Ryan A. Rossi

Curriculum Vitae
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Mountain View, CA 94040

US Citizen
Erdős Number: 3

Research Interests

Machine learning, statistical relational learning, (large-scale) graph mining, representation learning, deep learning, matrix-based network computations, link prediction & recommendation, parallel computing

Education

2009–2015 **Ph.D., Computer Science.**, *Purdue University*, USA.
Title: "Improving Relational Machine Learning by Modeling Temporal Dependencies"
Concentrate in Relational Machine Learning (RML)
Recipient of Four Ph.D. Fellowships:
– National Science Foundation Graduate Fellowship (NSF GRFP)
– DoD: National Defense Science and Engineering Graduate Fellowship (NDSEG)
– Bilsland Dissertation Fellowship Awarded to Outstanding Ph.D. candidates
– Purdue University Fredrick N. Andrews Doctoral Fellowship (unused)
Advisor: Sunil Prabhakar

2013 **MS in Computer Science.**, *Purdue University*, USA.
Concentrate in Machine Learning

2005–2009 **Bachelor of Science in Computer Science.**, *Coastal Carolina University (CCU)*, USA.
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 11–12 **LLNL Scholar** , *Lawrence Livermore National Laboratory*, USA.

Summer 2010 **NREIP**, *Naval Research Laboratory (AI Center)*, USA.

2009 **NASA Fellow**, *California Institute of Technology, JPL*, 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

2015–present **Member of Research Staff**, *Palo Alto Research Center (PARC, a Xerox company)*, Machine Learning group.

2013–2015 **Visiting Researcher**, *Palo Alto Research Center (PARC)*, Palo Alto, CA USA.
Research focused on theory, algorithms & applications of relational (graph-based) machine learning

Summer 2013 **Research Intern**, *Palo Alto Research Center (PARC)*, Palo Alto, CA USA.
Advisor: Rong Zhou, Developed recommendion system via collective matrix-tensor factorization
• Led to filing two patents on scalable graph-based machine learning and analytics
• Research and system were presented to clients, partners and researchers

2009–present **Research Assistant**, *Purdue University*, USA.
Research: Machine Learning, Statistical Relational Learning
Proposed methods for *role discovery in large dynamic graphs* and *dynamic relational classification*.

Summer 2011–2012 **Research Assistant**, *Lawrence Livermore National Laboratory (ISCR)*, USA.
Research focused on developing ML algorithms to characterize and model user behavior for detecting malicious intent/intrusions in real-time. Invited back for second year.
Resulted in two papers on modeling dynamic roles in large networks.

Summer 2010 **Research Assistant**, *Naval Research Laboratory (Artificial Intelligence Center)*, USA.
Advisor: David Aha, Co-advisor: Luke McDowell (U.S. Naval Academy), NREIP
Resulted in the JAIR paper "Transformation of Graph Data for 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

Journal Publications

[J11] **Ryan A. Rossi**, Rong Zhou, and Nesreen K. Ahmed, *Deep Feature Learning for Graphs*, 1–21, 2017 (in submission).

[J10] **Ryan A. Rossi**, Rong Zhou, and Nesreen K. Ahmed, *Estimation of Graphlet Counts in Massive Networks*, 1–14, 2017 (in submission).

[J9] **Ryan A. Rossi**, Nesreen K. Ahmed, and Rong Zhou, *Interactive Visual Graph Mining and Learning*, 1–24, 2017 (in submission).

[J8] Nesreen K. Ahmed, Jennifer Neville, **Ryan A. Rossi**, Nick Duffield, Theodore L. Willke, *Graphlet Decomposition: Framework, Algorithms, and Applications*, Knowledge and Information Systems (KAIS), 689–722, 2016 **Invited paper to KAIS Journal Special Issue (ICDM Best papers)*.

[J7] **Ryan Rossi**, *Relational Time Series Learning*, 1–18, 2017 (in submission).

[J6] **Ryan Rossi** and Rong Zhou, *Parallel Collective Factorization for Modeling Large Heterogeneous Networks*, Social Network Analysis and Mining (SNAM), 2016.

[J5] **Ryan Rossi**, David F. Gleich, and Assefaw H. Gebremedhin, *Parallel Maximum Clique Algorithms with Applications to Network Analysis*, SIAM Journal on Scientific Computing (SISC), 37(5), C589–C616 (28 pages), 2015.

[J4] **Ryan Rossi** and Nesreen K. Ahmed, *Role Discovery in Networks*, IEEE Transactions on Knowledge and Data Engineering (TKDE), 1112–1131, 2014.

[J3] **Ryan Rossi** and Nesreen K. Ahmed, *Coloring Large Complex Networks*, Social Network Analysis and Mining (SNAM), Vol. 4, No. 1-228, 37 pages, 2014.

[J2] David F. Gleich, **Ryan A. Rossi**, *A Dynamical System for PageRank with Time-Dependent Teleportation*, Internet Mathematics, 188–217, 2014.

[J1] **Ryan Rossi**, Luke McDowell, David Aha, and Jennifer Neville, *Transforming Graph Representations for Statistical Relational Learning*, Journal of Artificial Intelligence Research (JAIR), pages 363–441, 2012. *Invited for presentation at IJCAI 2013 journal track.

Other Peer-reviewed Publications

[C34] Nesreen K. Ahmed, **Ryan A. Rossi**, Rong Zhou, John Boaz Lee, Xiangnan Kong, Theodore L. Willke, Hoda Eldardiry, *Representation Learning in Large Attributed Graphs*, WiML NIPS, 2017.

[C33] Nesreen K. Ahmed, **Ryan A. Rossi**, Rong Zhou, John Boaz Lee, Xiangnan Kong, Theodore L. Willke, Hoda Eldardiry, *A Framework for Generalizing Graph-based Representation Learning Methods*, arXiv:1709.04596, 1–9, September 2017 (In submission).

[C32] John Boaz Lee, **Ryan A. Rossi**, Xiangnan Kong, *Deep Graph Attention Model*, arXiv:1709.06075, 1–8, September 2017 (In submission).

[C31] James P. Canning, Emma E. Ingram, Sammantha Nowak-Wolff, Adriana M. Ortiz, Nesreen K. Ahmed, **Ryan A. Rossi**, Karl R. B. Schmitt, Sucheta Soundarajan, *Network Classification and Categorization*, arXiv:1709.04481, 2017 (In submission).

[C30] Nesreen K. Ahmed, Nick Duffield, Theodore L. Willke, **Ryan A. Rossi**, *On Sampling from Massive Graph Streams*, VLDB, 1430–1441, 2017.

[C29] Nesreen K. Ahmed, **Ryan A. Rossi**, Theodore L. Willke, and Rong Zhou, *Edge Role Discovery via Higher-order Structures*, PAKDD, 2017.

[C28] Nesreen K. Ahmed, **Ryan A. Rossi**, Theodore L. Willke, and Rong Zhou, *A Higher-order Latent Space Network Model*, Proceedings of the AAAI PAIR (Plan, Activity, and Intent Recognition) Workshop, 2017.

[C27] **Ryan A. Rossi** and Rong Zhou, *Leveraging Multiple GPUs and CPUs for Graphlet Counting in Large Networks*, ACM International Conference on Information and Knowledge Management (CIKM), 2016.

[C26] Nesreen K. Ahmed, **Ryan A. Rossi**, Theodore L. Willke, and Rong Zhou, *Estimation of Local Subgraph Counts*, Proceedings of the IEEE International Conference on BigData, 2016.

[C25] **Ryan A. Rossi**, Rong Zhou, and Nesreen K. Ahmed, *Relational Similarity Machines*, Proceedings of the 12th International Workshop on Mining and Learning with Graphs (KDD MLG), Pages 8, 2016.

[C24] Nesreen Ahmed, Theodore L. Willke, and **Ryan A. Rossi**, *Exact and Estimation of Local Edge-centric Graphlet Counts*, KDD BigMine, 2016.

[C23] **Ryan A. Rossi** and Nesreen K. Ahmed, *An Interactive Data Repository with Visual Analytics*, SIGKDD Explorations, 2016.

[C22] **Ryan Rossi** and Rong Zhou, *Towards Interactive Relational Learning*, Twenty-Ninth Conference on Artificial Intelligence (AAAI), 2016.

[C21] Nesreen K. Ahmed, Jennifer Neville, **Ryan A. Rossi**, Nick Duffield, *Efficient Graphlet Counting for Large Networks*, IEEE International Conference on Data Mining (ICDM), pages 10, 2015. **Invited to KAIS Journal Special Issue (ICDM Best papers)*.

[C20] **Ryan A. Rossi** and Rong Zhou, *Scalable Relational Learning for Large Heterogeneous Networks*, IEEE International Conference on Data Science and Advanced Analytics (DSAA), 10 pages, 2015.

[C19] Nesreen K. Ahmed and **Ryan A. Rossi**, *Interactive Visual Graph Analytics on the Web*, Proceedings of the 9th International AAAI Conference on Web and Social Media, pages 566–569, 2015.

[C18] **Ryan Rossi** and Nesreen K. Ahmed, *The Network Data Repository with Interactive Graph Analytics and Visualization*, Twenty-Ninth Conference on Artificial Intelligence (AAAI) DT, pages 4292–4293, 2015.

[C17] **Ryan Rossi**, *Fast Triangle Core Decomposition for Mining Large Graphs*, Advances in Knowledge Discovery and Data Mining, 310–322, 2014.

[C16] **Ryan A. Rossi**, David F. Gleich, Assefaw H. Gebremedhin, Md. Mostofa Ali Patwary, *A Parallel Maximum Clique Algorithm for Large Graphs*, Proceedings of the 23rd ACM International Conference Companion on World Wide Web, 2014.

[C15] **Ryan Rossi**, Sonia Fahmy, and Nilothpal Talukder, *A Multi-Level Approach for Evaluating Internet Topology Generators*, Networking, 1–9, 2013.

[C14] **Ryan Rossi**, Brian Gallagher, Jennifer Neville, and Keith Henderson, *Modeling Dynamic Behavior in Large Evolving Graphs*, In Proceedings of the Sixth ACM International Conference on Web Search and Data Mining (WSDM), pages 667–676, 2013.

[C13] **Ryan A. Rossi**, David F. Gleich, Assefaw H. Gebremedhin, *Triangle Core Decomposition and Maximum Cliques*, SIAM Workshop on Network Science, 1–2, 2013.

[C12] **Ryan Rossi** and David Gleich, *Dynamic PageRank using Evolving Teleportation*, Algorithms and Models for the Web Graph, volume 7323 of Lecture Notes in Computer Science, pages 126–137. Springer, 2012.

[C11] **Ryan Rossi**, Brian Gallagher, Jennifer Neville, and Keith Henderson, *Role-Dynamics: Fast Mining of Large Dynamic Networks*, Proceedings of the 21st ACM International Conference Companion on World Wide Web (WWW), pages 997–1006, 2012.

[C10] **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), pages 1–13, 2012.

[C9] **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, 89–97, 2010.

[C8] 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), pages 606–611, 2010., Melbourne, Australia.

[C7] **Ryan A. Rossi**, *Latent Semantic Analysis of the Languages of Life, Communications in Computer and Information Science*, ISICA, CCIS 51, 128–137, 2009.

[C6] 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, 1–11, 2009, Big Sky, Montana.

[C5] John Stamey, **Ryan A. Rossi**, *Automatically Identifying Relations in Privacy Policies*, Proceedings of the 27th ACM International Conference on Design of Communication, 233–238, 2009, Bloomington, Indiana.

[C4] Jean-Louis Lassez, **Ryan A. Rossi**, Kumar Jeev, *Ranking Links on the Web: Search and Surf Engines*, New Frontiers in Applied Artificial Intelligence (IEA/AIE), volume 5027 of Lecture Notes of Artificial Intelligence, 199–208 (2008), Wroclaw, Poland.

[C3] 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.

[C2] John Stamey, Jean-Louis Lassez, **Ryan Rossi**, Daniel Boorn, *Client-Side Dynamic Metadata in Web 2.0*, Proceedings of the 25th ACM International Conference on Design of Communication, 155–161 (2007), El Paso, Texas.

[C1] 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.

Patents

[P9] **Ryan A. Rossi**, Rong Zhou, *Deep Relational Learning, Palo Alto Research Center*, Patent application filed, 2017.

[P8] **Ryan A. Rossi**, Rong Zhou, *Deep Graph Representation Learning, Palo Alto Research Center*, Patent application filed, 2017.

[P7] **Ryan A. Rossi**, Rong Zhou, *A Graph Search Engine, Palo Alto Research Center*, Patent application filed, 2017.

[P6] **Ryan A. Rossi**, Rong Zhou, *Efficient Parallel Hybrid Cpu-gpu Graph Mining And Learning Via Induced Subgraph Features, Palo Alto Research Center*, Patent application, 2017.

[P5] **Ryan A. Rossi**, Rong Zhou, *Localized Visual Graph Filters For Complex Graph Queries, Palo Alto Research Center*, Patent application filed, 2016.

[P4] **Ryan A. Rossi**, Rong Zhou, *Fast and Accurate Unbiased Graphlet Estimation, Palo Alto Research Center*, Patent application filed, 2015.

[P3] **Ryan A. Rossi**, Rong Zhou, *A System and Method for Compressing Graphs via Cliques to Speedup Graph Algorithms and Reduce Storage Requirements, Palo Alto Research Center*, Patent application filed, 2015.

[P2] **Ryan A. Rossi**, Rong Zhou, *Relational Time Series Classification using Similarity, Palo Alto Research Center*, Patent application filed, 2015.

[P1] **Ryan A. Rossi**, Rong Zhou, *Parallel Collective Matrix Factorization Framework for Big Data, Palo Alto Research Center*, 2014.

Research Grants

September 2016 NVIDIA Hardware Research Gift. *Deep Graph Learning using Higher-order Functions based on Network Motifs.*
PI: Ryan Rossi.

January 2016 XIG Explore Research: Self Machine Learning Program. *Relational Deep Learning.*
PI: Ryan Rossi. **$300,000** awarded over 3 years, **$900,000** total

Books & Book Chapters

Role Discovery **Ryan A. Rossi** and Nesreen Ahmed, *Role Discovery (Invited Book Chapter) in "Social Media Analytics: Advances and Applications", Eds. Jiliang Tang and Charu Aggarwal*, CRC Press, 2017.

Bioinformatics Jean-Louis Lassez, **Ryan A. Rossi**, Stephen Sheel, *Introduction to Bioinformatics using Action Labs*, Digital University Press, ISBN 978-1-257-69489-1, 2008.

Technical Reports

[6] **Ryan A. Rossi**, Rong Zhou, and Nesreen K. Ahmed, *Estimation of Graphlet Statistics*, arXiv:1701.01772v2, 1–14, 2017.

[5] Nesreen K. Ahmed, Jennifer Neville, **Ryan A. Rossi**, Nick Duffield, *Fast Parallel Graphlet Counting for Large Networks, arXiv:1506.04322*, 1–25, 2015.

[4] **Ryan A. Rossi** and Nesreen K. Ahmed, *NetworkRepository: A Graph Data Repository with Visual Interactive Analytics, arXiv:1410.3560*, 1–6, 2014.

[3] **Ryan A. Rossi**, David F. Gleich, Assefaw H. Gebremedhin, Md. Mostofa Ali Patwary, *What if CLIQUE were fast? Maximum Cliques in Information Networks and Strong Components in Temporal Networks, arXiv:1210.5802*, 2012.

[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.

Selected Presentations

2016 DARPA, *HiperGraph: High-Performance Graph Analytics*, Washington, DC.

2016 CIKM, *Leveraging Multiple GPUs and CPUs for Graphlet Counting in Large Networks*, Indianapolis, Indiana.

2016 AAAI, *Towards Interactive Relational Learning*, Phoenix, Arizona.

2015 DSAA, *Parallel Collective Factorization*, Paris, France.

2015 XIG Conference, *Deep Learning on the GPU*, Webster, NY.

2015 FIU SCIS Invited Lecture Series, *Modeling and Mining Dynamic Attributed Networks*, Miami, FL.

2015 NJIT CS Colloquium, *Relational Machine Learning for Dynamic Networks*, Newark, NJ.

2015 Air Force Institute of Technology (AFIT) ECE Seminar, *Modeling and Mining Dynamic Attributed Networks*, Dayton, OH.

2015 Sandia National Lab, *Modeling and Mining Dynamic Networks*.

2015 WFU CS Colloquium, *Relational Time-series Learning for Improving Mining and Prediction Tasks*, Wake Forest, NC.

2015 WPI CS Colloquium, *Modeling and Mining Dynamic Attributed Networks*, Worcester, MA.

2015 The Network Data Repository with Interactive Graph Analytics and Visualization, *Twenty-Ninth Conference on Artificial Intelligence (AAAI)*, Austin, TX.

2014 Poster Symposium @ PARC, *Parallel Collective Factorization for Predictive and Descriptive Modeling of Large Heterogeneous Networks*.

2013 Purdue CS 50th Anniversary Celebration, *Find Cliques Fast with our Parallel Max-Clique Algorithms for Billion Edge Graphs*, West Lafayette, IN.

2013 Palo Alto Research Center, *Parallel Collective Matrix Factorization Framework for Real-time Recommendations in Big Data*.

2012 Pacific-Asia Conference on Knowledge Discovery and Data Mining, *Temporal-Relational Ensemble Methods*, Kuala Lumpur, Malaysia.

2012 9th Workshop on Algorithms and Models for the Web Graph, *Dynamic PageRank using Evolving Teleportation*, Halifax, Nova Scotia, Canada.

2012 Lawrence Livermore National Laboratory, *Dynamic PageRank using Evolving Teleportation*, Livermore, CA.

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*, Washington, DC.

2011 ISCR Annual Symposium held at Lawrence Livermore National Laboratory, *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*.

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

2016 PARC Appreciation Award (Nominated by peers).

2012–2014 National Science Foundation (NSF) Graduate Fellow (GRFP).

2009–2012 Department of Defense: National Defense Science & Engineering PhD (NDSEG) Fellow.

2014–2015 Bilsland Dissertation Fellowship Awarded to Outstanding Ph.D. candidates.

2009 Purdue University Fredrick N. Andrews Doctoral Fellow.

2012 WAW Travel Award.

2011 NASA Invention Award (Monetary) for NPO-47898 (Polyphony: Workflow Orchestration Framework for High Performance and Parallel Computing).

2011–2012 LLNL Scholar (Cyber Defenders).

2010 Naval Research Laboratory (NREIP) Fellow: Center for Applied Research in Artificial Intelligence, Office of Naval Research (DoN).

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.

2009–2014 Science, Mathematics And Research for Transformation (SMART) Fellow (declined).

2009–2014 Duke University Doctoral Fellow (declined).

2005–2009 Full merit scholarship, Coastal Carolina University.

2009 President's Award (Graduating with 4.0 GPA).

– Erdős Number 3, Rossi-Duffield-Alon-Erdős.

2008 Outstanding Graduating Senior, College of Natural and Applied Sciences (CCU).

2007 Research Fellow, New Mexico Institute of Technology.

2007 Selected by University to Represent the College of Sciences 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.

2005–2011 Inducted in Upsilon Pi Epsilon (CS) at Purdue and CCU, Pi Mu Epsilon (Math), Omicron Delta Kappa (Leadership), Phi Eta Sigma (Top freshmen).

2005–2009 Supported by NSF Grant ATM-0521002 (Jean-Louis Lassez & Var Limpasuvan).

2005–2009 President's List.

2003–2004 Obtained 11 Software Engineering and Information Technology Certifications at age 16-17: Microsoft Certified Solution Developer (MCSD), MCAD, CIW-A, CCNA, Linux+, Project+, i-Net+, Server+, Security+, Network+, A+, and MCP.

Teaching

Spring 2008 **Lecturer**, *Search Engine Theory, CS 465*, Coastal Carolina University.

Fall 2008 **Lecturer**, *Bioinformatics, BINF 101*, Coastal Carolina University.

Spring 2007 **Lecturer**, *Numerical Methods, MATH 360*, Coastal Carolina University.

Spring 2007 **Teaching Assistant**, *Bioinformatics, BINF 101*, Coastal Carolina University.

Fall 2007 **Lecturer**, *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.

Research Software & Codes

2015 **Parameterized Graphlet Decomposition Library** (PGD), **http://graphlets.org**,
A fast parallel high-performance parameterized graphlet decomposition library for massive networks.
http://github.com/nkahmed/pgd.git .

2013–present **Network Repository** (**NR**), **http://networkrepository.com**,
*The first **interactive data repository** that integrates visualization with state-of-the-art statistical methods and analytic techniques to support discovery and exploration of data in real-time. NR is the largest network data repository (500+ donations, 20+ collections, and growing.).*

2014-present **GraphVIS**, **http://graphvis.com**,
Visualize and explore network data easily. The most powerful network visual analytics platform. GraphVIS is the result of years of research in relational machine learning and graph mining.

2013 **Parallel Maximum Clique (PMC) Library**, *A parallel high performance library for solving the maximum clique problem for dense graphs as well as large sparse networks*,
Download: **http://www.maxcliques.com**.

2013–present **MLVis, http://mlvis.com**,
MLVis is an interactive data repository *that makes it easy to find, explore, and understand (ML) data. It provides researchers with open, persistent, robust, and accessible data along with web-based visual analytic tools to easily understand, explore, and compare data.*

2012 **Dynamic PageRank**, A package for modeling the importance and influence of nodes in dynamic networks with external interest/attributes.
Download: **http://www.ryanrossi.com/dynamic_pagerank**.

Professional Service Activities

Technical PC Member, Journal & Conference Reviewing

World Wide Web Conference (WWW)
Internet Mathematics
AAAI Conference on Artificial Intelligence (Demo Track)
Knowledge and Information Systems (KAIS)
International Joint Conferences on Artificial Intelligence (IJCAI)
IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
Artificial Intelligence
The Annals of Applied Statistics
Transactions on Knowledge and Data Engineering (TKDE)
Journal of Data Mining and Knowledge Discovery (DMKD)
BigGraphs Workshop at IEEE BigData
ICDM SoMeRis Workshop
AAAI Conference on Artificial Intelligence
SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)
Physica A: Statistical Mechanics and its Applications

ACM Transactions on Information Systems (TOIS)
Journal of Big Data
Optimization Methods and Software

Other Service

2005–Present IEEE Member, ACM, and SIAM Member.
2004–Present Microsoft Certified Member, Cisco Certified Member, CompTIA Member, Certified Internet Webmaster Member
2009–2015 Machine Learning @ Purdue.
2009–2015 Indiana Center for Database Systems (ICDS).
2009–2012 Network Learning and Discovery Laboratory, *Purdue*.
2008–2009 President, Upsilon Pi Epsilon, National Computer Science Honor Society (CCU)
2007–2008 Vice President, Upsilon Pi Epsilon, National Computer Science Honor Society (CCU)
2007–2008 President, ACM Student Chapter & Numbers and Bytes (CCU)
2008 Volunteer Mentor for Middle School Students.

Computer Skills

Certifications Microsoft Certified Solution Developer (MCSD), Microsoft Certified Applications Developer (MCAD), CIW-A, CCNA, Linux+, Project+, i-Net+, Server+, Security+, Network+, A+, MCP

OS Linux/Unix, Mac OSX, Windows, DOS

Scientific Matlab, Julia, Maple, R, Scilab

Programming C/C++, Python, Java, C#, Ruby, PHP, Javascript, JQuery, Ajax, ASP, SQL, Haskell, CoQ (Interative Prover), 80x86 Assem.

Media HTML, Photoshop, Flash, VTK, 3D Max, Radiant, 3D Worldcraft

Distributed Computing Hadoop/MapReduce, MPI, OpenMP, Spark, Accumulo, Amazon Elastic Cloud (EC2)

Tools/Typo. Eclipse, Spyder, MS Visual Studio, Git/SVN/CVS, LaTeX, MS Office

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