# SKYLAR WOLFGANG WURSTER

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## STATEMENT OF PURPOSE

I will be graduating in Summer 2024 with a PhD in computer science, focused on the intersection of computer graphics and machine learning with special interest in NeRF models and neural representations. I seek employment in a machine learning role that requires both sound research abilities as well as engineering capabilities, ideally within a strong interdisciplinary team.

## SKILLS AND LANGUAGES

Deep learning, neural networks, computer graphics, rendering, scientific visualization, 3D modelling, game engines, neural representations, generative models, stable diffusion, Python, PyTorch, C/C++, CUDA, Java, C#, git.

## EDUCATION

**Ph.D in Computer Science**                                        August 2019 - Summer 2024 (expected)
The Ohio State University
Advised by Prof. Han-Wei Shen

**B.S. in Computer Science and Engineering**                                        August 2015 - May 2019
The Ohio State University
Magna Cum Laude, Dean's List 8 semesters

## EMPLOYMENT

**Tencent Pixel Lab**                                        June 2023 - December 2023
*Graphics Research Intern*                                        *New York, NY*

· Researching a periodic primitive-based model for neural scene representations with real-time rendering accelerated by custom CUDA extensions for PyTorch for submissions at CVPR and SIGGRAPH.

**Argonne National Lab**                                        May 2020/21/22 - August 2020/21/22
*Research Aide*                                        *Lemont, IL*

· Advised by Dr. Tom Peterka and Prof. Hanqi Guo. Researched and published 3 papers for topics covering hierarchical super-resolution and implicit neural representations for 3D scientific data.

**The Ohio State University**                                        August 2020 - present
*Graduate Research Assistant*                                        *Columbus, OH*

· Advised by Professor Han-Wei Shen. Ongoing Ph.D research for the intersection of graphics, scientific visualization, and deep learning.

**The Ohio State University**                                        August 2019 - May 2020
*Graduate Teaching Assistant*                                        *Columbus, OH*

· Taught CSE 2221: Software 1 to a class of 40 students, and scored above average on all student evaluation questions compared to instructors within the university, the college of engineering, and the department of computer science.

**The Ohio State University - ACCAD**                                        January 2017 - May 2019
*Undergraduate Research Assistant*                                        *Columbus, OH*

· Implemented augmented/mixed/virtual reality applications for use by students and faculty for research grants.

## AWARDS

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| First place at a Microsoft coding contest at OSU | September 20, 2017 |
| Humane Technologies Fellow | August 2017 - May 2018 |
| National Buckeye Scholarship | August 2015 - May 2019 |
| Provost Scholarship | August 2015 - May 2019 |

## PUBLICATIONS

**S. W. Wurster**, T. Xiong, H. -W Shen, H. Guo, T. Peterka. "Adaptively Placed Multi-Grid Scene Representation Networks for Large-Scale Data Visualization," In *Proc. IEEE VIS*, 2023.

**S. W. Wurster**, H. Guo, T. Peterka, H. -W. Shen. "Neural Stream Functions," In *Proc. IEEE PacificVIS*, 2023.

**S. W. Wurster**, H. Guo, H. -W. Shen, T. Peterka and J. Xu, "Deep Hierarchical Super Resolution for Scientific Data," *IEEE Transactions on Visualization and Computer Graphics*, 2022. Early access.

Neng Shi, Jiayi Xu, **S. 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)*, 2022, Accepted.

Xu, J., Guo, H., Shen, H.-W., Raj, M., **S. W. Wurster**, Peterka, T.. "Reinforcement Learning for Load- balanced Parallel Particle Tracing". *IEEE Transactions on Visualization and Computer Graphics*. 2022.

Bruggeman, K. and **S. W. Wurster** 2018. "The Hiatus System: virtual healing spaces: low dose mindfulness based stressed reduction virtual reality application". *SIGGRAPH '18 ACM SIGGRAPH 2018 Appy Hour*. 8

Paul Hyunjin Kim, Jacob Grove, **S. W. Wurster**, and Roger Crawfis. 2019. "Design-centric maze generation". In *Proceedings of the 14th International Conference on the Foundations of Digital Games (FDG '19)*. ACM, New York, NY, USA, Article 83, 9 pages.