



Ya-Nan Zhu

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Radiation Oncology,
University of Kansas Medical Center,
2060 W 39th Ave, Kansas City, KS 66103, USA

Research interests: Optimization algorithms (not limit to mathematical programming) for Data Processing, Medical Image Processing, Biomedical Engineering and Radiation Therapy.

Employment

- 2023 – present** Aug. 2023
Postdoctoral Researcher, *Radiation Oncology, University of Kansas Medical Center*
- 2021–2023** Jul. 2021 – Jun. 2023
Postdoctoral Researcher, *School of Mathematical Sciences, Shanghai Jiao Tong University*

Education

- 2017–2021** Sept. 2017 – Jun. 2021
Ph.D. in Computational Mathematics, *School of Mathematical Sciences & Institute of Natural Sciences, Shanghai Jiao Tong University*
Thesis: Stochastic and accelerated primal dual fixed point methods
- 2014–2017** Sept. 2014 – Mar. 2017
Master in Computational Mathematics, *School of Mathematical Sciences & Institute of Natural Sciences, Shanghai Jiao Tong University*
Thesis: Tailored finite point method
- 2010–2014** Sept. 2010 – Jun. 2014
Bachelor's Degree in *Applied Mathematics*, *Harbin Institute of Technology, Weihai*

Preprints

- 2023** Nov. 2023
Jingbo Xu, Qiaoqiao Ding, **Ya-Nan Zhu**, Xiaoqun Zhang. Personalized Artifacts Modeling and Federated Learning for Multi-institutional Low Dose CT Reconstruction.
- Nov. 2023
Jiangjun Ma, Yuting Lin, Min Tang, **Ya-Nan Zhu**, et al. SDDRO-DMF: Simultaneous Dose and Dose Rate Optimization (SDDRO) via Dose Modifying Factor (DMF) modeling for FLASH effective dose.
- Nov. 2023
Junyi Fan, **Ya-Nan Zhu**, et al. Rigorous Spot Reduction (RSR) method for proton ARC therapy.
- Nov. 2023
Yuanwei Zhang, **Ya-Nan Zhu**, Xiaoqun Zhang. Compressing MIMO Channel Submatrices with Tucker Decomposition: Enabling Efficient Storage and Reducing SNIR Computation Overhead.
- Oct. 2023
Ya-Nan Zhu, Weijie Zhang, et al. Proton ARC based LATTICE radiation therapy with energy layer optimization.
- May. 2023
Ya-Nan Zhu, Jingwei Liang, Xiaoqun Zhang. Federated Primal Dual Fixed Point Algorithm[J]. *arXiv preprint arXiv:2305.13604*, 2023.

Publications

- 2023** Dec. 2023
Zhao He, **Ya-Nan Zhu**, Yu Chen, et al. A deep unrolled neural network for real-time MRI-guided brain intervention. *Nature Communications*, 2023.
- Sept. 2023
Zhe Xiong, Lei Li, **Ya-Nan Zhu**, Xiaoqun Zhang. On the convergence of continuous and discrete unbalanced optimal transport models[J]. *SIAM J. Numer. Anal (Accepted)*, 2023.
- Jul. 2023
Ya-Nan Zhu, Xiaoqun Zhang, et al. An orthogonal matching pursuit optimization method for solving minimum-monitor-unit problems: Applications to proton IMPT, ARC and FLASH. *Medical Physics*, 2023.
- 2022** Jan. 2022
Zhao He, **Ya-Nan Zhu**, et al. Low-Rank and Framelet Based Sparsity Decomposition for Interventional MRI Reconstruction. *IEEE Transactions on Biomedical Engineering*, 2022.
- 2021** Nov. 2021
Ya-Nan Zhu, Xiaoqun Zhang. A stochastic variance reduced primal dual fixed point method for linearly constrained separable optimization. *SIAM Journal on Imaging Sciences*, 2021.
- Feb. 2021
Ya-Nan Zhu, Xiaoqun Zhang. Two modified schemes for the primal dual fixed point method. *CSIAM Trans. Appl. Math.* , 2021.
- 2020** Jul. 2020
Ya-Nan Zhu, Xiaoqun Zhang. Stochastic Primal Dual Fixed Point Method for Composite Optimization. *Journal of Scientific Computing*, 2020, 84(1): 1-25.

Teaching Assistant

- 2019** Feb. 2019 – Jun. 2019
"Convex Optimization" (Graduate student)
- 2018** Feb. 2018 – Jun. 2018
"Convex Optimization" (Undergraduate)

Awards

- 2022** Apr. 2022
ChenXing Postdoctoral Incentive Program, Shanghai Jiao Tong University
- 2015-2016** Sept. 2015 – Jun. 2016
Second-class scholarship, Shanghai Jiao Tong University
- 2014-2015** Sept. 2014 – Jun. 2015
Second-class scholarship, Shanghai Jiao Tong University
- 2014** Jun. 2014
The outstanding graduate of Harbin Institute of Technology, Weihai
- 2012-2013** Sept. 2012 – Jun. 2013
Second-class scholarship, Harbin Institute of Technology, Weihai
- 2011-2012** Sept. 2011 – Jun. 2012
Second-class scholarship, Harbin Institute of Technology, Weihai
- 2010-2011** Sept. 2010 – Jun. 2011

Second-class scholarship, Harbin Institute of Technology, Weihai

Other Skills

2014–present *Programming Language:* C, L^AT_EX, MATLAB

Language: English, Chinese