

Brandon Yushan Feng

Curriculum Vitae

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Education and Experience

- 2023– **Massachusetts Institute of Technology**, Cambridge, MA.
Postdoctoral Associate in Computer Science and Artificial Intelligence Laboratory (CSAIL)
Advisor: William T. Freeman
- 2019–2023 **University of Maryland**, College Park, MD.
Ph.D. in Computer Science
Committee: Amitabh Varshney (Advisor and Chair), Furong Huang, Christopher A. Metzler, Jia-Bin Huang, Joseph JaJa
- 2022–2023 **Google**, San Francisco, CA.
Research Scientist Intern (Manager: Yinda Zhang)
- 2015–2019 **University of Virginia**, Charlottesville, VA.
B.A. in Computer Science and B.A. in Statistics
M.S. in Statistics

Publications

* denotes equal contribution

- CVPR 2024 **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 2024.
- CVPR 2024 **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 2024.
- IEEE TVCG **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 TVCG, 2024.
- Optica **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.
- Science Advances **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.

- ICCV 2023 **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.
- ICCV 2023 **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.
- 3DV 2023 **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) 2023.
- BMVC 2023 **Continuous Levels of Detail for Light Field Networks.**
D. Li, B. Y. Feng, A. Varshney.
British Machine Vision Conference (BMVC) 2023.
- SIGGRAPH Asia 2022 **VIINTER: View Interpolation With Implicit Neural Representations of Images.**
B. Y. Feng, S. Jabbireddy, A. Varshney.
SIGGRAPH Asia 2022.
- ECCV 2022 **PRIF: Primary Ray-based Implicit Function.**
B. Y. Feng, Y. Zhang, D. Tang, R. Du, A. Varshney.
European Conference on Computer Vision (ECCV) 2022.
- IEEE TVCG **Neural Subspaces for Light Fields.**
B. Y. Feng, A. Varshney.
IEEE Transactions on Visualization and Computer Graphics, 2022.
- IEEE JSAIT **TurboGAN: An Adversarial Learning Approach to Spatially-Varying Multiframe 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.
- ICCV 2021 **SIGNET: Efficient Neural Representation for Light Fields.**
B. Y. Feng, A. Varshney.
International Conference on Computer Vision (ICCV) 2021.
- Protein Science **Benchmarking AlphaFold for Protein Complex Modeling Reveals Accuracy Determinants.**
R. Yin, B. Y. Feng, A. Varshney, R. G. Pierce.
Protein Science, 31 (8).
- UIST 2021 **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.
- 3DV 2020 **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.
- ISBI 2019 **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.
2019 IEEE 16th International Symposium on Biomedical Imaging (ISBI) 2019.

- ISBI 2019 **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.
2019 IEEE 16th International Symposium on Biomedical Imaging (ISBI) 2019.

Invited Talks

- 2023/09 **Massachusetts Institute of Technology** Signals, Information, and Algorithms Laboratory.
Rethinking Machine Learning to Solve Inverse Problems in Imaging with Undetermined Forward Operators.
- 2022/12 **Massachusetts Institute of Technology** Scene Representation Group.
Designing Neural Fields of Rays and Pixels.
- 2022/10 **Rice University** Computational Imaging Lab.
Implicit Neural Representations for Graphics and Vision.
- 2022/09 **University of Maryland** Vision and Learning Lab.
Implicit Neural Representations for Graphics and Vision.
- 2022/08 **University of Texas at Austin** Visual Informatics Group.
Efficient Implicit Neural Representation for 3D Shapes.
- 2022/07 **Optica Imaging Congress** COSI.
Adversarial Sensing for Sub-Diffraction Imaging.
- 2022/06 **Google** AR.
Primary Ray-based Implicit Function.

Media Coverage

- 2023 **Science.org** *Neural Wavefront Shaping*
- 2023 **Maryland Today** *UMD Researchers Develop New Imaging Technology That Can 'See' Hidden Objects*
- 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*

■ Awards

- 2023 **Best Poster**, International Conference on Computational Photography (ICCP) 2023.
- 2022 **Runner-Up**, CVPR 2022 UG2+ Challenge.
- 2021 **Top 3% Paper**, International Conference on Computer Vision (ICCV) 2021.
- 2019 **Dean's Fellowship**, University of Maryland.

■ Service

- Journal Nature Communication
- Reviewer IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Image Processing
IEEE Transactions on Circuits and Systems for Video Technology
- Conference IEEE Conference on Computer Vision and Pattern Recognition (CVPR): 2022 - 2024
- Reviewer International Conference on Computer Vision (ICCV) 2023
International Conference on Learning Representations (ICLR): 2024
Neural Information Processing Systems (NeurIPS): 2022-23
International Conference on Machine Learning (ICML): 2022-23
- University Organizer, University of Maryland Computer Vision Seminar - 2022
- Service Organizer, Computational Imaging Workshop at Technica (largest hackathon for underrepresented genders) - 2022
Reviewer, University of Maryland Computer Science Graduate Program Application - 2020, 2021, 2022