

# Keren Zhou

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## EDUCATION BACKGROUND

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- 09/2014-07/2017**   **Institute of Computing Technology, Chinese Academy of Sciences**   **Beijing, China**  
**Expected Degree:** *M.S. in Computer Architecture*   **GPA:** 90/100  
**Advisor:** Guangming Tan (<http://www.ncic.ac.cn/~tgm>)
- 09/2010-07/2014**   **School of Software, Yunnan University**   **Kunming, China**  
**Degree:** *B.E. in Network Engineering*   **GPA:** 92/100 (Rank: 1/290)  
**Advisor:** Wei Zhou   **Thesis:** A Practical Concurrent Quadtree

## RESEARCH EXPERIENCE

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- 06/2015-Present**   **Nvidia-Sugon-ICT Deep Learning Joint Laboratory, Institute of Computing Technology, Chinese Academy of Sciences**   **Beijing, China**  
*Research Assistant*  
**High Performance Deep Learning Framework**
  - Involved in ISBI 2015 Challenges (International Symposium on Biomedical Imaging: From Nano to Macro) as a good team player;
  - Improved the performance of neural networks on modern architectures, making Alexnet five times faster and Lenet 12 times faster than Caffe on a 16-core machine;
  - Devised a coarse-grained parallelism strategy with fine-grained vectorization and blocking effects on CPU;
  - Wrote assembly codes to make full use of dual issue and avoid bank conflict on GPU;
  - Developed an auto-tuning tool that can select the best algorithm for each layer;
  - Implemented deep learning models for such biological applications as membrane detection;
  - Published a github repository. (<https://github.com/PAA-NCIC/blitz>)
- 01/2013-07/2014**   **Intelligent Web Laboratory, School of Software, Yunnan University**   **Kunming, China**  
*Research Assistant*  
**Concurrent Data Structures**
  - Designed several concurrent multi-dimensional trees, including the first lock-free Quadtree and k-d tree that are much faster than traditional fine-grained lock versions, and published two technical reports: *Parse Concurrent Data Structures: BST as an Example* and *Quadboost: A Scalable Concurrent Quadtree*;
  - Surveyed concurrent data structures, concluded a general method for development and verification, and published a paper: *Study on Multi-Core Data Structure in Shared-Memory*;
  - Adopted a specialized skiplist in a p2p indexing system, and published a paper: *Concurrent Skiplist Based Double-Layer Index Framework for Cloud Data Processing*.

## INDUSTRY EXPERIENCE

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- 10/2013-02/2014**   **Baidu Inc.**   **Beijing, China**  
*Research and Development Intern*
  - Optimized Hadoop workflow with its performance improved by 30%, making it capable of extracting thousands of features from raw text files and loading them into data warehouse;

- Developed a Hadoop workflow monitoring system that can display multiple workflow states and report exception handling;
- Reference: Senior Engineer Jing Li, lijing16@baidu.com.

## **PUBLICATIONS**

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- [1] **Keren, Zhou**; Guangming, Tan; Wei, Zhou: Quadboost: A Scalable Concurrent Quadtree. In: *arXiv preprint arXiv:1607.03292* (2016)
- [2] Wei, Zhou; **Keren, Zhou**; Zhongzhi, Luan; Shaowen, Yao; Depei, Qian: Study on Multi-Core Data Structure in Shared-Memory. In: *Journal of Software* (2016), Nr. 4, S. 1009–1025
- [3] Zilong, Tan; **Keren, Zhou**; Hao, Zhang; Wei, Zhou: BF-MapReduce: A Bloom Filter Based Efficient Lightweight Search. In: *International Conference on Collaboration and Internet Computing (CIC)* on IEEE, 2015
- [4] Qiang, Li; Maojie, Gu; **Keren, Zhou**; Xiaoming, Sun: Mining User Features for Purchase Prediction in M-Commerce. In: *Data Mining Workshop (ICDMW), 2015 IEEE International Conference on IEEE*, 2015
- [5] Wei, Zhou; Jin, Lu; **Keren, Zhou**; Shipu, Wang; Shaowen, Yao: Concurrent Skiplist Based Double-Layer Index Framework for Cloud Data Processing. In: *Journal of Computer Research and Development* (2015)
- [6] **Keren, Zhou**; Guocheng, Niu; Wuzhao, Zhang; Xueqi, Li; Wenqin, Liu: Parse Concurrent Data Structures: BST as an Example. In: *arXiv preprint arXiv:1505.03759* (2015)
- [7] **Keren, Zhou**; Qian, Yu; Zhenwei, Zhu; Wenjia, Liu: Dynamic Vegas: A Competitive Congestion Control Strategy. In: *Proceedings of International Conference on Computer Science and Information Technology* Springer, 2014, S. 333–340

## **AWARDS & HONORS**

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<b>2016</b>	Merit Student of Chinese Academy of Sciences
<b>2016</b>	Schlumberger Scholarship (3%)
<b>2015</b>	Top 10, Alibaba 1st Middleware Engineering Contest
<b>2014</b>	Bronze Medal, The 2014 ACM-ICPC Asia Anshan Regional Contest
<b>2014</b>	Outstanding B.E. Degree Thesis of Yunnan University
<b>2013</b>	Best Creative Award, Baidu Future Search Engine Contest
<b>2013</b>	Meritorious Winner, Mathematical Contest in Modeling
<b>2011</b>	Second Prize, China Undergraduate Mathematical Contest in Modeling
<b>2011&amp;2012</b>	National Scholarship
<b>2011&amp;2012</b>	Merit Student of Yunnan Province

## **SKILLS**

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<b>Languages</b>	C, C++, Java, Python, Bash, JavaScript
<b>Parallelism</b>	Pthread, OpenMP, MPI, CUDA, SIMD