# Ya-Nan Zhu

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

Research interests: First-order optimization algorithms for Data Processing, Medical Image Processing, Biomedical Engineering and Radiation Therapy.

## Employment

**2023 –** 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*

## Preprint

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.

**2023**

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**

Nov. 2023
Zhao, He, **Ya-Nan Zhu**, et al. A deep unrolled neural network for real-time MRI-guided brain intervention. *Nature Communication (Accepted)*, 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, 14(3): 1326-1353.

**2021**

Feb. 2021
**Ya-Nan Zhu**, Xiaoqun Zhang. Two modified schemes for the primal dual fixed point method. *CSIAM Trans. Appl. Math.* , 2021, 1(2): 108-130.

**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)

## Award

**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

**2017 – present** *Programming Language*: C/C++, LaTeX, MATLAB

*Language*: English, Chinese