Vasil Slavov

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Research Interests

- Using gossip-based algorithms for cardinality estimation of queries over semi-structured data
- Scalable RDF query processing using a cloud infrastructure
- RDF and XML data models in P2P networks

Education

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

- Dissertation topic: Cloud-Driven RDF Query Processing Using Gossip-Based Algorithms
- 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, UMKC
- 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, WJC
- Phi Epsilon Honor Society, 2005
- Who's Who Among Students in American Universities and Colleges, 2005
- Certificate of Achievement, Undergraduate Colloquium 2004, WJC
- 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 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 2013), To appear.

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 Manycore Applications Research Community Symposium* (MARC 2012), Toulouse, France, July 2012, pp. 7-12.

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.

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." *In Computer Methods and Programs in Biomedicine Journal, Elsevier.* [**under revision**]

Professional Experience

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

Network Systems & Data Communications Analyst **July 2006 – August 2011**
Kansas City Art Institute

- Responsible for all servers and network equipment
- Migrated all network equipment from Cisco to 3Com
- Migrated from MS Exchange to Google Apps
- Set up and maintained: NAS, VoIP, Wireless, Backup, Virtualization, QoS, Network security

Open Systems Analyst and Academic Technologist — **June 2005 – July 2006**
William Jewell College

- Set up and maintained all campus firewalls using the OpenBSD Packet Filter (PF)
- Set up and maintained all campus computer labs

Languages and Technologies

Languages: C++, C, Shell scripting, Python, C#, MPI, LaTeX 2$_\varepsilon$
Cloud Platforms/Distributed Networks: Amazon Elastic Compute Cloud (EC2), IBM SmartCloud Enterprise, PlanetLab
Frameworks: Distributed Hash Tables (Chord), Hadoop
Tools: GDB, Valgrind, CVS, git
Operating Systems: UNIX/Linux, Mac OS X Server, Windows Server

Technical Experience

XGossip (2010 - 2012). *C++, Sfslite, 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.

Web server (2008). *C, TCP, Linux.* Designed and implemented a lightweight web server.

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.

Sentinel (2003). *C, Linux.* Designed and developed a magnetic card reader client-server application for the Computer Science Lab, William Jewell College.

Talks

- Presentations
  - Performance of RDF Query Processing on the Intel SCC. The 6th Manycore 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
  - Advanced Operating Systems course, UMKC, Fall 2011
  - Advanced Operating Systems course, UMKC, Fall 2010

Service

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