketing and pricing strategies.

EDUCATION **Carnegie Mellon University**, Pittsburgh, Pennsylvania USA

Ph.D. Candidate, Machine Learning, expected graduation date: August 2010.
Dissertation Topic: “Structural Analysis in Large Networks: Observations and Applications”.
Proposal: April 2009.
Thesis Advisors: Christos Faloutsos, Alan Montgomery.
M.S. in Machine Learning, May 2008. GPA: 3.84

University of Tulsa, Tulsa, Oklahoma USA

B.S., Computer Science, May 2005. GPA: 3.93, Magna Cum Laude
B.S., Mathematics, May 2005.
Minor: Physics

HONORS AND AWARDS

- KDD Student Travel Grant, 2008.
- Yahoo! Key Technical Challenges Grant, 2008.
- National Science Foundation Graduate Research Fellowship, 2005.
- University of Tulsa: Honors Program, Presidential Scholar, 2005.
- Best Student Paper Award, World Conference on Lateral Computing, 2004.

REFEREED PUBLICATIONS

- M. McGlohon, S. Bay, M. Anderle, and C. Faloutsos *SNARE: A Link Analytic System for Graph Labeling and Risk Detection*. ACM Special Interest Group on Knowledge Discovery and Data Mining (SIGKDD), Paris, France. June 2009.
- M. McGlohon and M. Hurst *Community Structure and Information Flow in Usenet: Improving analysis with a thread ownership model*. International Conference on Weblogs and Social Media (ICWSM). San Jose, Calif. May 2009.
- M. McGlohon and M. Hurst *Considering the Sources: Comparing linking patterns in Usenet and blogs*. International Conference on Weblogs and Social Media (ICWSM). San Jose, Calif. May 2009.
- M. Goetz, J. Leskovec, M. McGlohon, and C. Faloutsos. *Modeling Blog Dynamics*. International Conference on Weblogs and Social Media (ICWSM). San Jose, Calif. May 2009.
- L. Akoglu, M. McGlohon, and C. Faloutsos. *RTM: Laws and a Recursive Generator for Weighted Time-Evolving Graphs*. International Conference on Data Mining (ICDM) Pisa, Italy, December 2008.
- M. McGlohon, L. Akoglu, and C. Faloutsos. *Weighted Graphs and Disconnected Components: Patterns and a Generator*. ACM Special Interest Group on Knowledge Discovery and Data Mining (SIGKDD), Las Vegas, Nev., August 2008.
- J. Leskovec, J. M. McGlohon, C. Faloutsos, N. Glance, and M. Hurst. *Patterns of Cascading Behavior in Large Blog Graphs*. Society of Industrial and Applied Mathematics- Data Mining. Minneapolis, Minn., April 2007.
- M. McGlohon, J. Leskovec, C. Faloutsos, M. Hurst, and N. Glance. *Finding Patterns in Blog Shapes and Blog Evolution*. International Conference on Weblogs and Social Media. Boulder, Colo., March 2007.

- McGlohon, M. and S. Sen. *Learning to cooperate in multi-agent systems by combining Q-learning and evolutionary strategy*. International Conference on Lateral Computing, December 2004. **Best Student Paper Award**

OTHER
PUBLICATIONS

- L. Akoglu, M. McGlohon, and C. Faloutsos. *OddBall: Detecting Anomalous Nodes in Weighted Graphs*. Under review.
- M. McGlohon. 2008. *Information Propagation on the Web: Patterns and a Model*. Machine Learning Department Data Analysis Project. Carnegie Mellon University.
- M. McGlohon, C. Faloutsos. *ADAGE: A software package for analyzing graph evolution*. Tech Report. CMU-ML-07-112. May 2007.
- M. McGlohon, J. Leskovec, C. Faloutsos, N. Glance, and M. Hurst. *Finding patterns in blog shapes and blog evolution*. Tech Report. CMU-ML-07-100. January 2007.
- J. Leskovec, J. M. McGlohon, C. Faloutsos, N. Glance, and M. Hurst. *Cascading Behavior in Large Blog Graphs: Patterns and a Model*. Tech Report. CMU-ML-06-113. October 2006.

INVITED TALKS AND
TUTORIALS

- “Political Discussions in Online Social Networks”. Lecture in *COM597, Digital Democracy*, University of Washington. Seattle, WA. October 2008.
- “Graph Mining Techniques for Social Network Analysis” Northeast Student Conference on Artificial Intelligence (NESCAI). Cornell University. Ithaca, New York, April 2008.
- “Graph Mining Techniques for Social Media Analysis” International Conference on Weblogs and Social Media. Seattle, WA, March 2008.
- “Exploring blog graphs: Patterns and a model for information propagation” Microsoft Live Labs. Bellevue, WA, November 2007.
- “Applications of Link Analysis to Accounting Data.” PricewaterhouseCoopers Center for Advanced Research. San Jose, CA, October 2007.
- “Exploring blog graphs: Patterns and a model for information propagation” PricewaterhouseCoopers Center for Advanced Research. San Jose, CA, July 2007.
- “Exploring blog graphs: Patterns and a model for information propagation” Sandia National Labs. Livermore, CA, July 2007.

ACADEMIC
EXPERIENCE

Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Graduate Student

August, 2005 - present

Includes current Ph.D. research, graduate level coursework and research projects.

Graduate Research

- Using knowledge gained about several real networks, development of models which capture general properties of evolving networks. Under supervision of Christos Faloutsos, January 2007 to date.
- Applying knowledge of communication patterns and trend analysis among a social media toward advertising and product pricing strategies. Under supervision of Alan Montgomery and Christos Faloutsos, September 2006 to date.
- Mining a database of blog posts to find patterns in the temporal structure of links between posts, and classifying blogs according to linking behavior. Under supervision of Christos Faloutsos, collaboration with Natalie Glance and Matthew Hurst (Nielsen Buzzmetrics, Pittsburgh), March 2006-May 2007.
- Development of a new, scalable algorithm for solving partially observable Markov decision processes. Under supervision of Carlos Guestrin, collaboration with Ron Parr (Duke University), September 2005-June 2006.

Teaching Activities

- Teaching Assistant for 10-601, Machine Learning. Presented recitation lectures, designed and graded assignments and exams, held office hours, advised student research projects. Instructors: Tom Mitchell and William Cohen.

- Teaching Development through CMU Eberly Center for Teaching. Attended several seminars on teaching-related topics, had recitation lectures evaluated by Eberly staff, participation in college teaching course centered on curriculum and assessment design. Reference: Michele DiPietro.

University of Tulsa, Tulsa, Oklahoma USA

Undergraduate Research Assistant

April 2003 - May 2005

Included programming in various environments, collaboration with graduate students, devising algorithms, paper authoring and presentations, in the fields of artificial intelligence and applied mathematics.

- Devising algorithms which use reinforcement learning and genetic algorithms to solve multiagent coordination games. Under supervision of Sandip Sen, December 2003 - May 2005.
- Numerical analysis of boundary integral equation methods in mechanics. Under supervision of Christian Constanda, April 2003 - March 2004.

Undergraduate Teaching Assistant

October 2003 - May 2005

Duties included recitations, guest lectures, office hours, and grading for lower-level math courses, 4 semesters.

INDUSTRIAL
EXPERIENCE

Google, Pittsburgh, Pennsylvania USA

Software Engineering Intern

May 2009 - August 2009

Analysis of data crawled from online review sites. Under supervision of Natalie Glance.

Microsoft Live Labs, Bellevue, Washington USA

Research Intern

May 2008 - August 2008

Analyzed link patterns and diffusion in a large data set from social media. Under supervision of Matthew Hurst.

PricewaterhouseCoopers Center for Advanced Research, San Jose, California USA

Analytics Specialist

June 2007 - August 2007

Projects consisted of 1) detecting accounting errors using classification methods, and 2) using link analysis to detect fraud in subledger data. Under supervision of David Steier and Stephen Bay.

FUNDING

- Wrote successful proposal for Google Research Award, 2009. Amount: \$70,000.
- KDD Student Travel Award, 2008. Amount: \$500.
- Yahoo! Key Technical Challenges Grant. Duration: 2008. Amount: \$5,000.
- Assisted in writing successful grant proposal for Pennsylvania Infrastructure and Technology Alliance (PITA/ICES). Title: *Influence Propagation in Large Blog Graphs*. Duration: September 2006-May 2008. Amount: \$52,489.
- National Science Foundation Graduate Research Fellowship. Duration: September 2005 - September 2008. Amount: \$121,500.

OTHER ACTIVITIES

Steering committee for Machine Learning Department Symposium, 2009.

Organizer for CMU Databases/Data Mining Seminar, September 2008 to date.

Reviewer for: T-Web. Served as external reviewer for: KDD 2007, WWW 2008, ICWSM 2008.

Organized multi-departmental reading group on social media analysis, Spring 2008.

Manager for CMU Databases Lab, 2007 to date (Assistant Manager 2006 -2007). Managed code repositories, facilities, and user accounts.

Member of Dec/5, organizing committee for School of Computer Science graduate student events.

Duties include planning social events and communicating with departmental and industry sponsors, 2006 to date.

Host for Machine Learning Department Open House. Helped in hosting and transportation duties, corresponded with prospective students, 2006 - 2009.

REFERENCES

Christos Faloutsos
Professor, Computer Science Dept.
Carnegie Mellon University
christos@cs.cmu.edu

Matthew Hurst
Scientist, MSN
Microsoft
mhurst@microsoft.com

Alan Montgomery
Professor, Tepper School of Business
Carnegie Mellon University
alanmontgomery@cmu.edu

David Jensen
Professor of Computer Science
University of Massachusetts, Amherst
jensen@cs.umass.edu