Mihai Nicolae

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Technical skills

- **Languages:** C, C++, Python, Java, Bash, SQL, Perl, Racket, Haskell, Prolog
- **Web development:** JavaScript, HTML/CSS, Node.js, jQuery, AJAX, REST APIs
- **Frameworks:** Hadoop, Express
- **Databases (relational):** DB2, MySQL, PostgreSQL
- **Databases (non-relational):** MongoDB, LevelDB, dashDB
- **Version control:** Git, Subversion, ClearCase

Education

University of Toronto
September 2010 — April 2015

Computer Science Specialist, Honours Bachelor of Science in Computer Science

- Cummulative GPA: 2.76/4.00
- Expected graduation: May 2015

Experience

University of Toronto
December 2014 — Present

Undergraduate Research Assistant

- Implementing a parallelized version of the Noema search algorithm using the Hadoop framework in order to improve performance.
- Noema is a concept discovery system that combines taxonomic information with full text description of concepts to perform accurate and efficient concept discovery.

IBM Canada Ltd.
May 2013 — August 2014

Software Developer - DB2 Security

- Investigated the GSkit support of the PKCS#12 standard and symmetric key operations in order to confirm its suitability for the DB2 Native Encryption solution.
- Led the Functional Verification Test (FVT) for the DB2 Native Encryption solution. This was essential to the successful release of DB2 Native Encryption into dashDB in March 2014 and DB2 10.5 Fix Pack 5 in December 2014.

- Implemented the DBM CFG parameter COMM_EXIT_LIST to be configurable online. This allows communication buffer exit libraries to be loaded and unloaded dynamically without restarting the DB2 instance.
- Backfitted the communication buffer exit libraries into the DB2 9.7 Fix Pack 10 release. This secured the DB2 and Guardium footprint at the two Fortune 1000 clients that requested the backfit in order to meet their security and compliance needs.

Projects

Sorting relational data on disk

October 2014 — November 2014

- Implemented two algorithms to sort relational data on disk: multiway merge sort and B+ tree sort using the LevelDB library.
- Technologies used: C++, Python, LevelDB, json-cpp.

Haskell finite automata

October 2014 — November 2014

- Modelled a finite automata in Haskell, which is a simple model of computation that parses regular languages.

Simple router

September 2014 — December 2014

- Wrote a simple router with a static routing table. Implemented a subset of the functionalities specified by several RFCs.
- Technologies used: C, mininet, POX controller.

My favourite things

March 2013 — April 2013

- Developed a mobile web client that allows a user to explore favorited tweets.
- Technologies used: responsive design principles, HTML5/CSS3, jQuery Mobile 1.3, JSON.

Tumblr trends

February 2013 — March 2013

- Implemented a server capable of tracking popular posts on Tumblr.
- Technologies used: Express, Node.js, Tumblr API client, cron job, MySQL, JSON.

Parallel sort

February 2012 — March 2012

- Developed a parallel sorting program using Unix processes (i.e., fork) in C.

All projects and others are available at github.com/mnicolae
References available upon request
Current as of: February 21, 2015