

Shuo Yang

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Education

University of Arizona

M.S. IN COMPUTER SCIENCE, GPA: 3.5

Tucson, Arizona USA

Aug. 2014 - May. 2017

University of St. Thomas

M.S. IN SOFTWARE ENGINEERING, GPA: 3.8

St. Paul, Minnesota USA

Aug. 2011 - May. 2014

Harbin Institute of Technology

B.E. IN ELECTRICAL ENGINEERING

Harbin, Heilongjiang China

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

- Chief programmer 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 bootstrapping system to run ANTARES pipeline in a pseudo-distributed mode using Vagrant and Puppet.

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 analyzer 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.

- 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 that runs PWOSPF routing protocol and routes real IP packets in C.
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 (web crawler + indexer + query processor) for Shakespeare's whole collection.
Software Engineering	Built a genetic programming system for automatically solving linear regression problem in C.

Skills

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