Lu Shengliang

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Education

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

- First Class Honours
- Elective focus in High Performance Computing
- 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*

- Studying XtratuM bare-metal hypervisor
- Reading and Debugging C code and SPARC assembly code
- Learning hypercall and trap handler mechanism

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

- Attached to Rapid-Rich Object Search Lab, NTU
- Used Rocks cluster distribution
- Configured head node and compute nodes network connections
- Used Docker for Cuda GPU computing and LXC for resources provision and control

Undergraduate Research Project, Study of Healthcare and Wellness Science using Wearable Sensors through Scientific Literature Approach *Sep 2014 - Jun 2015*

- Attached to Neural & Biomedical Technology Department (A*star I^2R Singapore)
- Developed a text mining tool using Perl & Python for analyzing research publication abstracts
- Solved case studies of 300,000 samples within 1 minute
- 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++
- Compiled and installed Linux kernel into XtratuM
- Used Makefile, Bash and Perl scripts

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

- Learned knowledge about parallel computing
- Programmed MPI-based programs to solve all-pair shortest path problem
- Programmed Openmp-based programs
- Programmed more than 3000 lines of CUDA
- Optimized CUDA-based Floyd algorithm 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

Leadership Activities

Group Project Leader, Undergraduate Coursework *Aug 2012 - Present*
- Team leader of 9 projects (in total 13 projects) for core modules
- Project scheduling and team management

Team Leader, ISC-HPCAC Student Cluster Competition *Oct 2015 - Present*
- Leader of Team NTU III, 5 undergraduate students
- Conducting peer training

Vice President, NTU Dragon & Lion Dance Troupe *Aug 2013 - Jul 2014*
- Top tier club under Cultural Activities Club
- More than 40 active members
- Organizer of nationwide lion dance competition in Singapore

Founder & Leader, ACM-ICPC Asia Jakarta Regional Contest team "FSM" *Oct 2013*
- Self-organized training without supervision

Skills

Programming: C/C++, Perl, CUDA, Java, Python, Shell, Assembly, Verilog, Pascal

Operating Systems: Linux full-time user, Windows

Hardware Platform: Arduino, ARM Cortex development board, FPGA