

# YUAN, BINHANG 袁彬航

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**PROFILE**

I will join Dr. Ce Zhang's group in Computer Science Department, ETH Zurich, as a Postdoctoral Researcher in May 2021.

I accomplished my Ph.D. program in Computer Science Department Rice University advised by Dr. Chris Jermaine.

My current main research focuses are database for machine learning and distributed machine learning.

**EDUCATION**

**Rice University, Houston, TX, USA** — 2016/08 - 2020/12

Ph.D., Computer Science, Supervised by Dr. Chris Jermaine

**Rice University, Houston, TX, USA** — 2013/08 - 2016/05

M.S., Computer Science, Supervised by Dr. Ron Goldman

**Fudan University, Shanghai, China** — 2009/09 - 2013/07

B.S., Computer Science, GPA: 3.73/4.00

**AWARDS**

**2020 SIGMOD Research Highlight Award**

**2019 VLDB Best Paper Honorable Mention Award**

**2011, 2012 Chinese National Scholarship**

**SELECTED PUBLICATIONS**

- **Binhang Yuan**, Dimitrije Jankov, Jia Zou, Yuxin Tang, Daniel Bourgeois, and Chris Jermaine. "Tensor Relational Algebra for Machine Learning System Design." to appear in Proceeding of VLDB Vol 14(8) (VLDB 2021)
- Jia Zou, Pratik Barhate, Amitabh Das, Arun Iyengar, **Binhang Yuan**, Dimitrije Jankov, and Chris Jermaine. "Lachesis: Automated Generation of Persistent Partitionings for Big Data Applications." to appear in Proceeding of VLDB Vol 14(8) (VLDB 2021)
- Shangyu Luo, Dimitrije Jankov, **Binhang Yuan**, and Chris Jermaine. "Automatic Optimization of Matrix Implementations for Distributed Machine Learning and Linear Algebra." to appear in Proceedings of the 2021 International Conference on Management of Data. ACM. (SIGMOD 2021)
- Dimitrije Jankov, **Binhang Yuan**, Shangyu Luo, and Chris Jermaine. "Distributed Numerical and Machine Learning Computations via Two-Phase Execution of Aggregated Join Trees." in Proceeding of VLDB Endowment, 14(7), 1228-1240. (VLDB 2021)
- **Binhang Yuan**, Song Ge, and Wenhui Xing. "A Federated Learning Framework for Healthcare IoT devices" ICML 2020 Workshop ML for Global Health.
- Kou, Miaomiao, Jing Bi, **Binhang Yuan**, and Yunteng Wang. "Peridynamic analysis of dynamic fracture behaviors in FGMs with different gradient directions." Structural Engineering and Mechanics 75, no. 3 (2020): 339-356.

- **Binhang Yuan**, and Wenhui Xing. "Diagnosing Cardiac Abnormalities from 12-Lead Electrocardiograms Using Enhanced Deep Convolutional Neural Networks." In Machine Learning and Medical Engineering for Cardiovascular Health and Intravascular Imaging and Computer Assisted Stenting, pp. 36-44. Springer, Cham. (MLMECH-MICCAI 2019)
- Dimitrije Jankov, Shangyu Luo, **Binhang Yuan**, Zhuhua Cai, Jia Zou, Chris Jermaine, and Zekai J Gao. "Declarative recursive computation on an RDBMS: or, why you should use a database for distributed machine learning." In Proceedings of the VLDB Endowment, 12(7), 822-835. (VLDB 2019)
- Jia Zou, R Matthew Barnett, Tania Llorido-Botran, Shangyu Luo, Carlos Monroy, Sourav Sikdar, Kia Teymourian, **Binhang Yuan**, and Chris Jermaine. "PlinyCompute: A platform for high-performance, distributed, data-intensive tool development." In Proceedings of the 2018 International Conference on Management of Data(pp. 1189-1204). ACM. (SIGMOD 2018)
- **Binhang Yuan**, Vijayaraghavan Murali, and Chris Jermaine. "Abridging source code." In Proceedings of the ACM on Programming Languages 1.OOPSLA (2017): 58. (OOPSLA 2017)
- **Binhang Yuan**, Ronald N Goldman, Eric Wang, Olushola Olorunnipa, and David Y Khechoyan. "Generating a 3D Normative Infant Cranial Model." In Procedia Computer Science. 2016 Dec 31;80:988-98. (ICCS 2016)
- **Binhang Yuan**, David Y Khechoyan, and Ronald N Goldman. "A New Objective Automatic Computational Framework for Visualizing the Results of Infant Cranial Surgery", International Conference on Biomedical Computing 2014.
- Ke Li, Bo Yan, and **Binhang Yuan**. "A new metric to assess temporal coherence for video retargeting", In SPIE/COS Photonics Asia (pp. 92732Z-92732Z). International Society for Optics and Photonics, October. 2014.
- Bo Yan, **Binhang Yuan**, and Bo Yang. "Effective video retargeting with jittery assessment". In IEEE Transactions on Multimedia, Vol. 16, Issue 1, pp. 272-277, Jan. 2014. (TMM 2014)

## PREPRINT

- **Binhang Yuan**, Chen Dun, Anastasios Kyrillidis, and Chris Jermaine. "Distributed Learning of Deep Neural Networks using Independent Subnet Training." arXiv preprint arXiv:1910.02120.
- **Binhang Yuan**, Chen Wang, Chen Luo, Fei Jiang, Mingsheng Long, Philip S Yu, and Yuan Liu. "WaveletAE: A Wavelet-enhanced Autoencoder for Wind Turbine Blade Icing Detection." arXiv preprint arXiv:1902.05625.

## EXPERIENCE

### Research Intern, Microsoft Research Asia, Beijing, China — 2017/07 - 2017/12

- Worked with Dr. Weiwei Cui on data visualization.
- Designed a visualization system for deep learning tasks.

### SDE Intern, Tableau Software, Seattle, WA, USA — 2016/05 - 2016/08

- Worked in Moving to the Web team.
- Implemented quick number formatting feature for Release 10.1.

### SDE Intern, Isilon EMC2, Santa Clara, CA, USA — 2015/05 - 2015/08

- Worked in Isilon System for cloud storage.
- Added new features to track transactions in OneFS network file system.