Shuo **Yang**

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Summary

Looking for a job as a Software Engineer. 8 years of programming experience with C/C++, Python and Java, specializing in system programming and backend/infrastructure. Proficient in Relational Database Management Systems, especially MySQL. Experienced with Big Data technology such as Hadoop and Hive. Good exposure to NoSQL databases such as MongoDB and HBase. Enjoys working with Emacs, Linux and OSX for development. Eager to learn new technologies and tools to grow professionally.

Education

University of Arizona   *Tucson, Arizona USA*
M.S. in Computer Science, GPA: 3.18   *Aug. 2014 - May. 2017*

University of St. Thomas   *St. Paul, Minnesota USA*
M.S. in Software Engineering, GPA: 3.8   *Aug. 2011 - May. 2014*

Harbin Institute of Technology   *Harbin, Heilongjiang China*
B.E. in Electrical Engineering   *Aug. 2004 - May. 2008*

Academic Experience

University of Arizona   *Tucson, Arizona USA*
Research Assistant with Dr. Richard Snodgrass on ANTARES project   *Aug. 2016 - Mar. 2017*
- Main developer of ANTARES (The Arizona-NOAO Temporal Analysis and Response to Events System) project.
- Deployed ANTARES system to the dedicated CentOS cluster using MySQL Cluster as Database backend.
- Analyzed and improved the performance of ANTARES data processing pipeline.
- Designed and proposed the data provenance framework for ANTARES to answer provenance questions that astronomers would ask.
- Designed the packet format specification for alert data and implemented the simulator for generating alert streams in Python.

University of Arizona   *Tucson, Arizona USA*
Research Assistant with Dr. Richard Snodgrass on ANTARES project   *Aug. 2014 - Aug. 2015*
- Designed and implemented the database used by ANTARES, as well as the web front-end for querying data produced by ANTARES pipeline using Django and MySQL.
- Collaborated with astronomers to design, implement and document the Python API for astronomical alert data manipulation.
- Designed and built the autoconfiguration and bootstrap system to run ANTARES in a pseudo-distributed mode using Puppet and Vagrant.

University of Arizona   *Tucson, Arizona USA*
Independent Study with Dr. Beichuan Zhang on Named Data Networking (NDN) project   *Spring 2016 & Fall 2016*
- Researched consumer-driven congestion control mechanisms in NDN.
- Implemented TCP-like congestion control algorithms in NDN consumer (in C++), specifically, TCP RENO, CUBIC and VEGAS. Evaluated and studied the performance of each of them in the context of NDN.

University of Arizona   *Tucson, Arizona USA*
Teaching Assistant with Dr. Lester McCann on CS460: Database Systems   *Fall 2015 & Spring 2016*
- Held office hours; graded programming and written assignments; prepared solutions for written assignments.
- Designed the final project "Database-driven Web Application" using Oracle, Tomcat and JSP; evaluated students' design and implementation.

University of St. Thomas   *St. Paul, Minnesota USA*
Student Researcher with Dr. Brad Rubin and Dr. Jadin Jackson   *Aug. 2013 - May. 2014*
- We initiated the project "Large-scale Neural Network Modeling with Hadoop" to explore the use of big data technologies in computational neuroscience and I was responsible for investigating graph processing in Hadoop.
- Implemented the neural network with MapReduce model in Hadoop.
- Implemented the neural network with vertex-centric model using Apache Giraph in Hadoop.

Work Experience

Danfoss Power Solutions   *Plymouth, Minnesota USA*
Software Engineer Intern   *June. 2012 - May. 2013*
- Migrated the legacy software to the new hardware platform with other team members and conducted unit testing.
- Applied static code analyer FlexeLint to the legacy software written in C.
- Built a tool (in Python) for summarizing, indexing and querying large volume of warning messages produced by FlexeLint.
- Improved overall software quality, identified and corrected several vulnerabilities existed in the legacy code.

Beijing Farsight Technology and Information   *Beijing, China*

EMBEDDED SOFTWARE ENGINEER & TRAINING ASSISTANT   *July. 2009 - July. 2011*

- Developed Linux device drivers and applications (in C) for various ARM platforms (ARM 9, 11 & Cortex-A8).
- Assisted training instructors in preparing training content and developed technical how-to documents for ARM and Embedded Linux training.
- Instructed trainees in their lab sessions and final design project.

Platomix Technologies. (Start-up company)   *Beijing, China*

SOFTWARE ENGINEER   *Feb. 2009 - July. 2009*

- Being part of a team that built the initial prototype for Samsung's Remote Test Lab (RTL), I was responsible for the development on RTL device.
- Implemented the communication protocol (in C++) between RTL device (LiMo platform) and RTL proxy.
- Developed a daemon process (in C++) for RTL device to handles requests from proxy, in order for RTL client to remotely control the device.

Publication

Yang S, Spielman ND, Jackson JC, Rubin BS. Large-scale neural modeling in MapReduce and Giraph. In IEEE International Conference on Electro Information Technology. IEEE Computer Society. 2014. p. 556-561. 6871824. Available from, DOI: 10.1109/EIT.2014.6871824

Selected Coursework

UNIVERSITY OF ARIZONA

Database Systems Implementation	Implemented Heap File, Buffer Manager and B^+ Tree components of Minibase in C++.
Principles of Computer Networking	Implemented a virtual router in C that runs PWOSPF routing protocol and routes real IP packets.
Principles of Compilation	Implemented C- - (a subset of C) compiler (both code generation and optimizations) in C.
Computer Security	Implemented a secure chat program using a hybrid protocol (DES + RSA) in Java.
Parallel and Distributed Programming	Implemented a MPI critical-path profiler and Redundant MPI protocols in C.
Introduction to Machine Learning	Implemented a sparse autoencoder in Python, trained with MNIST handwritten digit dataset.

UNIVERSITY OF ST. THOMAS

Big Data Architecture	Developed a new design pattern for improving the performance of graph processing in MapReduce.
Data Visualization	Explored what are the key factors that make a championship team with NBA dataset using Python, SQLite and R.
Information Retrieval	Built a search engine in Python (web crawler + indexer + query processor) for Shakespeare's whole collection.
Software Engineering	Built a genetic programming system in C for automatically solving linear regression problem.

Skills

Programming Languages	C/C++, Python, Java, R, JavaScript, SQL
Web	Django, HTML, CSS
Database Systems	MySQL, SQLite
Parallel and Distributed Programming	Pthreads, MPI, MapReduce
Environment/Frameworks/Tools	Linux, Hadoop, Giraph, LaTeX, Git, Vagrant