Yumeng Wang

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Introduction

My goal is to contribute to developing intelligent algorithm and analysis that can solve practical problem. I am passionate about leveraging deep learning techniques to solve real-world problems, and a highly self-motivated individual with a strong interest in machine learning, scientific computing and foundation model.

Education

- **Missouri University of Science and Technology** — Rolla, MO
  Ph.D. Candidate in Computational and Applied Mathematics; — *Aug. 2021– May. 2026*
- **Tongji University** — Shanghai, China
  Master of Management in Management Science and Engineering; — *Sep. 2016 – Mar. 2019*
- **Beijing University of Civil Engineering and Architecture** — Beijing, China
  Bachelor of Management in Engineering Management; — *Sep. 2011 – Jul. 2015*

Research project

- **Surrogate Modeling in PDE via neural network**: utilizing reduced order modeling(ROM) solves nonlocal and classical parameterized PDEs
- **Operator learning in solving PDE**: Learn an neural operator in the latent space, **in progress**
- **Foundation models**: Building a foundation model (vision transformer-based) for learning a general PDE solver, accelerating PINN in PDEs, **in progress**
- **Generative models in solving PDE**: Building generative models as a PDE solver from a probability perspective.

Industrial Experience

- **Berkeley Lawrence National Lab** — Berkeley, CA
  Summer intern — *Jun. 2024 - Aug. 2024*
  - **Generative models**: Building generative model (VAE, GAN, Diffusion Model) in developing new catalyst.
- **Beijing One Zero Wave Technology Co., Ltd.** — Beijing, China
  Data Analyst — *Mar. 2020 - Apr. 2021*
  - **Data analysis**: Performing data analysis and designing risk schemes for oversea loans.
- **FinSight Lab, Beijing Fantaike Technology Co., Ltd.** — Beijing, China
  Data Analyst — *Mar. 2019 - Feb. 2020*
  - **Data analysis**: Building and updating application score card model. Preforming data mining and other machine learning models for business, such as time-series prediction models and classification models.

Publications and Preprints

- *Parametric model reduction with convolutional neural networks*, Y. Wang, S. Zhou, and Y. Zhang, International Journal of Numerical Analysis and Modeling, 21(5):716–738, 2024.
- *Research on the classification of grants based on data mining and random forest algorithm*, Y. Wang, X. Wu and Y. Luo, Appl. Math. Chinese Market 03(2019), pp. 50–52.
- *Convolutional neural network-based reduced-order modeling for parametric nonlocal PDEs* , Y. Wang and Y. Zhang, (submitted).

Selected Courses

- **Computational Mathematics:** Mathematics of Machine Learning, Nonlinear Optimization in Machine Learning, Machine Learning in Computer Vision, Applied Matrix Theory, Finite Element Methods, Finite Difference Equation, Partial Differential Equations, Numerical Analysis, Mathematical Statistics, Functional Analysis, Natural Language Process, Stochastic Process.
- **Management Science:** Operations Research, Management Optimization Methods, Python Data Analysis

Skills

- **Languages** Python(TensorFlow, PyTorch), MATLAB, SQL, git, Tableau and LaTeX, C, Linux.
- **Technologies**Specialized in Scientific computing, AIforPDE