

# SHORT CV OF BIN DONG

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## EDUCATION

- Ph.D in Mathematics  
University of California, Los Angeles, 2005–2009.
- M.Sc. in Mathematics  
National University of Singapore, 2003–2005.
- B.S. in Mathematics  
Peking University, 1999–2003.

## POSITIONS

- Director, Center for Theory of Artificial Intelligence, Institute for Artificial Intelligence, Peking University, October 2019 - present
- Associate Professor, Beijing International Center for Mathematical Research, Peking University, December 2014 - present
- Assistant Professor, Department of Mathematics, The University of Arizona  
July 2011 - December 2014
- Member, Program in Applied Mathematics, The University of Arizona  
July 2011 - December 2014
- SEW Assistant Professor, Department of Mathematics, UCSD  
July 2009 - June 2011

## RESEARCH INTERESTS

Mathematical modeling and computations in imaging science and machine learning.

## HONORS AND AWARDS

- Qiu Shi Outstanding Young Scholar Award, Qiu Shi Foundation, Hongkong, China, 2014.
- Silver Medal, New World Mathematics Award for Master Thesis, 4th International Congress of Chinese Mathematicians, Dec. 2007.

## JOURNAL EDITORIAL SERVICE

- Associate editor, Journal of Computational Mathematics, 2021–2023
- Associate editor, CSIAM Transactions on Applied Mathematics, 2019–2021
- Editorial board, Inverse Problems and Imaging, AIMS, 2018–2020.
- Guest editor, Applied and Computational Harmonic Analysis, Elsevier, 2015–2016.

## SELECTED TALKS

- 45-minutes invited talk, International Congress of Mathematicians (ICM), St. Petersburg, Russia, July 6–14, 2022.
- Invited talk. "New trends in numerical multiscale methods and beyond", Institut Mittag-Leffler, Djursholm, Sweden, July 12–July 16, 2021.
- Invited talk. "Workshop on Mathematical Machine Learning and Applications", Penn State University, December 14–16, 2020 (<http://sites.psu.edu/ccma/2020workshop/>).
- Invited talk. SIAM Conference on Imaging Science, minisymposium on "Data Inferred and Physics-Based Models in Imaging", Toronto, Canada, July 6–9, 2020.
- Invited talk. Deep learning and partial differential equations, American Institute for Mathematics, San Jose, CA, October 14–18, 2019.
- Plenary talk. The Second National Conference on Big Data and Artificial Intelligence, CSIAM, Kunming, China, July 5–7, 2019.
- Plenary talk. The 11th National Conference on Inverse Problems, Imaging and Applications, Lanzhou, China, June 22–24, 2019.
- Invited talk. The Third International Conference on Mathematics of Data Science (MathoDS 3), City University of Hong Kong (CityU), June 19–23, 2019.
- Invited talk. Inverse Problems, Imaging and PDE's, Institute for Advanced Studies, Hong Kong University of Science and Technology, May 20–24, 2019.
- Invited talk. Workshop on Geometry of Big Data, IPAM, UCLA, USA, April 29–May 3, 2019.

- Invited talk. SIAM Annual Meeting. Minisymposium on “Machine Learning for Scientific Computing”, Portland, Oregon, USA, July 9–13, 2018.
- Invited talk and lectures. Data Sciences: bridging mathematics, physics and biology, Institute for Mathematical Sciences, National University of Singapore, Singapore, May 29– June 16, 2017.
- Invited talk. 10th International Conference on Computational Physics, Macao, China, Jan. 16–20, 2017.
- Invited talk. Wavelets and Sparsity XVI, SPIE Optics & Photonics 2015. San Diego, CA, USA, August 9-13, 2015.
- Invited talk. Fifth International Conference on Computational Harmonic Analysis (ICCHA5), Nashville, Tennessee, USA, May 19–May 23, 2014.
- Invited talk. Compressive Sensing Workshop: Leveraging Sparsity at UCLA & Beyond, UCLA, March 6–8, 2012.

SELECTED  
PUBLICATIONS

1. Zichao Long, Yiping Lu and Bin Dong, *PDE-Net 2.0: Learning PDEs from Data with A Numeric-Symbolic Hybrid Deep Network*, Journal of Computational Physics, 399, 108925, 2019.
2. Yiping Lu, Aoxiao Zhong, Quanzheng Li and Bin Dong, *Beyond Finite Layer Neural Networks: Bridging Deep Architectures and Numerical Differential Equations*, Thirty-fifth International Conference on Machine Learning (ICML), 2018.
3. Zichao Long, Yiping Lu, Xianzhong Ma and Bin Dong, *PDE-Net: Learning PDEs from Data*, Thirty-fifth International Conference on Machine Learning (ICML), 2018.
4. Bin Dong, Qingtang Jiang and Zuowei Shen, *Image restoration: wavelet frame shrinkage, nonlinear evolution PDEs, and beyond*, Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal, 15(1), 606–660, 2017.
5. Bin Dong, *Sparse Representation on Graphs by Tight Wavelet Frames and Applications*, Applied and Computational Harmonic Analysis, 42(3), 452C-479, 2017.
6. Jian-Feng Cai, Bin Dong and Zuowei Shen, *Image restoration: A wavelet frame based model for piecewise smooth functions and beyond*, Applied and Computational Harmonic Analysis, 41(1), 94–138, 2016.
7. Bin Dong, Jia Li and Zuowei Shen, *X-ray CT image reconstruction via wavelet frame based regularization and Radon domain inpainting*, Journal of Scientific Computing, 54(2-3), 333–349, 2013.
8. Yong Zhang, Bin Dong and Zhaosong Lu,  *$\ell_0$  minimization for wavelet frame based image restoration*, Mathematics of Computation, 82, 995–1015, 2013.
9. Jian-Feng Cai, Bin Dong, Stanley Osher and Zuowei Shen, *Image restoration: total variation; wavelet frames; and beyond*, Journal of the American Mathematical Society, **25(4)**, 1033–1089, 2012.
10. B. Dong, A. Chien and Z. Shen, *Frame based segmentation for medical images*, Communications in Mathematical Sciences, 9(2), 551–559, 2011.