Vasil Slavov

+1-816-255-0338 vgslavov@umkc.edu http://v.web.umkc.edu/vsfgd

Research Interests

- Linked Data, Semantic Web, Big Data
- Scalable RDF query processing using a cloud infrastructure, RDF quadruples
- Cardinality estimation of queries over semi-structured data using gossip-based algorithms
- RDF and XML data models in DHTs

Education

University of Missouri-Kansas City, Kansas City, MO
Ph.D. Candidate in Computer Science, GPA 3.95 **Spring 2011 – present**

- Dissertation topic: Fast Processing of SPARQL Queries on RDF Quadruples
- Advisor: Professor Praveen Rao

M.S. in Computer Science, GPA 3.95 **Spring 2008 – Summer 2012**

- Thesis topic: A Study of Gossip Algorithms for Internet-Scale Cardinality Estimation of Distributed XML Data
- Advisor: Professor Praveen Rao

William Jewell College, Liberty, MO
B.A. in Computer Science & Math, Summa Cum Laude, GPA 3.97 **Spring 2001 – Spring 2005**

Honors and Awards

- Outstanding Ph.D. Student in Computer Science 2012, School of Computing and Engineering, University of Missouri-Kansas City
- Balaji Krithikaivasan Memorial Student Travel Grant, CSEE, 2012, UMKC
- Dean's International Computing & Engineering (DICE) award, SCE, UMKC
- Computer Science Faculty Award for the Outstanding Junior and Senior in Computer Science, 2004 and 2005, William Jewell College
- Phi Epsilon Honor Society, 2005
- Who's Who Among Students in American Universities and Colleges, 2005
- Kappa Mu Epsilon National Mathematics Honor Society, 2003
- Alpha Lambda Delta National Academic Honor Society for Freshmen, 2001
- Dean's List (7 semesters), WJC

Publications

Vasil Slavov, Anas Katib, Praveen Rao, Srivenu Paturi, Dinesh Barenkala. "Fast Processing of SPARQL Queries on RDF Quadruples." To appear in *Proceedings of the 17th International Workshop on the Web and Databases* (**WebDB 2014**), Snowbird, Utah, June 2014.

Vasil Slavov, Anas Katib, and Praveen Rao. "Tool for Internet-Scale Cardinality Estimation of XPath Queries over Distributed Semistructured Data." *Proceedings of the 30th IEEE International Conference on Data Engineering* (**ICDE 2014**), Chicago, IL, April 2014. (Demo)

Vasil Slavov and Praveen Rao. "A Gossip-Based Approach for Internet-Scale Cardinality Estimation of XPath Queries over Distributed Semistructured Data." *The International Journal on Very Large Databases* (**VLDB Journal 2014**), Volume 23, Issue 1, 2014, pp. 56–71. `http://dx.doi.org/10.1007/s00778-013-0314-1`

Vasil Slavov, Praveen Rao, Srivenu Paturi, Tivakar Swami, Michael Barnes, Deepthi Rao, and Raghuvarun Palvai. "A New Tool for Sharing and Querying of Clinical Documents Modeled Using HL7 Version 3 Standard." *Computer Methods and Programs in Biomedicine, Elsevier* (**CMPB Journal 2013**), Volume 112, Issue 3, December 2013, pp. 529–552. `http://dx.doi.org/10.1016/j.cmpb.2013.07.002`

Vasil Slavov, Praveen Rao, Dinesh Barenkala, and Srivenu Paturi. "Performance of RDF Query Processing on the Intel Single-chip Cloud Computer (SCC)." *Proceedings of the 6th Many-core Applications Research Community Symposium* (**MARC 2012**), Toulouse, France, July 2012, pp. 7–12. `http://hal.archives-ouvertes.fr/hal-00718955`

Vasil Slavov and Praveen Rao. "Towards Internet-Scale Cardinality Estimation of XPath Queries over Distributed XML Data." *Proceedings of the 6th International Workshop on Networking Meets Databases* (**NetDB 2011**), Athens, Greece, June 2011, pp. 1–8. `http://research.microsoft.com/en-us/um/people/srikanth/netdb11/netdb11papers/netdb11-final1.pdf`

Professional Experience

R&D Developer Intern — **May 2014 – present**
Bloomberg L.P. — New York, NY

R&D Developer Intern — **May 2013 – August 2013**
Bloomberg L.P. — New York, NY

In R&D Transactional Applications, Fixed Income Electronic Trading team
- Developed and evaluated log analytics solutions using NoSQL databases
- Developed an automated testing suite for transactional applications in Python

Graduate Research Assistant — **September 2011 – present**
University of Missouri-Kansas City — Kansas City, MO

Network and Systems Administrator — **July 2006 – August 2011**
Kansas City Art Institute — Kansas City, MO

Open Systems Analyst — **June 2005 – July 2006**
William Jewell College — Liberty, MO

Languages and Technologies

Languages: C++, C, Python, shell scripting, JavaScript, Regular Expressions, C#, MPI, LaTeX 2ε
Cloud Platforms/Distributed Networks: Amazon Elastic Compute Cloud (EC2), IBM SmartCloud Enterprise, PlanetLab
Frameworks/Engines: ElasticSearch, Hadoop, AngularJS, Distributed Hash Tables (Chord)
Tools: git, GDB, Valgrind, CVS
Operating Systems: UNIX/Linux, Mac OS X Server, Windows Server

Technical Experience

RIQ: RDF Indexing on Quadruples (2013 – 2014). *C++, Dablooms, Raptor2, LSH.* Implemented and evaluated a decrease-and-conquer strategy for fast processing of SPARQL queries on very large RDF quadruple datasets (over a billion quads) using Counting Bloom Filters and Locality Sensitive Hashing.

Automated testing suite (2013). *Python.* Developed an automated testing suite in Python for replaying production trades of transactional applications.

Log analytics (2013). *AngularJS, ElasticSearch, Kibana, Logstash.* Evaluated log analytics solutions and developed a transaction (Splunk-like) module for Kibana in AngularJS.

XGossip (2010 – 2013). *C++, Sfslite, LSH, Chord DHT, Amazon EC2.* Implemented and evaluated a novel gossip algorithm for estimating the number of XML documents that contain a match for an XPath query in a large-scale network in the presence of churn and failures.

RDF query processing on Intel SCC (2011). *MPICH, C.* Evaluated large-scale RDF query processing on the 48-core Intel Single-chip Cloud Computer (SCC) using task and data parallelism.

SyncMe! (2010). *C#, .NET, Facebook Graph API, Twitter REST API, Google Calendar API, Google OAuth.* In a team, designed and developed a web site for aggregating Twitter and Facebook events on a user's Google Calendar.

Link-state protocol (2009). *C, Linux.* Implemented an OSPF-like link-state routing protocol on top of UDP.

Intelligent file transfer protocol (2009). *C, Zlib, TCP, Linux.* Designed and developed an intelligent, BitTorrent-like file transfer protocol.

P2P file system (2008). *C++, Chord DHT, Linux, PlanetLab.* Designed, implemented, and evaluated a distributed file system using the Chord DHT framework.

Comparison of the Performance Characteristics of the OpenBSD Stateful Packet Filter (PF) and Microsoft Internet Security and Acceleration (ISA) Server (2004). Undergraduate Colloquium, William Jewell College.

Velositor (2004). *Python, Apache, Cerner Millennium API.* In a team, designed, developed, and presented a web-based mobile application, which fetches patient data from Cerner Corp. Millennium database and displays it for use by physicians.

Talks

- Presentations
  - Tool for Internet-Scale Cardinality Estimation of XPath Queries over Distributed Semistructured Data. The 30th IEEE International Conference on Data Engineering (ICDE), Chicago, IL, April 3, 2014.
  - Performance of RDF Query Processing on the Intel SCC. The 6th Many-core Applications Research Community (MARC) Symposium, Toulouse, France, July 19, 2012.
  - Internet-Scale Cardinality Estimation of XPath Queries over Distributed XML Data. UMKC CSEE Seminar Series, April 2, 2012.
- Guest Lectures
  - Data Structures course, UMKC, Fall 2013
  - Introduction to Database Management Systems course, UMKC, Spring 2013 and Fall 2013
  - Advanced Operating Systems course, UMKC, Fall 2010, 2011, and 2013

Service

- External reviewer
  - International Conference on Database and Expert Systems Applications (DEXA) 2011 - 2014
- Organizer for School of Computing and Engineering E-Week Quiz Contest, UMKC, 2012