

# Rob McColl

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<b>EDUCATION</b>	<p><b>Georgia Institute of Technology, Atlanta, GA</b> <b><i>Doctorate of Philosophy (In Progress), Computer Engineering, Expected May 2015</i></b> <b><i>Masters of Science, Computer Engineering</i></b>, August 2012, GPA 3.90</p> <p><b>Vanderbilt University, Nashville, TN</b> <b><i>Bachelor of Engineering, Computer Engineering</i></b>, May 2010, GPA 3.92, summa cum laude</p>
<b>INTERESTS</b>	High Performance and Parallel Computing, Social Network Analysis, Computer Architecture, Networks, Embedded Computing, Software Development, C, C++, OpenMP, CUDA, Python, Java
<b>WORK EXPERIENCE</b>	<p><b>Innovative Computing, CTISL, Georgia Tech Research Institute</b> <b><i>Research Scientist</i></b>, August 2012 – Present</p> <ul style="list-style-type: none"><li>• Extended novel STINGER dynamic graph technology to analyze large streaming semantic and temporal datasets under DARPA ADAMS program.</li><li>• Built client-server architecture, templated parsing tools, integrated analytics, and web based visualizations and front-ends for streaming data analysis problems.</li><li>• Developed tools for analysis, exploration, and representation of XDL-level FPGA configuration.</li></ul> <p><b>High Performance Computing Lab, Georgia Institute of Technology</b> <b><i>Research Assistant</i></b>, August 2010 – August 2012</p> <ul style="list-style-type: none"><li>• Developed large-scale high-performance parallel streaming graph applications and data structures for multi-core and massively multithreaded architectures</li><li>• Conducted research in application-driven design for future architectures under DARPA UHPC</li></ul> <p><b>Mercedes-Benz U.S. International, I.T. Dept., Tuscaloosa, AL</b> <b><i>Client Support Team</i></b>, Summer 2006, 2007, 2008 &amp; 2010</p> <ul style="list-style-type: none"><li>• Created inventory management database system</li><li>• Developed automated solutions to hardware and software incompatibility issues</li><li>• Worked on a large scale deployment of Daimler-Chrysler's corporate standard operating environment to more than 1,200 computers</li></ul> <p><b>Toshiba Digital Products Development Center, Nashville, TN</b> <b><i>Software Development Intern</i></b>, Spring &amp; Summer 2009</p> <ul style="list-style-type: none"><li>• Developed software for Linux-based televisions to match specifications and standards</li><li>• Resolved software bugs and optimized low-level C code</li></ul>
<b>AWARDS AND ACTIVITIES</b>	<p>Walter Criley Prize (2010), Computer Engineering Award (2010), Eagle Scout Award Eta Kappa Nu: <i>Electrical Engineering Honor Society</i> (Vice President) Tau Beta Pi: <i>National Engineering Honor Society</i> Vanderbilt Students Volunteering for Science (I.T. Chair, Board Member) Vanderbilt Mobile Application Team</p>
<b>PUBLICATIONS</b>	<p>R. C. McColl, D. Ediger, and D.A. Bader. "Many-Core Memory Hierarchies and Parallel Graph Analysis," Poster Session, <i>15th SIAM Conference on Parallel Processing for Scientific Computing (PP12)</i>, Savannah, GA, February 15-17, 2012.</p> <p>O. Green, R. McColl and D.A. Bader, "GPU Merge Path - A GPU Merging Algorithm," Conference Presentation with Proceedings, <i>26<sup>th</sup> ACM International Conference on Supercomputing (ICS 2012)</i>, San Servolo Island, Venice, Italy, June 25-29, 2012.</p> <p>O. Green, R. McColl and D.A. Bader, "A Fast Algorithm for Streaming Betweenness Centrality," Conference Presentation with Proceedings, <i>2012 ASE/IEEE International Conference on Social Computing</i>, Amsterdam, The Netherlands, September 3-5, 2012.</p>

- D. Ediger, R. McColl, J. Riedy and D.A. Bader, "STINGER: High Performance Data Structure for Streaming Graphs," Conference Presentation, *The 16th Annual High Performance Embedded Computing Workshop (HPEC)*, Lexington, MA, September 10-12, 2012.
- T. Senator, D.A. Bader, et al., "Detecting Insider Threats in a Real Corporate Database of Computer Usage Activities," *19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, Chicago, IL, August 11-14, 2013. (726 papers submitted: 17.4% acceptance rate)
- J. Fairbanks, D. Ediger, R. McColl, D.A. Bader and E. Gilbert, "A Statistical Framework for Streaming Graph Analysis," *IEEE/ACM International Conference on Advances in Social Networks Analysis and Modeling (ASONAM)*, Niagara Falls, Canada, August 25-28, 2013.
- R. McColl, O. Green, and D.A. Bader "A New Parallel Algorithm for Connected Components in Dynamic Graphs," *The 20th Annual IEEE International Conference on High Performance Computing (HiPC)*, Hyderabad, India, December 18-21, 2013. (196 papers submitted: 25.0% acceptance rate)
- R. McColl, D. Ediger, J. Poovey, D. Campbell, and D.A. Bader "A Brief Study of Open Source Graph Databases," *ArXiv e-prints*. cs.DB 1309.2675. September, 2013.
- R. McColl, D. Ediger, J. Poovey, D. Campbell, and D.A. Bader "A Performance Evaluation of Open Source Graph Databases," The 1st Workshop on Parallel Programming for Analytics Applications (PPAA 2014) held in conjunction with the 19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP 2014), Orlando, Florida, February 16, 2014.
- D. Ediger, R. McColl, J. Poovey, and D. Campbell "Scalable Infrastructures for Data in Motion," The 1st International Workshop on Scalable Computing for Real-Time Big Data Applications (SCRAMBL '14) held in conjunction with the 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2014), Chicago, Illinois, May 26, 2014.