

JIANG ZHANG

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🎓 EDUCATION

Peking University, Beijing, China

September 2013 – July 2019

Ph.D., Computer Science

Dissertation: “Data Management Strategies for Particle Tracing in Large-Scale Flow Visualization”

Advisor: Prof. Xiaoru Yuan

Shandong University, Jinan, Shandong, China

September 2009 – July 2013

B.S., Software Engineering

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** and **ensemble visualization**. Recently my work addresses the issues of **I/O efficiency**, **load balance**, and **scalability** when computing visualization tasks (e.g., particle tracing) on large-scale parallel environment.

📌 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 (ChinaVis’17)*, 21(3):351-368, 2018. (Best Survey Paper Award)
- 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

- Richen Liu, Min Gao, Shunlong Ye, **Jiang Zhang**. “IGScript: An Interaction Grammar for Scientific Data Presentation.” In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI’21)*, pages 26:1-26:13, Yokohama, Japan, May 8-13, 2021.
- **Jiang Zhang**, Changhe Yang, Yanda Li, Xiaoru Yuan, and Li Chen. “LBVis: Interactive Dynamic Load Balancing Visualization in Parallel Particle Tracing.” In *Proceedings of IEEE Pacific Visualization Symposium (PacificVis’20)*, Notes Paper, pages 91-95, Tianjin, China, Jun. 3-5, 2020. (Honorable Mention Award)

- **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

- 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.

🏆 HONORS & AWARDS

- | | |
|---|-------------|
| • <i>Award for Scientific Research</i> , Peking University | 2017 |
| • <i>Award for Academic Excellence</i> , Peking University | 2016 |
| • <i>Special Academic Scholarship</i> , Peking University | 2015 – 2016 |
| • <i>Award for Academic Progress</i> , Peking University | 2015 |
| • <i>Individual Scholarship</i> , Shandong University | 2011 |
| • <i>The Second Prize Scholarship</i> , Shandong University | 2010, 2012 |

♥ PROFESSIONAL SERVICES

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|---|-------------|
| • <i>Program Committee Member, Organizing Committee Member</i> , ChinaVis | 2022 |
| • <i>Reviewer</i> , IEEE VIS Conference | 2022 |
| • <i>Reviewer</i> , IEEE Scientific Visualization Conference (SciVis) | 2016 – 2017 |
| • <i>Reviewer</i> , IEEE Pacific Visualization Symposium (PacificVis) | 2016 – 2017 |
| • <i>Reviewer</i> , ChinaVis | 2016 – 2017 |