Zheng Zhan

Curriculum Vitae

School of Mathematical Science
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Bio

Zheng Zhan is a second-year Ph.D. candidate at the School of Mathematical Science, University of Science and Technology of China (USTC), supervised by Prof. Falai Chen. His research interests primarily focus on computational geometry, with a specific emphasis on domain parameterizations and deep learning technics.

Education

2020 – present **PhD, Computational Mathematics**, *USTC*.

2020 – 2022 **Master of Science, Computational Mathematics**, *USTC*.

2016 – 2020 **Bachelor of Science, Computational Mathematics**, *USTC*.

Dual Degree: Computer Science, *USTC*.

Publications

2024 Zheng Zhan, Wenping Wang, and Falai Chen. Simultaneous boundary and interior parameterization of planar domains via deep learning. *Computer-Aided Design*, volume 166, page 103621, January 2024.

2024 Zheng Zhan, Wenping Wang, and Falai Chen. Fast parameterization of planar domains for isogeometric analysis via generalization of deep neural network. *Computer Aided Geometric Design*, volume 111, page 102313, 2024.

2023 Zheng Zhan, Ye Zheng, Wenping Wang, and Falai Chen. Boundary correspondence for isogeometric analysis based on deep learning. *Communications in Mathematics and Statistics*, volume 11, pages 131–150, March 2023.

Research Experience

2024 – present ***Volumetric Domain Parameterization using Neural Networks***.

Extend the prior work to 3D cases.

2023 – 2024 ***Fast Global Parameterization of Planar Domains via Deep Learning***.

Improve our prior work to parameterize a specific planar domain in a short computational time, without repetitive network training.

2022 – 2023	***Simultaneous Boundary and Interior Parameterization of Planar Domains via Deep Learning***.
	Propose a neural network based approach for solving interior mapping and boundary correspondence simultaneously.
2020 – 2022	***Boundary Correspondence for Iso-geometric Analysis Based on Deep Learning***.
	Propose a neural network based approach to generate suitable boundary correspondence for planar domain parameterization.
2021 – 2022	***Trainable Activation Function Based on B-Spline Basis***.
	Using B-splines as the activation function for neural networks. This approach outperforms conventional basis functions in fitting tasks.

Honors

2023	**Yang Yuanqing Education Fund Scholarship**, Yang Yuanqing Education Fund.
2022	**National Scholarship**, Ministry of Education of the People's Republic of China.

Teaching Assistantship

Fall, 2019 :	**001512: Single Variable Calculus**, USTC.
Fall, 2020 :	**CS1001B: C Language Programming (B)**, USTC.
Fall, 2022 :	**CS1001A: C Language Programming (A)**, USTC.

Skills

Programming	Python, PyTorch, C++, Matlab, LaTeX
Math	Real/Complex Analysis, Functional Analysis, Numerical Analysis
Languages	Mandarin(native), English

Interests

Bandminton, Calligraphy, Movie