

Brandon Yushan Feng

brandon.fengys@gmail.com
branfeng.github.io

Work Experience

- 2023 – **Massachusetts Institute of Technology** – Cambridge, MA
Postdoctoral Associate | Advisor: William T. Freeman
- 2022 – 2023 **Google** – San Francisco, CA
Research Scientist Intern

Education

- 2019 – 2023 **University of Maryland** – College Park, MD
Ph.D. in Computer Science | Advisor: Amitabh Varshney
- 2015 – 2019 **University of Virginia** – Charlottesville, VA
B.A. in Computer Science | B.A. + M.S. in Statistics

Journal Publications

- J8 **Single-shot Volumetric Fluorescence Imaging with Neural Fields.**
O. Zhang, H. Zhou, B. Y. Feng, E. M. Larsson, R. E. Alcalde, S. Yin, C. Deng, C. Yang.
Advanced Photonics, 2025.
- J7 **Exoplanet Imaging via Differentiable Rendering**
B. Y. Feng, R. Ferrer-Chávez, A. Levis, J. Wang, K. Bouman, W. T. Freeman
IEEE Transactions on Computational Imaging, 2025
- J6 **HoloCamera: Advanced Volumetric Capture for Cinematic-Quality VR Applications**
J. Heagerty, S. Li, E. Lee, S. Bhattacharyya, S. Bista, B. Brawn, B. Y. Feng, S. Jabbireddy,
J. F. JaJa, H. Kacorri, D. Li, D. T. Yarnell, M. Zwicker, A. Varshney
IEEE Transactions on Visualization and Computer Graphics, 2024
- J5 **FPM-INR: Fourier ptychographic microscopy image stack reconstruction using implicit neural representations**
H. Zhou*, B. Y. Feng*, H. Guo, S. Lin, M. Liang, C. A. Metzler, C. Yang
Optica, 2023
- J4 **NeuWS: Neural Wavefront Shaping for Guidestar-Free Imaging Through Static and Dynamic Scattering Media**
B. Y. Feng*, H. Guo*, M. Xie, V. Boominathan, M. K. Sharma, A. Veeraraghavan, C. A. Metzler
Science Advances, 2023

- J3 **Neural Subspaces for Light Fields**
 B. Y. Feng, A. Varshney
IEEE Transactions on Visualization and Computer Graphics, 2022
- J2 **TurbuGAN: An Adversarial Learning Approach to Spatially-Varying Multi-frame Blind Deconvolution with Applications to Imaging Through Turbulence**
 B. Y. Feng*, M. Xie*, C. A. Metzler
IEEE Journal on Selected Areas in Information Theory, 2022
- J1 **Benchmarking AlphaFold for Protein Complex Modeling Reveals Accuracy Determinants**
 R. Yin, B. Y. Feng, A. Varshney, B. G. Pierce
Protein Science, 31 (8)

Conference Publications

- C20 **Parametric Shadow Control for Portrait Generation in Text-to-Image Diffusion Models**
 H. Cai, T. Huang, S. Gehlot, B. Y. Feng, S. Shah, G. Su, C. A. Metzler
International Conference on Computer Vision (ICCV), 2025
- C19 **Repurposing Pre-trained Video Diffusion Models for Event-based Video Interpolation**
 J. Chen, B. Y. Feng, H. Cai, T. Wang, L. Burner, D. Yuan, C. Fermuller, C. A. Metzler, Y. Aloimonos
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025
- C18 **Temporally Consistent Atmospheric Turbulence Mitigation with Neural Representations**
 H. Cai*, J. Chen*, B. Y. Feng, W. Jiang, M. Xie, K. Zhang, C. Fermuller, Y. Aloimonos, A. Veeraraghavan, C. A. Metzler
Annual Conference on Neural Information Processing Systems (NeurIPS), 2024
- C17 **Physics-Based Interaction with 3D Objects via Video Generation**
 T. Zhang, H. Yu, R. Wu, B. Y. Feng, C. Zheng, N. Snavely, J. Wu, W. T. Freeman
European Conference on Computer Vision (ECCV), 2024
- C16 **Flash-Splat: 3D Reflection Removal with Flash Cues and Gaussian Splats**
 M. Xie, H. Cai, S. Shah, Y. Xu, B. Y. Feng, J. Huang, C. A. Metzler
European Conference on Computer Vision (ECCV), 2024
- C15 **EndoSparse: Real-Time Sparse View Synthesis of Endoscopic Scenes using Gaussian Splatting**
 C. Li, B. Y. Feng, Y. Liu, H. Liu, C. Wang, W. Yu, Y. Yuan
Medical Image Computing and Computer Assisted Intervention (MICCAI), 2024
- C14 **Endora: Video Generation Models as Endoscopy Simulators**
 C. Li*, H. Liu*, Y. Liu*, B. Y. Feng, W. Li, X. Liu, Z. Chen, J. Shao, Y. Yuan
Medical Image Computing and Computer Assisted Intervention (MICCAI), 2024

- C13 **Seeing the World Through Your Eyes**
H. Alzayer*, K. Zhang* B. Y. Feng, C. A. Metzler, J. Huang
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024
- C12 **WaveMo: Learning Wavefront Modulations to See Through Scattering**
M. Xie*, H. Guo* B. Y. Feng, L. Jin, A. Veeraraghavan, C. A. Metzler
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024
- C11 **Learning to Estimate 6DoF Pose from Limited Data: A Few-Shot, Generalizable Approach using RGB Images**
P. Pan*, Z. Fan*, B. Y. Feng*, P. Wang, C. Li, Z. Wang
International Conference on 3D Vision (3DV), 2024
- C10 **Visualizing Subtle Motions from Time-Varying Radiance Fields**
B. Y. Feng*, H. Alzayer*, M. Rubinstein, W. T. Freeman, J. Huang
International Conference on Computer Vision (ICCV), 2023
- C9 **StegaNeRF: Embedding Invisible Information within Neural Radiance Fields**
C. Li*, B. Y. Feng*, Z. Fan*, P. Pan, Z. Wang
International Conference on Computer Vision (ICCV), 2023
- C8 **Continuous Levels of Detail for Light Field Networks**
D. Li, B. Y. Feng, A. Varshney
British Machine Vision Conference (BMVC), 2023
- C7 **VIINTER: View Interpolation With Implicit Neural Representations of Images**
B. Y. Feng, S. Jabbireddy, A. Varshney
SIGGRAPH Asia, 2022
- C6 **PRIF: Primary Ray-based Implicit Function**
B. Y. Feng, Y. Zhang, D. Tang, R. Du, A. Varshney
European Conference on Computer Vision (ECCV), 2022
- C5 **SIGNET: Efficient Neural Representation for Light Fields**
B. Y. Feng, A. Varshney
International Conference on Computer Vision (ICCV), 2021
- C4 **GazeChat: Enhancing Virtual Conferences with Gaze-aware 3D Photos**
Z. He, K. Wang, B. Y. Feng, R. Du, K. Perlin
ACM Symposium on User Interface Software and Technology (UIST), 2021
- C3 **Deep Depth Estimation on 360° Images with a Double Quaternion Loss**
B. Y. Feng, W. Yao, Z. Liu, A. Varshney
International Conference on 3D Vision (3DV), 2020
- C2 **Prostate Segmentation from 3D MRI Using a Two-stage Model and Variable-input Based Uncertainty Measure**
H. Pan, B. Y. Feng, C. Meyer, X. Feng
IEEE International Symposium on Biomedical Imaging (ISBI), 2019

- C1 **A Self-adaptive Network for Multiple Sclerosis Lesion Segmentation from Multi-contrast MRI with Various Imaging Sequences**
B. Y. Feng, H. Pan, C. Meyer, X. Feng
IEEE International Symposium on Biomedical Imaging (ISBI), 2019

Media Coverage

- 2023 **Science.org**
Neural Wavefront Shaping
- 2023 **Maryland Today**
UMD Researchers Develop New Imaging Technology That Can ‘See’ Hidden Objects
- 2023 **Photonics.com**
Video Tech Enables Imaging Through Scattering Media
- 2023 **ScienceDaily**
NeuWS camera answers ‘holy grail problem’ in optical imaging
- 2023 **Phys.org**
Neural wavefront shaping camera overcomes light scattering problem in optical imaging
- 2023 **New Scientist**
Eyeball reflections can reveal a 3D model of what you are looking at
- 2023 **Gizmodo**
Computer, Enhance: Scientists Reconstruct Rooms From Eye Reflections
- 2023 **TechSpot**
Researchers construct 3D scenes using reflections from eyes
- 2023 **Tech Xplore**
Rendering three-dimensional images from eye reflections with NeRF
- 2023 **PetaPixel**
Scientists Can Now Reconstruct Rooms from Eye Reflections in Photos
- 2023 **Futurism**
Scientists Reconstruct What You’re Looking At By Enhancing Reflection In Your Eye
- 2023 **New Atlas**
Researchers can now 3D-model a room just from your eye reflections
- 2022 **ITmedia News**
Technology to animate profile picture in video conference

Invited Talks

- 2025/04 **University of Texas at Austin**
AI as a Lens: Expanding Vision for Scientific Discovery

- 2025/02 **Stony Brook University**
AI as a Lens: Expanding Vision for Scientific Discovery
- 2025/02 **University of Virginia**
AI as a Lens: Expanding Vision for Scientific Discovery
- 2025/02 **Georgia Institute of Technology**
AI as a Lens: Expanding Vision for Scientific Discovery
- 2025/02 **University of Pennsylvania**
AI as a Lens: Expanding Vision for Scientific Discovery
- 2025/02 **Texas A&M University**
AI as a Lens: Expanding Vision for Scientific Discovery
- 2025/02 **Machine Learning and Scientific Imaging Conference**
AI as a Lens: Expanding Scientific Vision in Biomedical and Astronomical Imaging
- 2025/01 **Annual Meeting of the American Astronomical Society**
AI-Driven Imaging and Inference with Differentiable Computing
- 2024/05 **California Institute of Technology**
Neural Fields to Solve Inverse Problems in Imaging
- 2024/05 **SIAM Imaging Science**
Ray-based Implicit Function for Neural Surface and Scene Representation
- 2023/09 **Massachusetts Institute of Technology**
Rethinking Machine Learning to Solve Inverse Problems in Imaging with Undetermined Forward Operators
- 2022/12 **Massachusetts Institute of Technology**
Designing Neural Fields of Rays and Pixels
- 2022/10 **Rice University**
Implicit Neural Representations for Graphics and Vision
- 2022/09 **University of Maryland**
Implicit Neural Representations for Graphics and Vision
- 2022/08 **University of Texas at Austin**
Efficient Implicit Neural Representation for 3D Shapes
- 2022/07 **Optica Imaging Congress COSI**
Adversarial Sensing for Sub-Diffraction Imaging
- 2022/06 **Google**
Primary Ray-based Implicit Function

Honors and Awards

2024	Oral Presentation European Conference on Computer Vision (ECCV) 2024 <i>Selection Rate: 200/8585 = 2.32%</i>
2024	Oral Presentation IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024 <i>Selection Rate: 90/11532 = 0.78%</i>
2023	Best Poster International Conference on Computational Photography (ICCP) 2023
2022	Runner-Up CVPR 2022 UG2+ Challenge
2021	Oral Presentation International Conference on Computer Vision (ICCV) 2021 <i>Selection Rate: 210/6236 = 3.36%</i>
2019-2021	Dean's Fellowship University of Maryland Graduate School
2015-2018	Dean's List of Distinguished Students University of Virginia College of Arts and Sciences

Service

Journal Reviewer	Nature Communications IEEE Transactions on Pattern Analysis and Machine Intelligence IEEE Transactions on Image Processing IEEE Transactions on Computational Imaging IEEE Transactions on Circuits and Systems for Video Technology ACM Transactions on Graphics Photonics Research Optics Express Biomedical Optics Express
Conference Reviewer	Conference on Neural Information Processing Systems (NeurIPS) International Conference on Learning Representations (ICLR) International Conference on Machine Learning (ICML) IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) International Conference on Computer Vision (ICCV) European Conference on Computer Vision (ECCV) ACM SIGGRAPH ACM Multimedia International Conference on Computational Photography (ICCP) AAAI Conference on Artificial Intelligence (AAAI)
University Service	Organizer: University of Maryland Computer Vision Seminar Organizer: Computational Imaging Workshop at Technica (largest hackathon for underrepresented genders) Reviewer: University of Maryland Computer Science Graduate Program Application