Weiyun Jiang

Houston, TX 77051 || wyjiang@rice.edu || weiyunjiang.com

Education

Rice University (Expected June 2027)
Doctor of Philosophy, Electrical and Computer Engineering
GPA: 4.00/4.00

Stanford University (2020 - 2022)
Master of Science, Electrical Engineering
GPA: 4.01/4.30

University of California, Santa Barbara (2016 - 2020)
Bachelor of Science, Electrical Engineering
Outstanding Undergraduate EE Student Award
GPA: 3.99/4.00, *summa cum laude*

Publications

Guidestar-Free Adaptive Optics with Asymmetric Apertures. Weiyun Jiang, Haiyun Guo, Christopher Metzler, Ashok Veeraraghavan. Under Review.

Latent Patched Efficient Diffusion Model for High Resolution Image Synthesis. Weiyun Jiang, Devendra K. Jangid, Seok-Jun Lee, Hamid R. Sheikh. *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops* (2025).

Temporally Consistent Atmospheric Turbulence Mitigation with Neural Representations. Haoming Cai, Jingxi Chen, Brandon Y Feng, Weiyun Jiang, Mingyang Xie, Kevin Zhang, Cornelia Fermuller, Yiannis Aloimonos, Ashok Veeraraghavan, Christopher Metzler. *Conference on Neural Information Processing Systems* (2025).

NeRT: Implicit Neural Representations for Unsupervised Atmospheric Turbulence Mitigation. Weiyun Jiang, Vivek Boominathan, and Ashok Veeraraghavan. *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops* (2023).

Sparse Tucker Tensor Decomposition on a Hybrid FPGA-CPU Platform. Weiyun Jiang, Kaiqi Zhang, Colin Yu Lin, Feng Xing, and Zheng Zhang. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* (2020).

Elephant-Human Conflict Mitigation: An Autonomous UAV Approach with Custom Hardware. Weiyun Jiang, Alexis Yang, and Yogananda Isukapalli. *International Telemetering Conference* (2021).

Research Experience

Rice Computational Imaging Lab **August 2022 – Present**
Research Assistant
Advisor: Prof. Ashok Veeraraghavan

- Built the first real-time guidestar-free adaptive optics system that leverages asymmetric apertures and deep learning to recover wavefronts and correct severe aberrations with minimal measurements and computation.
- Developed an unsupervised approach for imaging through atmospheric and water turbulence.
- Designed an atmospheric turbulence simulator with temporal correlation for videos .

Stanford Computational Imaging Lab **March 2021 – September 2021**
Research Assistant
Advisor: Prof. Gordon Wetzstein

- Leveraged FiLM-based priors to solve general ill-posed inverse problems.
- Designed a novel implicit neural network, local FiLM-ed SIREN to solve image inpainting.
- Investigated the ability of implicit neural network to learn priors using GAN loss.
- Achieved higher PSNR than baseline CNN and U-Net methods.

UCSB Uncertainty and Big Data Analysis Lab **June 2018 – September 2020**
Research Assistant
Advisor: Prof. Zheng Zhang

- Accelerated sparse Tucker tensor decomposition on a hybrid FPGA-CPU platform.
- Designed a high-level synthesis FPGA implementation for sparse Tucker decomposition.
- Replaced the conventional singular value decomposition with QR decomposition with column pivoting to reduce the data storage cost and to speed up the computation.
- Achieved 23.6× ∼ 1091× speedup and over 95% energy savings on the tested real-world tensor datasets over CPU.

Industry Experience

Samsung Research America – Mobile Innovation Lab **May 2024 – July 2024**
Research Intern
Plano, TX

- Designed and implemented a latent-patched diffusion framework used for high-resolution image synthesis, significantly reducing GPU VRAM requirements and improving inference speed compared to existing state-of-the-art patched diffusion models.
- Internship work resulted in one pending patent and a CVPR Workshop publication.

Moffett AI **November 2020 – January 2021**
Software Engineering Intern
Palo Alto, CA

- Generated test cases of various deep learning operations and state-of-the-art language and image classification models for FPGA verifications.
- Wrote shell scripts and Python codes to automate the whole testing framework for C model debugging.

Course Projects

Computational Imaging and Display Course **January 2021 – March 2021**
Super-Resolution with SIREN-based Local Implicit Image Functions (LIIF)

- Investigated the performances of ReLU-based LIIF and SIREN-based LIIF on single image super-resolution.
- Replaced the ReLU activation functions in MLP with Sine activation functions.
- Explored the bottlenecks of current deep learning methods for super-resolution.

Mixed-Reality in Medicine Course **September 2021 – November 2021**
Augmented Reality Guidance of Cryosurgery

- Visualized the tip of the needle inside patient's body using HoloLens and Opti-track system.
- Displayed MRI images at the location of the needle placement in real-time.

Awards

Edmund M. Dupree Distinguished Fellow of ECE Department (2022-2023)
Outstanding Senior of Class 2020 in College of Engineering (one awardee selected from the EE program)

Skills & Relevant Courses

Programming: Python, C++/C, C#, Unity, Blender, MATLAB, Verilog, Arduino, Eagle and LaTeX.
Courses: Machine Learning; Artificial Intelligence: Principles and Techniques; Computer Organization and Systems; Natural Language Processing with Deep Learning; Computational Imaging and Display; Convolutional Neural Networks for Visual Recognition; Computational Methods for Biomedical Image Analysis and Interpretation; Deep Generative Models; Introduction to Computer Graphics and Imaging; Mixed-Reality in Medicine.