# JIANG ZHANG

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## EDUCATION

**Peking University**, Beijing, China — September 2013 – Present

*Ph.D. student*, Computer Science
Advisor: Prof. Xiaoru Yuan

**Shandong University**, Jinan, Shandong, China — September 2009 – July 2013

*B.S.*, Software Engineering
Thesis: "Parallel Volume Rendering based on DStep Framework". Advisor: Prof. Xiaoru Yuan

## EXPERIENCE

**Argonne National Laboratory**, Lemont, IL, USA — May 2016 – August 2016

*Research Aide*, Mathematics and Computer Science Division
Project: "Dynamic Load Balancing for Task- and Data-Parallel Particle Tracing"
Supervisor: Dr. Tom Peterka

## RESEARCH HIGHLIGHTS

My research interests focus on **big data visualization**, mainly in **high performance computing** for **flow visualization**. Currently my work addresses the issues of **I/O efficiency, load balance, and scalability** when computing visualization tasks on large-scale parallel environment.

I have published **8** refereed research papers in top visualization journals and conferences since 2014, including **2** papers in *IEEE Transactions on Visualization and Computer Graphics*, **5** papers in *IEEE Pacific Visualization Symposiums*, and **1** paper in *Journal of Visualization*.

## PUBLICATIONS

### Journal Papers

- **Jiang Zhang**, Hanqi Guo, Fan Hong, Xiaoru Yuan, and Tom Peterka. "Dynamic Load Balancing Based on Constrained K-D Tree Decomposition for Parallel Particle Tracing." *IEEE Transactions on Visualization and Computer Graphics (SciVis'17)*, 24(1):954-963, 2018.
- **Jiang Zhang** and Xiaoru Yuan. "A Survey of Parallel Particle Tracing Algorithms in Flow Visualization." *Journal of Visualization*, 21(3):351–368, 2018.
- Qingya Shu, Richen Liu, Fan Hong, **Jiang Zhang**, and Xiaoru Yuan. "State-of-the-Art of Ensemble Visualization." *Journal of Software*, 29(2):506-523, 2018. (in Chinese)
- Hanqi Guo, **Jiang Zhang**, Richen Liu, Lu Liu, Xiaoru Yuan, Jian Huang, Xiangfei Meng, and Jingshan Pan. "Advection-Based Sparse Data Management for Visualizing Unsteady Flow." *IEEE Transactions on Visualization and Computer Graphics (SciVis'14)*, 20(12):2555–2564, 2014.

### Conference Papers

- **Jiang Zhang**, Hanqi Guo, Xiaoru Yuan, and Tom Peterka. "Dynamic Data Repartitioning for Load-Balanced Parallel Particle Tracing." In *Proceedings of IEEE Pacific Visualization Symposium (PacificVis'18)*, pages 86-95, Kobe, Japan, Apr. 10-13, 2018.
- Fan Hong, **Jiang Zhang**, and Xiaoru Yuan. "Access Pattern Learning with Long Short-Term Memory for Parallel Particle Tracing." In *Proceedings of IEEE Pacific Visualization Symposium (PacificVis'18)*, pages 76-85, Kobe, Japan, Apr. 10-13, 2018.

- **Jiang Zhang**, Hanqi Guo, and Xiaoru Yuan. "Efficient Unsteady Flow Visualization with High-Order Access Dependencies." In *Proceedings of IEEE Pacific Visualization Symposium (PacificVis'16)*, pages 80-87, Taipei, April 19–22, 2016.

- Richen Liu, Hanqi Guo, **Jiang Zhang**, and Xiaoru Yuan. "Comparative Visualization of Vector Field Ensembles Based on Longest Common Subsequence." In *Proceedings of IEEE Pacific Visualization Symposium (PacificVis'16)*, pages 96-103, Taipei, April 19–22, 2016.

- Hanqi Guo, Fan Hong, Qingya Shu, **Jiang Zhang**, Jian Huang, and Xiaoru Yuan. "Scalable Lagrangian-based Attribute Space Projection for Multivariate Unsteady Flow Data." In *Proceedings of IEEE Pacific Visualization Symposium (PacificVis'14)*, pages 33–40, Yokohama, Japan, Mar. 4–7, 2014.

- **Jiang Zhang**, Hanqi Guo, and Xiaoru Yuan. "Volume Rendering Algorithm Based on Simplified Parallel Domain Traversal." In *Proceedings of National Annual Conference on High Performance Computing (HPC China 2013)*, pages 80-87, Guilin, China, Oct. 27-31, 2013. (In Chinese)

### Posters

- **Jiang Zhang**, Hanqi Guo, Xiaoru Yuan, and Tom Peterka, "Dynamic Load Balancing Based on Constrained K-D Tree Decomposition for Parallel Particle Tracing." *IEEE Pacific Visualization Symposium 2017 (Poster)*, Seoul, Korea, Apr. 18-21, 2017.

- Fan Hong, Qingya Shu, **Jiang Zhang**, Richen Liu, Xiaoru Yuan, and Xiaoguang Ma, "An Integrated Visualization System for Multi-Source Carbon Concentration Datasets." *IEEE Pacific Visualization Symposium 2016 (Poster)*, Taipei, April 19–22, 2016.

- **Jiang Zhang**, Hanqi Guo, and Xiaoru Yuan, "High Performance Flow Field Visualization with High-Order Access Dependencies." *IEEE VIS 2015 (Poster)*, Chicago, IL, USA, October 25–30, 2015.

- Richen Liu, Hanqi Guo, **Jiang Zhang**, and Xiaoru Yuan, "Longest Common Subsequence based Multi-Scale Analysis for Vector Field Ensembles." *IEEE Pacific Visualization Symposium 2015 (Poster)*, Hangzhou, China, April 14–17, 2015.

## Honors & Awards

- *Award for Scientific Research*, Peking University 2017
- *Award for Academic Excellence*, Peking University 2016
- *Special Academic Scholarship*, Peking University 2015 – 2016
- *Award for Academic Progress*, Peking University 2015
- *Individual Scholarship*, Shandong University 2011
- *The Second Prize Scholarship*, Shandong University 2010, 2012

## Professional Services

- *Reviewer*, IEEE Scientific Visualization Conference (SciVis) 2016 – 2017
- *Reviewer*, IEEE Pacific Visualization Symposium (PacificVis) 2016 – 2017
- *Reviewer*, ChinaVis 2016 – 2017