

# BIYE JIANG

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## EXPERIENCE

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### **Alibaba Inc.**

Staff Algorithm Engineer. Working on large scale deep learning systems

*May 2018 - Present*

### **University Of California, Berkeley**

PhD in Computer Science

*Advisor: Prof. John Canny*

*August 2013 - May 2018*

### **Tsinghua University**

*B.Eng in Computer Science & Technology*

*August 2009 - July 2013*

## RESEARCH INTEREST

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I am interested in building toolkits for modern machine learning/deep learning experts or data scientists who will usually work on prototyping new models or running experiments on large scale dataset. Our methodology includes but not limit to using hardware accelerations like GPU, providing implementation framework for machine learning algorithms, building visual interface for real-time control and monitoring.

Boosting low-level machine performance and improving human productivity are both important for modern data analytic tasks. My research is also trying to bridge the gap between users and the complex machine learning systems, especially those deep neuron networks.

## PUBLICATIONS

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Jin Li, Jie Liu, Shangzhou Li, Yao Xu, Ran Cao, Qi Li, Biye Jiang, Guan Wang, Han Zhu, Kun Gai, et al. Truncation-free matching system for display advertising at alibaba. *arXiv preprint arXiv:2102.09283*, 2021

Biye Jiang, Pengye Zhang, Rihan Chen, Xinchun Luo, Yin Yang, Guan Wang, Guorui Zhou, Xiaoqiang Zhu, and Kun Gai. Dcaf: A dynamic computation allocation framework for online serving system. *arXiv preprint*, 2020

Zhe Wang, Liqin Zhao, Biye Jiang, Guorui Zhou, Xiaoqiang Zhu, and Kun Gai. Cold: Towards the next generation of pre-ranking system. *arXiv preprint*, 2020

Biye Jiang, Chao Deng, Huimin Yi, Zelin Hu, Guorui Zhou, Yang Zheng, Sui Huang, Xinyang Guo, Dongyue Wang, Yue Song, et al. Xdl: an industrial deep learning framework for high-dimensional sparse data. In *DLP-KDD Workshop*, 2019

Biye Jiang, David M Chan, Tianhao Zhang, and John F Canny. Diagnostic visualization for deep neural networks using stochastic gradient langevin dynamics. *arXiv preprint*, 2018

Biye Jiang. *Exploratory model analysis for machine learning*. PhD thesis, EECS Department, University of California, Berkeley, May 2018

Biye Jiang and John Canny. Interactive machine learning via a gpu-accelerated toolkit. *The 22nd ACM International Conference on Intelligent User Interfaces (IUI)*, 2017

Pablo Paredes, Vasilis Oikonomou, Rocio Francesca Guerrero, Terrie Yang, Pierre Karashchu, Biye Jiang, James Landay, Coye Chesire, and John Canny. Inquire tool: Early insight discovery for qualitative research. In *ACM Conference on Computer Supported Cooperative Work (CSCW)*, 2017

Biye Jiang and John Canny. Interactive machine learning using bidmach. *Workshop on Machine Learning Systems at Neural Information Processing Systems (NIPS)*, 2015

Biye Jiang and John Canny. Interactive clustering with a high-performance ml toolkit. *KDD 2015 Workshop on Interactive Data Exploration and Analytics*, 2015

Huasha Zhao, Biye Jiang, John F Canny, and Bobby Jaros. Same but different: Fast and high quality gibbs parameter estimation. In *Proceedings of the 21th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pages 1495–1502, 2015

Zhicheng Liu, Biye Jiang, and Jeffrey Heer. immens: Real-time visual querying of big data. *Computer Graphics Forum (Proc. EuroVis)*, 2013

S Hu, Kun Xu, L Ma, Bin Liu, B Jiang, and J Wang. Inverse image editing: recovering a semantic editing history from a before-and-after image pair. *ACM Transactions on Graphics*, 2013

L Ma, Kun Xu, T Wong, B Jiang, and S Hu. Change blindness images. *IEEE TVCG*, 2013

## ACADEMIC SERVICE

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Organized Workshop on Deep Learning Practice for High-Dimensional Sparse Data with KDD 2019,2020,2021 <https://dlp-kdd.github.io/>

Organized Workshop on Visualization for Deep Learning at ICML 2016, 2017 <https://icmlviz.github.io>

## INTERN EXPERIENCE

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**Applied scientist Intern at Amazon Music, San Francisco** Summer 2017  
*Work with: Kat Ellis, Leo Dirac*

Music, Echo, People, and Deep learning

**Intern at WeChat, Guangzhou, China** Winter 2016  
Wechat Index related

**Research Intern at Microsoft Research, Redmond** Summer 2015  
*Work with: Saleema Amershi, Ran Gilad-Bachrach, Mikhail Bilenko* Machine Teaching Group, MSR

- Building toolkits to help data scientists debugging machine learning algorithms. Extended work from ModelTracker.

**Research Intern at Adobe** Summer 2014  
*Work with: Zhicheng Liu, Mira Dontcheva, Wilmot Li, Jovan Popovic* Adobe Research

- Building toolkits to help people easily create Infographics without writing code.

**Student Cluster Challenge** Spring 2013  
*Advisor: Prof. Xiaomeng Huang* HPC group, Tsinghua

- Exploring the best configuration for Linpack benchmark and HPC applications like Gromacs, WRF
- Performance tuning on cluster equipped with NVIDIA K20, Intel MIC.

**Stanford Undergraduate Visiting Research Program** Summer 2012  
*Advisor: Prof. Jeffrey Heer* Visualization Group, Stanford

- Project: Interactive Visual Analysis of Large Scale Geographic Data using WebGL

- Our novel approach applies WebGL-based parallel computation to enable rapid interaction in browsers.
- Much faster for data aggregation and rendering comparing to conventional SVG approach.

**Research Intern on Image processing**

Jun 2011 - Jan 2013

*Advisor: Prof. Kun Xu and Prof. Shimin Hu*

*Graphics Computing Group, Tsinghua*

- Project focusing on recovering image editing operator given the edited image and the source.
- Project focusing on the interesting human vision phenomenon: change blindness. Developing saliency model to measure such difficulty.

**TECHNICAL STRENGTHS**

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**Programming Languages**  
**Tools, Libraries**

C/C++, JavaScript, Scala, Java, R, Python, SML, Lisp, MATLAB  
D3, BIDMach, MXNet, Tensorflow, WebGL, CUDA, Spark, MPI

**TEACHING EXPERIENCE**

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**Graduate Student Instructor**

Fall 2014

–CS194/294 Introduction to Data Science

**Graduate Student Instructor**

Fall 2017/ Spring 2018

– DS100 Principles and Techniques of Data Science

– <http://ds100.org>

**COMPETITION AWARD**

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**ACM International Collegiate Programming Contest**

2009 - 2015

–6th Place (Silver Price) in the World Finals

2015

–Champion in Pacific NorthWestern Region Contest (Advancing to the World Finals)

2013,2014

–Champion in Asia Hangzhou Regional Contest

2012

**Student Cluster Challenge at International Supercomputing Conference**

2<sup>nd</sup> Place 2013

**Asia Student Supercomputer challenge**

Champion

2013

**Baidu A-Star Programming Competition**

3<sup>rd</sup> Place out of over 30,000 contestants

2011

**Youdao Programming Competition**

5<sup>th</sup> Place out of over 21,000 contestants

2010

**National Olympic in Informatics Competition**

6<sup>th</sup> Place out of 295 contestants

2008