Brandon Yushan Feng

✉ *brandon.fengys@gmail.com*
brandonyfeng.github.io

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
Advisor: Amitabh Varshney
Committee: Furong Huang, Christopher A. Metzler, Jia-Bin Huang, Joseph JaJa

2022-2023 **Google**, San Francisco, CA.
Research Scientist Intern
Manager: Yinda Zhang

2018–2019 **University of Virginia**, Charlottesville, VA.
M.S. in Statistics

2015–2018 **University of Virginia**, Charlottesville, VA.
B.A. in Computer Science and B.A. in Statistics

Research Interests

My research interest centers around computational imaging, mid-level vision, and computational photography. My goal is to extend the boundary of visible reality for humans, designing physics-inspired machine learning algorithms that unlock human abilities to perceive and create new information.

Publications

* denotes equal contribution

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.

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 **TurbuGAN: 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. (Oral - Top 3%)

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.

Talks

2023/08 **Optica Imaging Congress** COSI.
Neural Wavefront Shaping in the Photon-Starved Regime.

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 **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*

2022 **ITmedia News** *Technology to animate profile picture in video conference*

Service

Journal Reviewer
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Image Processing
IEEE Transactions on Circuits and Systems for Video Technology

Conference Reviewer
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) - 2022, 2023
Neural Information Processing Systems (NeurIPS) - 2022
International Conference on Machine Learning (ICML) - 2022, 2023

University Service
Organizer, University of Maryland Computer Vision Seminar - 2022
Organizer, Computational Imaging Workshop at Technica (largest hackathon for underrepresented genders) - 2022
Reviewer, University of Maryland Computer Science Graduate Program Application - 2020, 2021, 2022