Lu Shengliang

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Education

B.Eng. Computer Engineering *Aug 2012 - May 2016*
NTU, Nanyang Technological University, Singapore

- First Class Honours
- High Performance Computing Elective Focus
- CGPA 4.60 of 5.00
- Dean's List of Academic Year 2014/15

NTU President Research Scholar
Senior Middle 3 Scholar

Research and Internship Experience

Internship in NVIDIA, High Performance Computing *Feb - May 2016*

- Joined NVIDIA Technology Centre (NTC) as part-time intern
- Helped release HPL Running and Tuning Guide
- Composed Green500 Benchmarking Guide
- Verified and updated GROMACS Running and Tuning Guide

Final Year Project, Secure Microkernel Design *Aug 2015 - May 2016*

- Studied XtratuM bare-metal hypervisor
- Analysed and fixed bugs in C code and SPARC assembly code
- Analysed hypercall and trap handling mechanism

Internship, Building of a GPU Computing Research Cluster *Jul - Oct 2015*

- Attached to Rapid-Rich Object Search Lab, NTU
- Used Rocks cluster distribution
- Used Docker for GPU computing and LXC for resources provision and control

Undergraduate Research Project, Study of Healthcare and Wellness Science *Sep 2014 - Jun 2015*

- Used text mining techniques through Scientific Literature Approach
- Attached to Neural & Biomedical Technology Department (A*star I^2R Singapore)
- Developed a text mining tool using Perl & Python for analyzing research publication abstracts
- Fortified biomedical text mining by deploying web crawler
- Distinguished text mining situations using biomedical and multidisciplinary case studies

Internship, Development of Secure Thin Client for ATM *Dec 2014 - May 2015*

- Modified and installed XtratuM Hypervisor on x86 PC
- Developed a Linux USB device driver
- Developed an ATM GUI client using Qt/C++

Competition Experiences

Student Cluster Competition, Team NTU III leader *Oct 2015 - Current*

- Participating in 5th ISC-HPCAC Student Cluster Competition during 20 - 22 Jun 2016
- Leading a team of 6 undergraduate students
- Fully supported by National Supercomputing Centre Singapore and A*STAR Computational Resource Centre

Student Cluster Competition, Team NTU III leader *Oct 2015 - Apr 2016*

- Participated in ASC Student Supercomputer Challenge during 18 - 22 Apr
- Led a team of 7 undergraduate students
- Awarded with Application Innovation Award
- Compiled and executed different inductrial applications
- Optimized Deep Neural Network for voice recognition using MPI and MPI/IO

2013 ACM-ICPC Asia Jakarta Regional Contest *Oct 2013*

- Used Java Programming Language
- Solved 3 problems (in team)

National Olympiad in Informatics, China *Jul 2010*

- Used Pascal Programming Language
- Solved algorithm problems under Linux environment
- Won Bronze medalist

National Olympiad in Informatics in Provinces, China *Sep 2006 - Nov 2010*

- Studied algorithm and data structure since 13 years old

Coursework Highlights

Programmed parallel all-pair shortest path problem solutions

- MPI-based programs solving all-pair shortest path problem
- Openmp-based programs solving all-pair shortest path problem
- More than 3000 lines of CUDA experience
- CUDA-based Floyd algorithm optimization from 50 times speedup to more than 500

Managed an online invigilation software development

- Agile Project development manager
- Multithreaded, asynchronous video server development in Java

Built a robotic system to explore and traverse unknown areas automaticly

- Chief Arduino Engineer/Hardware Leader in a team of eight
- Exploration algorithm & obstacle detection algorithm
- Arduino programming, Motor control, Sensor detection

Implemented MIPS CPU under simulation in Verilog

- Five-stage pipelining
- Hazard detection & data forwarding
- Static branch prediction & out-of-order execution as enhancements

Skills

Programming: C/C++, CUDA, Bash, Java, Perl, Python, Assembly, Lisp, Verilog

Hardware Platform: NVIDIA GPU, Intel Xeon Phi, Arduino, ARM Cortex Core, FPGA