Kapil Agarwal

kapila@gatech.edu (650) 713-9343 cc.gatech.edu/~kagarwal

EDUCATION

Georgia Institute of Technology, Atlanta, GA Aug 2014 to May 2016
Master of Science in Computer Science Specialization: Systems GPA: 4.0 / 4.0
Courses: Advanced Operating Systems, HPPC Tools & Applications, Computer Networks

Indian Institute of Technology, Roorkee, India May 2014
Bachelor of Technology in Computer Science & Engineering CGPA: 8.872 / 10
Courses: Advanced Computer Architecture, Network Programming in Unix, Data Mining & Warehousing

TECHNICAL STRENGTHS

Programming Languages: C, C++, Java, PHP, Python, HTML, Javascript
Databases: MySQL, PostgreSQL
Tools: Git, Vim, Visual Studio, Eclipse

EXPERIENCE

SDE Intern, Amazon India Development Centre, Hyderabad, India May 2013-July 2013

- Added selective audit feature to the Event Bus service, based on Publisher-Subscriber model, whereby events are stored in AWS S3 and Cloud Search is used for searching those events. Also used AWS SNS and SQS for sending and receiving the events.
- Developed and deployed a Self-service tool to manage subscriptions and a user interface for searching and republishing the events. The service is developed using Java and JSP was used for the backend.

Intern, Centre for Development of Advanced Computing, Pune, India May 2012-July 2012

- Worked with the High Performance Computing group to develop low level benchmarks for health monitoring of GPU devices on a message passing GPU cluster with NVIDIA GPUs and AMD APUs.
- Developed suites of Device Query, Bandwidth measurement, Matrix computation performance analysis programs using MPI and CUDA/OpenCL programming.

PROJECTS

Framework for large graph algorithms on the GPU

- Currently developing a Gather-Apply-Scatter model based framework for running graph algorithms on a GPU for large graphs that do not fit in the memory using techniques like CUDA streams, double buffering and combination of vertex and edge centric implementations.

Thread Scheduling with GTThreads

- Implemented a credit-based scheduler in the given GTThreads library and showed that the execution time of the user level threads is proportional to their credits.

Prediction and Analysis of Complex Data Using Data Mining Techniques

- Designed a technique to give product recommendations to a new user based on relationship between products' user ratings and user characteristics. Used unsupervised learning methods for clustering similar users.

Anomaly Detection and Similarity Search in Time Series Data

- Developed a technique to detect anomalous time series among multiple time series based on the idea that similar time series would have similar variation in their slopes in corresponding time intervals.

HPC Challenge benchmarks in Julia

- In a team of 2, implemented four HPC Challenge benchmarks (PTRANS, STREAM, Random Access, FFT) in Julia, a technical computing language, and obtained performance results by running it on a 16-node cluster.

RESEARCH PUBLICATION

Agarwal, Kapil, et al. "**Anomaly Detection and Similarity Search in Neutron Monitor Data for Predictive Maintenance of Nuclear Power Plants.**" Advanced Computing, Networking and Security (ADCONS), 2013 2nd International Conference on. IEEE, 2013.