

Ryan A. Rossi

Purdue University
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Computer Sciences
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Research Interests

Artificial intelligence, machine learning, statistical relational learning, data mining, temporal relational classification, relational anomaly detection, security, social network analysis, information retrieval, social computing, bioinformatics, relational latent variable models.

Education

- 2009–2013** **Ph.D. Student, Computer Science.**, *Purdue University, USA.*
Concentrate in Relational Machine Learning
National Science Foundation (NSF) Graduate Fellow
DoD: National Defense Science and Engineering Graduate (NDSEG) Fellow
Purdue University Fredrick N. Andrews Doctoral Fellow
Advisor: Jennifer Neville
- 2005–2009** **Bachelor of Science**, *Coastal Carolina University, USA.*
Major in Computer Science and Minor Applied Mathematics
Valedictorian class of 2009. GPA: **4.0.**, Summa Cum Laude
Advisor: Jean-Louis Lassez (Retired IBM T.J. Watson Research Center)
Selected Courses: Machine Learning, Search Theory, Numerical Analysis, Bioinformatics
- Summer 2011** **LLNL Scholar** (Cyber Defenders), *Lawrence Livermore National Laboratory, USA.*
- Summer 2010** **NREIP Fellow**, *Naval Research Laboratory (AI Center), USA.*
- 2009** **NASA Fellow**, *California Institute of Technology, USA.*
- 2009** **USRP Fellow**, *Jet Propulsion Laboratory, USA.*
- Summer 2008** **NSF REU Fellow**, *University of Massachusetts at Amherst, USA.*
- Summer 2007** **Research Fellow**, *New Mexico Institute of Technology, USA.*

Research Experience

- Summer 2011** **Research Assistant**, *Lawrence Livermore National Laboratory (ISCR), USA.*
Advisor: Brian Gallagher, Co-advisor: Keith Henderson. LLNL Scholar (Cyber Defenders)
- Summer 2010** **Research Assistant**, *Naval Research Laboratory (Artificial Intelligence Center), USA.*
Advisor: David Aha, Co-advisor: Luke McDowell (U.S. Naval Academy), NREIP Fellowship
- 2009-Present** **Research Assistant**, *Purdue University, USA.*
Advisor: Jennifer Neville, Research: Machine Learning, Statistical Relational Learning
- Summer 2009** **Research Assistant**, *California Institute of Technology (NASA JPL), USA.*
Advisor: Mark W. Powell, Summer Research Fellowship (returned to continue my research).
- Spring 2009** **Research Assistant**, *NASA Jet Propulsion Laboratory, USA.*
Advisor: Mark W. Powell, Spring USRP Fellowship.
- Summer 2008** **Research Assistant**, *University of Massachusetts at Amherst, USA.*
Advisor: David Jensen, Co-advisor: Brian Taylor. *REU NSF Fellowship.*
"Experimental Methods for Improving the Design of Participatory Sensing Systems"
- Summer 2007** **Research Assistant**, *New Mexico Institute of Technology, ICASA, USA.*
Advisor: Srinivas Mukkamala, Senior Research Scientist, ICASA
- 2005-2009** **Research Assistant**, *Coastal Carolina University, USA.*
Advisor: Jean-Louis Lassez, Retired IBM T.J. Watson Research Center

Papers Under Review/In Preparation

- **Ryan Rossi**, Luke McDowell, David Aha, and Jennifer Neville, *Representation Discovery for Statistical Relational Learning*, (Submitted).
- **Ryan Rossi**, Brian Gallagher, Jennifer Neville, and Keith Henderson, *Modeling Temporal Behavior in Large Networks: A Dynamic Mixed-Membership Model*, (Submitted).
- Brian Taylor, **Ryan Rossi**, David Jensen, Mark Corner, *Building Better Participatory Sensing Systems*, (In preparation).

Selected Publications (Peer-reviewed)

- [10] **Ryan Rossi** and Jennifer Neville, *Time-Evolving Relational Classification and Ensemble Methods*, In Proceedings of the Pacific-Asia International Conference on Knowledge Discovery and Data Mining (PAKDD), 2012.
- [9] **Ryan Rossi** and Jennifer Neville, *Modeling the Evolution of Discussion Topics and Communication to Improve Relational Classification*, In Proceedings of the 1st SOMA Workshop, 16th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2010.
- [8] Khawaja S. Shams, Mark W. Powell, Tom M. Crockett, Jeffrey S. Norris, **Ryan Rossi**, Tom Soderstrom, *Polyphony: A Workflow Orchestration Framework for Cloud Computing*, 10th IEEE/ACM International Conference on Cluster, Cloud and Grid Computing, CCGrid 2010., Melbourne, Australia.
- [7] **Ryan A. Rossi**, *Latent Semantic Analysis of the Languages of Life, Communications in Computer and Information Science*, ISICA, CCIS 51, 128-137 (2009), Huanshi, China.
- [6] Mark W. Powell, **Ryan A. Rossi**, and Khawaja S. Shams, *A Scalable Image Processing Framework for Gigapixel Mars and Other Celestial Body Images*, IEEE Aerospace (2009), Big Sky, Montana.
- [5] John Stamey, **Ryan A. Rossi**, *Automatically Identifying Relations in Privacy Policies*, SIGDOC, ACM Press, 233-238 (2009), Bloomington, Indiana.
- [4] Jean-Louis Lassez, **Ryan A. Rossi**, Kumar Jeev, *Kumar Jeev: Ranking Links on the Web: Search and Surf Engines, Lecture Notes of Artificial Intelligence*, IEA/AIE, 199-208 (2008), Wroclaw, Poland.
- [3] Jean-Louis Lassez, **Ryan A. Rossi**, Stephen Sheel, Srinivas Mukkamala, *Signature Based Intrusion Detection System using Latent Semantic Analysis*, IEEE World Congress on Computational Intelligence, International Joint Conference of Neural Networks, IJCNN, 1068-1074 (2008), Hong Kong.
- [2] John Stamey, Jean-Louis Lassez, **Ryan Rossi**, Daniel Boorn, *Client-Side Dynamic Metadata in Web 2.0*, ACM Press, 155-161 (2007), El Paso, Texas.
- [1] Jean-Louis Lassez, **Ryan A. Rossi**, Axel E. Bernal, *Crick's Hypothesis Revisited: The Existence of a Universal Coding Frame*, IEEE International Conference on Bioinformatics and Life Science Computing, AINA/BLSC, 745-751 (2007), Niagara Falls, Canada.

Books/Lecture Notes

- Bioinformatics Jean-Louis Lassez, **Ryan A. Rossi**, Stephen Sheel, *Introduction to Bioinformatics using Action Labs*, Digital University Press, 2008.

Technical Reports

- [2] **Ryan A. Rossi** and Jennifer Neville, *Representations and Ensemble Methods for Dynamic Relational Classification*, CoRR abs/1111.5312, 2011.
- [1] **Ryan A. Rossi**, *Discovering Latent Graphs with Positive and Negative Links to Eliminate Spam in Adversarial Information Retrieval*, NASA JPL, 2009.

Presentations

- 2010 16th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Social Media Analytics, *Modeling the Evolution of Discussion Topics and Communication to Improve Relational Classification (Modeling the Temporal Influence of Edges and Attributes)*, Washington, DC.
- 2011 Lawrence Livermore National Laboratory Annual Symposium, *Modeling Temporal Behavior in Large Networks*, Livermore, CA.
- 2009 Jet Propulsion Laboratory, *A Scalable Image Processing Framework for Gigapixel Mars and Other Celestial Body Images*, Pasadena, CA.
- 2008 University of Massachusetts Amherst, *Discovering Causal Inferences within a Collaborative Peer Production System (Poster)*, Amherst, MA.
- 2007 IEEE International Conf, on Bioinformatics and Life Sciences Computing, *Crick's Hypothesis Revisited: The Existence of a Universal Coding Frame*, Niagara Falls, Canada.
- 2007 Moscow State University in Russia, *Crick's Hypothesis Revisited: The Existence of a Universal Coding Frame (Invited)*, Moscow, Russia.
- 2007 Bioinformatics 3rd Annual Research Symposium, *Crick's Hypothesis Revisited: The Existence of a Universal Coding Frame*, Clemson University.
- 2007 ACM Consortium for Computing Sciences in Colleges, *Presented a workshop: Computing and the Mysteries of Life: Bioinformatics (Invited)*.
- 2007 Computer Security Conference, *Secure Web Programming Metrics and COSECMO*.
- 2006 Celebration of Inquiry: Guiding our Changing World, *Crick's Hypothesis Revisited: The Existence of a Universal Coding Frame*, Coastal Carolina University.
- 2006 Science Success Seminar for Freshmen, *Undergraduate Research: What, Why and How? (Invited)*, Coastal Carolina University.
- 2006 SoTL Conference: On the Subject, *Bioinformatics Action Labs (Poster)*.
- 2008 Computer Security Conference, *Signature Based Intrusion Detection using Latent Semantic Analysis*.
- 2008 Computer Security Conference, *Detecting Spam Sites by Ranking Links*.

Honors and Awards

- 2011 NASA Invention Award (Monetary) for NPO-47898 (Polyphony: Workflow Orchestration Framework for High Performance and Parallel Computing).
- 2011 Member of Purdue's UPE Chapter.
- 2011 LLNL Scholar (Cyber Defenders).
- 2010 Naval Research Laboratory (NREIP) Fellow: Center for Applied Research in Artificial Intelligence, Office of Naval Research (DoN).
- 2009–2012 Department of Defense: National Defense Science & Engineering PhD (NDSEG) Fellow.
- 2012–2014 National Science Foundation (NSF) Graduate Fellow (GRFP, Awarded in 2009).
- 2014–2015 Purdue University Fredrick N. Andrews Doctoral Fellow (Awarded in 2009).
- Summer 2009 NASA USRP Fellow, Jet Propulsion Laboratory, California Institute of Technology.
- 2009 National Aeronautics and Space Administration SC Space Grant.
- Spring 2009 NASA USRP Fellow, Jet Propulsion Laboratory, California Institute of Technology.
- 2008 REU NSF Fellowship Award, University of Massachusetts at Amherst.
- 2005–2009 Full merit scholarship, Coastal Carolina University.
- 2009 President's Award (Graduating with 4.0 GPA).
- 2007 Erdos Number 4, Rossi-Lassez-Shyr-Hwang-Erdos.
- 2008 Outstanding Graduating Senior, College of Natural and Applied Sciences (CCU).
- 2008–2009 Upsilon Pi Epsilon, President, National Computer Science Honor Society (CCU).

- 2007 Research Fellow, New Mexico Institute of Technology.
- 2007–2008 Upsilon Pi Epsilon, Vice President, National Computer Science Honor Society (CCU).
- 2007–2008 ACM Student Chapter & Numbers and Bytes President (CCU).
- 2007 College of Sciences Representative at Moscow State University Conference (CCU).
- 2007 College of Natural and Applied Sciences Ambassador for Commencement (CCU).
- 2006–2007 Awarded Scholarship of Teaching and Learning Grant for Action Labs.
- 2006 Student Excellence in Research Award, Coastal Carolina University.
- 2005–2007 Inducted in Upsilon Pi Epsilon (CS), Pi Mu Epsilon (Maths), Omicron Delta Kappa (Leadership), Phi Eta Sigma (Top freshmen).
- 2005–2009 Supported by NSF Grant ATM-0521002 (Jean-Louis Lassez & Var Limpasuvan).
- 2005–2007 President's List.
- 2003–2004 Obtained 11 Software Engineering and Information Technology Certifications at age 16-17: Microsoft Certified Solution Developer (MCS D), MCAD, CIW-A, CCNA, Linux+, Project+, i-Net+, Server+, Security+, Network+, A+, and MCP.

Teaching Experience

- Spring 2008 **Teaching Assistant**, *Search Engine Theory, CS 465*, Coastal Carolina University.
- Fall 2008 **Teaching Assistant**, *Bioinformatics, BINF 101*, Coastal Carolina University.
- Spring 2007 **Teaching Assistant**, *Numerical Methods, MATH 360*, Coastal Carolina University.
- Spring 2007 **Teaching Assistant**, *Bioinformatics, BINF 101*, Coastal Carolina University.
- Fall 2007 **Teaching Assistant**, *Algorithms in Bioinformatics, CS 460*, Coastal Carolina University.
- Fall 2007 **Teaching Assistant**, *Bioinformatics, BINF 101*, Coastal Carolina University.
- Spring 2007 **Teaching Assistant**, *Algorithm Design II, CS 150*, Coastal Carolina University.
- Spring 2006 **Teaching Assistant**, *Algorithm Design I, CS 140*, Coastal Carolina University.
- 2006–2008** As a teaching assistant I gave lectures, developed: homework, labs, and programs, held office hours, maintained course website. I also graded the homework, labs and projects.

Professional Activities

- 2009-Present Network Learning and Discovery Laboratory.
- 2009-Present Machine and Statistical Learning @ Purdue.
- 2009-Present Indiana Center for Database Systems (ICDS).
- 2005-Present IEEE and ACM Student Member.
- 2004-Present Microsoft Certified Member, Cisco Certified Member, CompTIA Member, Certified Internet Webmaster Member.
- 2008 Volunteer Mentor for Middle School Students.

Relevant Courses

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| <ul style="list-style-type: none"> ★ Network and Matrix Computations ★ Data Mining ★ Probabilistic Graphical Models ★ Statistical Network Analysis ★ Information Security ● Machine Learning ● Numerical Analysis | <ul style="list-style-type: none"> ★ Algorithms ★ Databases ★ Scientific Visualization ★ Networks and Data Communications ● Search Theory (IR and Link Analysis) ● Bioinformatics |
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Computer Skills

Certifications	Microsoft Certified Solution Developer (MCSA), Microsoft Certified Applications Developer (MCAD), CIW-A, CCNA, Linux+, Project+, i-Net+, Server+, Security+, Network+, A+, MCP
OS	Linux/Unix, Windows, DOS
Scientific	Matlab, Maple, R, Scilab
Media	Flash, HTML, Photoshop, VTK, 3D Max, Radiant, Worldcraft
Programming	Java, Python, C/C++, C#, PHP, Javascript, ASP, SQL, 80x86 Assem.
Tools/Typography	Eclipse, MS Visual Studio, L ^A T _E X, Microsoft Office