Junwei Li

Curriculum Vitae

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Education

Aug. 2011–present **Center for Experimental Research in Computer Systems**, *Georgia Institute of Technology*, Atlanta, USA.
PhD student in School of Computing Science, College of Computing
Advisor: Prof. Karsten Schwan

Sept. 2008–Jul. 2011 **Research Institute of Information Technology**, *Tsinghua University*, Beijing, China.
M.S. in Control Science and Engineering
Advisor: Prof. Junwei Cao

Aug. 2004–Jul. 2008 **Department of Automation**, *Tsinghua University*, Beijing, China.
B.E. in Control Science and Engineering

Research and Development Experience

Aug. 2011–present **Virtual Machine Power Metering**, *Center for Experimental Research in Computer Systems, Georgia Institute of Technology*.

- Implemented a virtual machine resource usage monitor based on xen hypervisor
- Building the infrastructure for virtual machine power metering
- Proposing the power metering method for co-located virtual machines in terms of resource contention

Sept. 2010–May 2011 **Enhancement on the identification of noise transients in LIGO data analysis**, *Research Institute of Information Technology, Tsinghua University*.

- Applied pattern recognition methods on the identification of noise transients due to instrumental artifacts
- Used information from auxiliary channels to train samples
- Achieved an order of magnitude improvement on the veto speed compared to LIGO's traditional method
- In collaboration with LIGO lab at MIT
- A paper is in final draft for Classical and Quantum Gravity

Jun. 2009–May 2011 **Large-scale real-time data-driven framework**, *Research Institute of Information Technology, Tsinghua University*.

- Proposed a general framework for large-scale real-time applications
- Analyze multi-tier meta data to select valuable data to process, processing speed and data transmission will benefit from this selection
- A whole set of metrics are defined to evaluate performance
- Applying this framework on LIGO data analysis and already got a roughly 300-fold reduction on data transfer
- One paper is published on IJMPD

Jul. 2010–Aug. 2010 **Data transmission base class development in cloud computing environment, C++/Linux** , *Research Institute of Information Technology, Tsinghua University*.

- Developed a data transmission base class in C++/Linux
- Integrated SSL into this base class to ensure secure data transimission in cloud
- Provided well-defined API to encapsulate socket details

Feb. 2010–Apr. 2010 **Optimization for signal energy recovery in LIGO data analysis**, *LIGO Laboratory, Caltech.*

- Proposed to use clustering fusion on gravitational-wave signal identification
- Tested on unmodeled transient gravitational wave simulation signals
- Got better recover of signal energy from time-frequency tiles compared to LIGO's existing method

Feb. 2009–Apr. 2009 **LIGO Data monitoring tools development, C++/Linux**, *Research Institute of Information Technology, Tsinghua University.*

- Developed a background monitor which streams real-time data quality info to scientists
- Ready to be installed on LIGO observatories

Mar. 2007–Oct. 2007 **Student Research Training (SRT) – Experimental platform development for CAN-bus based distributed system**, *Department of Automation, Tsinghua University.*

- Developed a set of API for developing up-layer applications in Windows
- Developed a set of basic control algorithms and a graphical interface
- Drafted a manual and it had been used in teaching experiments

Awards & Membership

2009–2011 **Member of LIGO Scientific Collaboration**, LSC.

2007 **National inspirational scholarship, Top 1%**, Tsinghua University.

2006 **Undergraduate scholarship for outstanding academic performance, Top 10%**, Tsinghua University.

2005 **Second Prize, 13th College Physics Contest in Beijing, Top 2%**, Beijing.

2003 **First Prize, Chinese Physics Olympiad (CPhO) in Jiangxi Province, Top 1%**, China.

2003 **Top one of all second prizes, Chinese Mathematics Olympiad (CMO) in Jiangxi Province, Top 1%**, China.

Publications, Patents & Technical Reports

Papers J. Cao & **J. Li**, Real-time Gravitational-wave Burst Search for Multi-messenger Astronomy, *Int. J. Modern Physics D*, 2010.

J. Li & J. Cao , Development of a DMT monitor for statistical tracking of gravitational-wave burst triggers generated from the Omega pipeline, *Proc. 9th Asia-Pacific Int. Conf. on Gravitation and Astrophysics*, Wuhan, China, 2009.

Patents **J. Li** & J. Cao. (2010). Content-based QoE Measurement for Voice Services. Adopted by Intellectual Ventures, US patent application accepted, PCT patent application started.

J. Li & J. Cao. (2011). Dynamic Advertising Content Selection. Adopted by Intellectual Ventures, US patent application accepted, PCT patent application started.

Technical Reports J. Cao & **J. Li**, Real-time Burst Search for Multi-messenger Astronomy, LSC-Virgo Meeting, Cracow, Poland, September 2010.

Internships & Other Activities

Sept. 2009–May 2011 **Future Information Technology R&D Center**, *Laboratory Manager*, Tsinghua Univ.
Maintain and handle hardware and software issues.

Sept. 2008–Jan. 2009 **Advanced Computing Technologies and Applications**, *Teaching Assistant*, Tsinghua Univ.
Drafted experiment manual & instructed experiments.

Sept. 2007–Jul. 2008 **6th class in Department of Automation**, *Class President*, Tsinghua Univ.
Successfully led the whole class won the outstanding academic performance honor.

Jul. 2007–Aug. 2007 **Summer Internship**, *Universal Instrument Corporation*, Shanghai & Shenzhen, China.
Chip mounter platform programming & pneumatic system research; 4 people group.

Jul. 2006–Aug. 2006 **Tsinghua Social Practice**, *Project Manager*, Tsinghua Univ.
Successfully organized an investigation on ceramic industry in City of Jingdezhen; 7 people group.

Skills

Computer C/C++ both in Windows & Linux, Matlab, R, Python, php, SQL; Xen, Hadoop, Globus, Condor