Neng Shi

Contact Information

GRAVITY research group
Ohio State Univerisity
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Research Interests

Scientific visualization, machine learning

Education

Department of Computer Science and Engineering, The Ohio State University, OH
Ph.D. in Computer Science and Engineering, 2019-
G.P.A. 3.87/4.0

School of Earth Sciences, Zhejiang University, Hangzhou, China
B.S. in Geographic Information Science, 2014-2018
G.P.A. 3.81/4.0

Publications

- **Neng Shi**, Jiayi Xu, Haoyu Li, Hanqi Guo, Jonathan Woodring, and Han-Wei Shen *VDL-Surrogate: A View-Dependent Latent-based Model for Parameter Space Exploration of Ensemble Simulations,* IEEE Transactions on Visualization and Computer Graphics (Proc. IEEE VIS 2022), 2022. (**Best Paper Honorable Mention Award** at IEEE VIS 2022)
- **Neng Shi**, Jiayi Xu, Skylar W. Wurster, Hanqi Guo, Jonathan Woodring, Luke Van Roekel, and Han-Wei Shen *GNN-Surrogate: A Hierarchical and Adaptive Graph Neural Network for Parameter Space Exploration of Unstructured-Mesh Ocean Simulations,* IEEE Transactions on Visualization and Computer Graphics (Proc. IEEE PacificVis 2022, Acceptance Rate: 5/75=6.67%), 28(6):2301-2313, 2022.
- **Neng Shi**, Yubo Tao *CNNs based Viewpoint Estimation for Volume Visualization,* ACM Transactions on Intelligent Systems and Technology (TIST), Volume 10 Issue 3, May 2019

Experiences

Graduate Research Associate — Aug.2020-
The Ohio State University

- Overall, exploration and visualization of ensemble datasets whose member generated from different input simulation parameters with deep surrogate models.
- Worked on using a graph neural network-based surrogate model for predicting data on unstructured grids with given simulation parameters, which led to an IEEE PacificVis/TVCG paper in 2022.
- Worked on using a surrogate exploiting view-dependent latent representations for parameter space explorations of ensemble data, generating visualization images for high-resolution data with user-specified visual mappings, which led to an IEEE VIS/TVCG (IEEE VIS Best paper honorable mention) paper in 2022.

Summer Research Assistant Intern — May.2022-Aug.2022
Argonne National Laboratory

- Worked on deep surrogate models for mining teleconnections in climate systems, especially focusing on designing a novel convolution kernel for analyzing spatial-temporal teleconnections.

Summer Research Assistant Intern July.2020-Aug.2020
Los Alamos National Laboratory

- Worked on using deep surrogate models to approximate ocean simulation functions, helping simulation parameter space exploration, especially focusing on generating 2.5D images allowing more flexible interaction, such as rotation and relighting.

Teaching Assistant Jul.2018-Sept.2019
NineChapter Algorithm

- TA for algorithm and artificial intelligence. Was responsible for communicating and answering questions and reviewing the course project.

Undergraduate Research Assistant Mar.2017-Nov.2018
Zhejiang University

- Worked on using CNN models to estimate one given volume rendering image's viewpoint, helping users select the best viewpoints for volume data with the trained CNN models given collected rendered images from published papers.

Skills

Languages: C/C++, Python, JavaScript
Graphics and Data Visualization: OpenGL, WebGL, GLSL, D3.js
Machine Learning: PyTorch

Honors and Awards

- Best Paper Honorable Mention Award, the IEEE Visualization Conference 2022 (IEEE VIS 2022).
- University Fellowship, The Ohio State University, 2019-2020
- Zhejiang University Academic Scholarship, 2014-2015, 2015-2016
- Third Prize in Zhejiang University Student Programming Competition, 2016
- First Prize in China NOIP (National Olympiad in Informatics in Provinces), 2012

Services

- Reviewer, IEEE VIS, 2022
- Reviewer, Graphical Models, 2022