JIE YAN

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WORKING SKILLS AND PREFERRED JOB POSISITONS

· **Languages:** C/C++/C#;
· **Experience:** Design of distributed graph computing system, Design of parallel algorithms and data structures, Linux kernel programming, Performance tuning;
· **Preferred Position:** Software development/research engineer;
· **Preferred Jobs:** Design and development of software infrastructures on data analytics, machine learning and web search; Design and development of large-scale systems.

EDUCATION

Institute of Computing Technology, Chinese Academy of Sciences *Summer 2014(expected)*
PhD in Computer Science, Supervisor: Ninghui Sun.
University of Science and Technology of China *June 2010*
MS in Computer Science, Supervisor: Hong An.
Beijing University of Posts and Telecommunication *June 2007*
BS in Computer Science, Thesis supervisor: Tao Qi.

AREAS OF SPECIALIZATION

· Large-scale Graph Computing, Parallel Algorithms, Distributed Systems

RESEARCH EXPERIENCE

Institute of Computing Technology, Beijing September 2010 - Present
Research Assistant *Academic Director: Guangmin Tan*

· Projects: GRE (PhD Thesis); Sweep-H.

Microsoft Research Asia, Beijing November 2011 - January 2012
Research Intern *Mentor: Haixun Wang*

· Design of disk-based Hash Index for key-value storage in Trinity.

University of Science and Technology of China, Hefei September 2007 - June 2010
Research Assistant *Supervisor: Hong An*

· Projects: SMART (Master Thesis);
· Research on Thread-Level Speculation technologies especially its usage in media applications.

Beijing University of Posts and Telecommunication, Beijing February 2007 - June 2010
Research Assistant *Supervisor: Tao Qi*

· (Undergraduate Thesis) Research on exploration of Mersenne Primes.

PROJECTS

GRE (Graph Runtime Engine)   September 2010 - Present
Project Founder and Architect

· `GRE` is a platform for emerging large-scale distributed `graph-parallel` computation on real-world graphs with over billions of vertices and edges. Essentials of `GRE` are our new proposed abstractions on both computation model and distributed graph model, as well as an efficient underlying runtime highly optimized for both multi-core and network communication. It runs 2.5~17X faster than PowerGraph (GraphLab 2.2) for applications such as PageRank and Single Source Shortest Path.

Sweep-H   March 2011 - July 2011
Main Developer, collaborated with JASMIN development group in IAPCM

· `Sweep-H` is a framework for hybrid parallel S_n Sweeps on large-scale unstructured grids. `Sweep-H` solves the S_n Sweep problem in a way of data-driven traversal on directed acyclic graphs. Experiments with real-world grids on a cluster with 64 machines (768 cores) demonstrate `Sweep-H`'s near linear scalability and significant performance advantage over traditional designs.

SMART   September 2008 - April 2010
Team Leader and Main Developer

· `SMART`, the **S**ampling, **M**onitoring, **A**nalyzing, and **R**e**T**uning, is a tool suite for multi-threading parallel programs. It was part of National Projects for 'nucleus electronic components, high-end general processors, and fundamental software'. I proposed the software architecture with my supervisor, and developed the Linux kernel extension (its design is similar to the *perf* in kernel mainline) component and a pseudo-device module.

PUBLICATION

· **Jie Yan**, Guangming Tan, Xiuxia Zhang, Erlin Yao, Ninghui Sun, vLock: Lock Virtualization Mechanism for Exploiting Fine-grained Parallelism in Graph Traversal Algorithms, In *In Proc. of IEEE/ACM Symposium Code Generation and Optimization(CGO)*, Feb. 2013.
· **Jie Yan**, Guangming Tan, Ninghui Sun, Optimizing Parallel S_n Sweeps on Unstructured Grids for Multi-core Clusters, *Journal of Computer Science and Technology*, Vol.28 No.4. July, 2013.
· **Jie Yan**, Guangming Tan, Ninghui Sun, GRE: The Runtime Engine For Large-scale Graph Processing. In *HPC-China 2012*. (in Chinese)

TECHNICAL REPORTS (IN-REVIEW OR IN-REVISION PAPERS)

· **Jie Yan**, Guangming Tan, Ninghui Sun, GRE: A Graph Runtime Engine for Large-Scale Distributed Graph-Parallel Applications, submitted to *PVLDB*, in review (draft available by request).
· **Jie Yan**, Guangming Tan, Ninghui Sun, Exploiting Fine-grained Parallelism in Graph Traversals via Lock Virtualization, in review (draft available by request).
· **Jie Yan**, Guangming Tan, Ninghui Sun, Agent-Graph: A Distributed Data Model for Scale-free Graphs, in modification.

OTHER ACTIVITIES

China Council for Promotion International Trade   March 2007 - June 2007
Engineering Intern

· I worked in information department for 10th CHITEC, in charge of the internet release of Forum Conferences and Biz Talks.

Thinkpro Weekly January 2004 - June 2004

Founder and Columnist

· I founded the campus paper with other 9 members and led the team until it was closed.

HONORS AND AWARDS

· Excellent honor of SanHaoXueSheng (candidate of annual National Fellowship), 2013, University of Chinese Academy of Sciences.
· 1st class graduate fellowship (school level), 2009, USTC.
· Excellent Graduate, 2007, BUPT.
· 2nd or 3rd class fellowships (school level), 2004–2006, BUPT.