Weiyun Jiang

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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

W. Jiang, H. Guo, C. A. Metzler, A. Veeraraghavan, "Guidestar-Free Adaptive Optics with Asymmetric Apertures," *ACM Transactions on Graphics (TOG)*, 2026. To be presented at *SIGGRAPH 2026*.

W. Jiang, D. K. Jangid, S. Lee, H. R. Sheikh, "Latent Patched Efficient Diffusion Model for High Resolution Image Synthesis," *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2025.

H. Cai, J. Chen, B. Y. Feng, **W. Jiang**, M. Xie, K. Zhang, C. Fermuller, Y. Aloimonos, A. Veeraraghavan, C. A. Metzler, "Temporally Consistent Atmospheric Turbulence Mitigation with Neural Representations," *Advances in Neural Information Processing Systems (NeurIPS)*, 2024.

W. Jiang, V. Boominathan, and A. Veeraraghavan, "NeRT: Implicit Neural Representations for Unsupervised Atmospheric Turbulence Mitigation," *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2023.

W. Jiang, K. Zhang, C. Y. Lin, F. Xing, and Z. Zhang, "Sparse Tucker Tensor Decomposition on a Hybrid FPGA-CPU Platform," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2020.

W. Jiang, A. Yang, and Y. Isukapalli, "Elephant-Human Conflict Mitigation: An Autonomous UAV Approach with Custom Hardware," *International Telemetering Conference (ITC)*, 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.