Stanford

Gordon Wetzstein

Associate Professor of Electrical Engineering and, by courtesy, of Computer Science

Bio

BIO

Gordon Wetzstein is an Associate Professor of Electrical Engineering and, by courtesy, of Computer Science at Stanford University. He is the leader of the Stanford Computational Imaging Lab and a faculty co-director of the Stanford Center for Image Systems Engineering. At the intersection of computer graphics and vision, computational optics, and applied vision science, Prof. Wetzstein's research has a wide range of applications in next-generation imaging, display, wearable computing, and microscopy systems. Prior to joining Stanford in 2014, Prof. Wetzstein was a Research Scientist at MIT, he received a Ph.D. in Computer Science from the University of British Columbia in 2011 and graduated with Honors from the Bauhaus in Weimar, Germany before that. He is the recipient of an NSF CAREER Award, an Alfred P. Sloan Fellowship, an ACM SIGGRAPH Significant New Researcher Award, a Presidential Early Career Award for Scientists and Engineers (PECASE), an SPIE Early Career Achievement Award, a Terman Fellowship, an Okawa Research Grant, the Electronic Imaging Scientist of the Year 2017 Award, an Alain Fournier Ph.D. Dissertation Award, and a Laval Virtual Award as well as Best Paper and Demo Awards at ICCP 2011, 2014, and 2016 and at ICIP 2016.

ACADEMIC APPOINTMENTS

- Associate Professor, Electrical Engineering
- Associate Professor (By courtesy), Computer Science
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Faculty Co-director, Stanford Center for Image Systems Engineering (SCIEN), (2017- present)

HONORS AND AWARDS

- Presidential Early Career Award for Scientists and Engineers (PECASE), The White House Office of Science and Technology Policy (2019)
- Best Student Paper (Emil Wolf Student Paper Prize), OSA Frontiers in Optics Conference (2018)
- Qualcomm Faculty Award, Qualcomm (2018)
- SIGGRAPH Significant New Researcher Award, ACM (2018)
- Sloan Fellowship, Alfred P. Sloan Foundation (2018)
- Scientist of the Year Award, IS&T Electronic Imaging (2017)
- Best Paper (Honorable Mention), Eurographics (2016)
- CAREER Award, National Science Foundation (2016)
- Conference Best Paper for Industry Award, IEEE International Conference on Image Processing (ICIP) (2016)
- Okawa Research Grant, Okawa Foundation (2016)

- Google Faculty Research Award, Google (2015)
- Best Paper Award, IEEE International Conference on Computational Photography (ICCP) (2014)
- Terman Faculty Fellowship, Stanford University (2014)
- Postdoctoral Fellowship (PDF), National Sciences and Engineering Research Council of Canada (NSERC) (2012)
- Alain Fournier Ph.D. Dissertation Annual Award, Vancouver Foundation (2011)
- Best Paper Award, IEEE International Conference on Computational Photography (ICCP) (2011)
- Laval Virtual Award, Laval Virtual (2005)

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- Research Scientist, Massachusetts Institute of Technology, Media Lab , Media Arts and Sciences (2014)
- Ph.D., University of British Columbia , Computer Science (2011)
- Dipl., Bauhaus University , Media Systems Science (2006)

LINKS

- Stanford Computational Imaging Lab: http://www.computationalimaging.org/
- http://web.stanford.edu/~gordonwz: http://web.stanford.edu/~gordonwz
- Google Scholar Profile: https://scholar.google.com/citations?user=VOf45S0AAAAJ&hl=en

Teaching

COURSES

2021-22

- Computational Imaging: CS 448I, EE 367 (Win)
- Seminar Series for Image Systems Engineering: EE 292E (Aut, Win, Spr)
- Virtual Reality: EE 267 (Spr)
- Virtual Reality (WIM): EE 267W (Spr)

2020-21

- Computational Imaging and Display: EE 367 (Win)
- Seminar Series for Image Systems Engineering: EE 292E (Aut, Win, Spr)
- Virtual Reality: EE 267 (Spr)
- Virtual Reality (WIM): EE 267W (Spr)

2019-20

- Computational Imaging and Display: CS 448I, EE 367 (Win)
- Seminar Series for Image Systems Engineering: EE 292E (Aut, Win, Spr)
- Virtual Reality: EE 267 (Spr)
- Virtual Reality (WIM): EE 267W (Spr)

2018-19

- Computational Imaging and Display: CS 448I, EE 367 (Win)
- Seminar Series for Image Systems Engineering: EE 292E (Aut, Win, Spr)

- Virtual Reality: EE 267 (Spr)
- Virtual Reality (WIM): EE 267W (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Riley Culberg, Hanseul Jun, Zheng Lyu, Liyue Shen, Zhanghao Sun, Thomas Teisberg, Yueming Zhuo

Orals Chair

Feng Xie

Postdoctoral Faculty Sponsor

David Lindell, Julien Martel, Yifan (Evan) Peng

Doctoral Dissertation Advisor (AC)

Alex Bergman, Suyeon Choi, Cindy Nguyen, Mark Nishimura

Master's Program Advisor

Jin Woo Baik, Natalie Bishay, Ruoyan Chen, ALEX GILBERT, Weiyun Jiang, Qingxi Meng, Tara Sadjadpour, Arjun Soin, Jessica Tawade, Jizhen Wang, Claire Zhang

Doctoral Dissertation Co-Advisor (AC)

Connor Lin

Doctoral (Program)

Suyeon Choi, Riley Culberg, Manu Gopakumar, Thomas Teisberg, Kailas Vodrahalli

Publications

PUBLICATIONS

- **Inference in artificial intelligence with deep optics and photonics.** *Nature*
  Wetzstein, G., Ozcan, A., Gigan, S., Fan, S., Englund, D., Soljacic, M., Denz, C., Miller, D. A., Psaltis, D.
  2020; 588 (7836): 39–47
- **Neural Holography with Camera-in-the-loop Training** *ACM TRANSACTIONS ON GRAPHICS*
  Peng, Y., Choi, S., Padmanaban, N., Wetzstein, G.
  2020; 39 (6)
- **Autofocals: Evaluating gaze-contingent eyeglasses for presbyopes.** *Science advances*
  Padmanaban, N., Konrad, R., Wetzstein, G.
  2019; 5 (6): eaav6187
- **Confocal non-line-of-sight imaging based on the light-cone transform** *NATURE*
  O'Toole, M., Lindell, D. B., Wetzstein, G.
  2018; 555 (7696): 338–41
- **A Perceptual Model for Eccentricity-dependent Spatio-temporal Flicker Fusion and its Applications to Foveated Graphics** *ACM TRANSACTIONS ON GRAPHICS*
  Krajancich, B., Kellnhofer, P., Wetzstein, G.
  2021; 40 (4)
- **Acorn: Adaptive Coordinate Networks for Neural Scene Representation** *ACM TRANSACTIONS ON GRAPHICS*
  Martel, J. P., Lindell, D. B., Lin, C. Z., Chan, E. R., Monteiro, M., Wetzstein, G.
  2021; 40 (4)

- **Event-Based Near-Eye Gaze Tracking Beyond 10,000 Hz**
  Angelopoulos, A. N., Martel, J. P., Kohli, A. P., Conradt, J., Wetzstein, G.
  IEEE COMPUTER SOC.2021: 2577-2586
- **Optimizing image quality for holographic near-eye displays with Michelson Holography** *OPTICA*
  Choi, S., Kim, J., Peng, Y., Wetzstein, G.
  2021; 8 (2): 143–46
- **Keyhole Imaging:Non-Line-of-Sight Imaging and Tracking of Moving Objects Along a Single Optical Path** *IEEE TRANSACTIONS ON COMPUTATIONAL IMAGING*
  Metzler, C. A., Lindell, D. B., Wetzstein, G.
  2021; 7: 1–12
- **Neural Light Field 3D Printing** *ACM TRANSACTIONS ON GRAPHICS*
  Zheng, Q., Babaei, V., Wetzstein, G., Seidel, H., Zwicker, M., Singh, G.
  2020; 39 (6)
- **Optimizing Depth Perception in Virtual and Augmented Reality through Gaze-contingent Stereo Rendering** *ACM TRANSACTIONS ON GRAPHICS*
  Krajancich, B., Kellnhofer, P., Wetzstein, G.
  2020; 39 (6)
- **Toward the next-generation VR/AR optics: a review of holographic near-eye displays from a human-centric perspective** *OPTICA*
  Chang, C., Bang, K., Wetzstein, G., Lee, B., Gao, L.
  2020; 7 (11): 1563–78
- **Roadmap on 3D integral imaging: sensing, processing, and display** *OPTICS EXPRESS*
  Javidi, B., Carnicer, A., Arai, J., Fujii, T., Hua, H., Liao, H., Martinez-Corral, M., Pla, F., Stern, A., Waller, L., Wang, Q., Wetzstein, G., Yamaguchi, et al
  2020; 28 (22): 32266–93
- **Learned rotationally symmetric diffractive achromat for full-spectrum computational imaging** *OPTICA*
  Dun, X., Ikoma, H., Wetzstein, G., Wang, Z., Cheng, X., Peng, Y.
  2020; 7 (8): 913–22
- **Neural Sensors: Learning Pixel Exposures for HDR Imaging and Video Compressive Sensing With Programmable Sensors.** *IEEE transactions on pattern analysis and machine intelligence*
  Martel, J. N., Muller, L. K., Carey, S. J., Dudek, P., Wetzstein, G.
  2020; 42 (7): 1642–53
- **Optically sensing neural activity without imaging** *NATURE PHOTONICS*
  Wetzstein, G., Kauvar, I.
  2020; 14 (6): 340–41
- **Non-line-of-sight imaging** *NATURE REVIEWS PHYSICS*
  Faccio, D., Velten, A., Wetzstein, G.
  2020
- **SPADnet: deep RGB-SPAD sensor fusion assisted by monocular depth estimation** *OPTICS EXPRESS*
  Sun, Z., Lindell, D. B., Solgaard, O., Wetzstein, G.
  2020; 28 (10): 14948–62
- **Factored Occlusion: Single Spatial Light Modulator Occlusion-capable Optical See-through Augmented Reality Display**
  Krajancich, B., Padmanaban, N., Wetzstein, G.
  IEEE COMPUTER SOC.2020: 1871–79
- **Gaze-Contingent Ocular Parallax Rendering for Virtual Reality** *ACM TRANSACTIONS ON GRAPHICS*
  Konrad, R., Angelopoulos, A., Wetzstein, G.
  2020; 39 (2)
- **Non-line-of-sight Surface Reconstruction Using the Directional Light-cone Transform**
  Young, S., Lindell, D. B., Girod, B., Taubman, D., Wetzstein, G., IEEE

IEEE.2020: 1404–13

- **Toward the next-generation VR/AR optics: a review of holographic near-eye displays from a human-centric perspective.** *Optica*
  Chang, C., Bang, K., Wetzstein, G., Lee, B., Gao, L.
  2020; 7 (11): 1563-1578
- **DEEP OPTICS: LEARNING CAMERAS AND OPTICAL COMPUTING SYSTEMS**
  Wetzstein, G., Ikoma, H., Metzler, C., Peng, Y., Matthews, M. B.
  IEEE.2020: 1313-1315
- **Comparison of head pose tracking methods for mixed-reality neuronavigation for transcranial magnetic stimulation** *SPIE Medical Imaging*
  Sathyanarayana, S., Leuze, C., Hargreaves, B., Daniel, B. L., Wetzstein, G., Etkin, A., Bhati, M. T., McNab, J. A.
  2020
- **Semantic Implicit Neural Scene Representations With Semi-Supervised Training**
  Kohli, A., Sitzmann, V., Wetzstein, G., IEEE
  IEEE.2020: 423-433
- **Neural Holography**
  Peng, Y., Choi, S., Padmanaban, N., Kim, J., Wetzstein, G., ACM
  ASSOC COMPUTING MACHINERY.2020
- **Cortical Observation by Synchronous Multifocal Optical Sampling Reveals Widespread Population Encoding of Actions.** *Neuron*
  Kauvar, I. V., Machado, T. A., Yuen, E. n., Kochalka, J. n., Choi, M. n., Allen, W. E., Wetzstein, G. n., Deisseroth, K. n.
  2020
- **Three-dimensional imaging through scattering media based on confocal diffuse tomography.** *Nature communications*
  Lindell, D. B., Wetzstein, G. n.
  2020; 11 (1): 4517
- **Deep Optics for Single-shot High-dynamic-range Imaging**
  Metzler, C. A., Ikoma, H., Peng, Y., Wetzstein, G., IEEE
  IEEE.2020: 1372–82
- **Deep Adaptive LiDAR: End-to-end Optimization of Sampling and Depth Completion at Low Sampling Rates**
  Bergman, A. W., Lindell, D. B., Wetzstein, G., IEEE
  IEEE.2020
- **Panoramic single-aperture multi-sensor light field camera** *OPTICS EXPRESS*
  Schuster, G. M., Dansereau, D. G., Wetzstein, G., Ford, J. E.
  2019; 27 (26): 37257–73
- **Learned Large Field-of-View Imaging With Thin-Plate Optics** *ACM TRANSACTIONS ON GRAPHICS*
  Peng, Y., Sun, Q., Dun, X., Wetzstein, G., Heidrich, W., Heide, F.
  2019; 38 (6)
- **Varifocal Occlusion-Capable Optical See-through Augmented Reality Display based on Focus-tunable Optics**
  Rathinavel, K., Wetzstein, G., Fuchs, H.
  IEEE COMPUTER SOC.2019: 3125–34
- **Holographic Near-Eye Displays Based on Overlap-Add Stereograms** *ACM TRANSACTIONS ON GRAPHICS*
  Padmanaban, N., Peng, Y., Wetzstein, G.
  2019; 38 (6)
- **Preface** *COMPUTER GRAPHICS FORUM*
  Lee, J., Theobalt, C., Wetzstein, G.
  2019; 38 (7)
- **Wave-Based Non-Line-of-Sight Imaging using Fast f-k Migration** *ACM TRANSACTIONS ON GRAPHICS*
  Lindell, D. B., Wetzstein, G., O'Toole, M.

2019; 38 (4)

- **Non-line-of-sight Imaging with Partial Occluders and Surface Normals** *ACM TRANSACTIONS ON GRAPHICS*
  Heide, F., O'Toole, M., Zang, K., Lindell, D., Diamond, S., Wetzstein, G.
  2019; 38 (3)
- **A Light-Field Metasurface for High-Resolution Single-Particle Tracking** *NANO LETTERS*
  Holsteen, A. L., Lin, D., Kauvar, I., Wetzstein, G., Brongersma, M. L.
  2019; 19 (4): 2267–71
- **A Light-Field Metasurface for High-Resolution Single-Particle Tracking.** *Nano letters*
  Holsteen, A. L., Lin, D., Kauvar, I., Wetzstein, G., Brongersma, M. L.
  2019
- **LiFF: Light Field Features in Scale and Depth**
  Dansereau, D. G., Girod, B., Wetzstein, G., IEEE Comp Soc
  IEEE.2019: 8034–43
- **Deep Optics for Monocular Depth Estimation and 3D Object Detection**
  Chang, J., Wetzstein, G., IEEE
  IEEE.2019: 10192–201
- **Acoustic Non-Line-of-Sight Imaging**
  Lindell, D. B., Wetzstein, G., Koltun, V., IEEE Comp Soc
  IEEE.2019: 3773–6782
- **Scene Representation Networks: Continuous 3D-Structure-Aware Neural Scene Representations**
  Sitzmann, V., Zollhofer, M., Wetzstein, G., Wallach, H., Larochelle, H., Beygelzimer, A., d'Alche-Buc, F., Fox, E., Garnett, R.
  NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2019
- **DeepVoxels: Learning Persistent 3D Feature Embeddings**
  Sitzmann, V., Thies, J., Heide, F., Niessner, M., Wetzstein, G., Zollhofer, M., IEEE Comp Soc
  IEEE COMPUTER SOC.2019: 2432–41
- **Sub-picosecond photon-efficient 3D imaging using single-photon sensors.** *Scientific reports*
  Heide, F., Diamond, S., Lindell, D. B., Wetzstein, G.
  2018; 8 (1): 17726
- **Sub-picosecond photon-efficient 3D imaging using single-photon sensors** *SCIENTIFIC REPORTS*
  Heide, F., Diamond, S., Lindell, D. B., Wetzstein, G.
  2018; 8
- **Hybrid optical-electronic convolutional neural networks with optimized diffractive optics for image classification.** *Scientific reports*
  Chang, J., Sitzmann, V., Dun, X., Heidrich, W., Wetzstein, G.
  2018; 8 (1): 12324
- **Hybrid optical-electronic convolutional neural networks with optimized diffractive optics for image classification** *SCIENTIFIC REPORTS*
  Chang, J., Sitzmann, V., Dun, X., Heidrich, W., Wetzstein, G.
  2018; 8
- **End-to-end Optimization of Optics and Image Processing for Achromatic Extended Depth of Field and Super-resolution Imaging** *ACM TRANSACTIONS ON GRAPHICS*
  Sitzmann, V., Diamond, S., Peng, Y., Dun, X., Boyd, S., Heidrich, W., Heide, F., Wetzstein, G.
  2018; 37 (4)
- **Single-Photon 3D Imaging with Deep Sensor Fusion** *ACM TRANSACTIONS ON GRAPHICS*
  Lindell, D. B., O'Toole, M., Wetzstein, G.
  2018; 37 (4)
- **A convex 3D deconvolution algorithm for low photon count fluorescence imaging.** *Scientific reports*
  Ikoma, H., Broxton, M., Kudo, T., Wetzstein, G.

2018; 8 (1): 11489

- **A convex 3D deconvolution algorithm for low photon count fluorescence imaging** *SCIENTIFIC REPORTS*
  Ikoma, H., Broxton, M., Kudo, T., Wetzstein, G.
  2018; 8
- **Towards a Machine-learning Approach for Sickness Prediction in 360 degrees Stereoscopic Videos**
  Padmanaban, N., Ruban, T., Sitzmann, V., Norcia, A. M., Wetzstein, G.
  IEEE COMPUTER SOC.2018: 1594–1603
- **Convolutional Sparse Coding for RGB plus NIR Imaging** *IEEE TRANSACTIONS ON IMAGE PROCESSING*
  Hu, X., Heide, F., Dai, Q., Wetzstein, G.
  2018; 27 (4): 1611–25
- **Saliency in VR: How do people explore virtual environments?**
  Sitzmann, V., Serrano, A., Pavel, A., Agrawala, M., Gutierrez, D., Masia, B., Wetzstein, G.
  IEEE COMPUTER SOC.2018: 1633–42
- **Single-shot speckle correlation fluorescence microscopy in thick scattering tissue with image reconstruction priors.** *Journal of biophotonics*
  Chang, J., Wetzstein, G.
  2018; 11 (3)
- **An Easy-to-Use Pipeline for an RGBD Camera and an AR Headset** *PRESENCE-VIRTUAL AND AUGMENTED REALITY*
  Jun, H., Bailenson, J. N., Fuchs, H., Wetzstein, G.
  2018; 27 (2): 202-205
- **Single-shot speckle correlation fluorescence microscopy in thick scattering tissue with image reconstruction priors** *JOURNAL OF BIOPHOTONICS*
  Chang, J., Wetzstein, G.
  2018; 11 (3)
- **Time-multiplexed light field synthesis via factored Wigner distribution function** *OPTICS LETTERS*
  Hamann, S., Shi, L., Solgaard, O., Wetzstein, G.
  2018; 43 (3): 599–602
- **Towards Transient Imaging at Interactive Rates with Single-Photon Detectors**
  Lindell, D. B., O'Toole, M., Wetzstein, G., IEEE
  IEEE.2018
- **Deep End-to-End Time-of-Flight Imaging**
  Su, S., Heide, F., Wetzstein, G., Heidrich, W., IEEE
  IEEE.2018: 6383–92
- **Real-time Non-line-of-sight Imaging**
  O'Toole, M., Lindell, D. B., Wetzstein, G., Assoc Comp Machinery
  ASSOC COMPUTING MACHINERY.2018
- **Confocal Non-line-of-sight Imaging**
  O'Toole, M., Lindell, D. B., Wetzstein, G., Assoc Comp Machinery
  ASSOC COMPUTING MACHINERY.2018
- **Autofocals: Gaze-Contingent Eyeglasses for Presbyopes**
  Padmanaban, N., Konrad, R., Wetzstein, G., Assoc Comp Machinery
  ASSOC COMPUTING MACHINERY.2018
- **SpinVR: Towards Live-Streaming 3D Virtual Reality Video**
  Konrad, R., Dansereau, D. G., Masood, A., Wetzstein, G.
  ASSOC COMPUTING MACHINERY.2017
- **Snapshot Difference Imaging using Correlation Time-of-Flight Sensors**
  Callenberg, C., Heide, F., Wetzstein, G., Hullin, M. B.

ASSOC COMPUTING MACHINERY.2017

- **Accommodation-invariant Computational Near-eye Displays** *ACM TRANSACTIONS ON GRAPHICS*
  Konrad, R., Padmanaban, N., Molner, K., Cooper, E. A., Wetzstein, G.
  2017; 36 (4)
- **Movie Editing and Cognitive Event Segmentation in Virtual Reality Video** *ACM TRANSACTIONS ON GRAPHICS*
  Serrano, A., Sitzmann, V., Ruiz-Borau, J., Wetzstei, G., Gutierrez, D., Masia, B.
  2017; 36 (4)
- **Optimizing virtual reality for all users through gaze-contingent and adaptive focus displays.** *Proceedings of the National Academy of Sciences of the United States of America*
  Padmanaban, N., Konrad, R., Stramer, T., Cooper, E. A., Wetzstein, G.
  2017; 114 (9): 2183-2188
- **A Wide-Field-of-View Monocentric Light Field Camera**
  Dansereau, D. G., Schuster, G., Ford, J., Wetzstein, G., IEEE
  IEEE.2017: 3757–66
- **Aperture interference and the volumetric resolution of light field fluorescence microscopy**
  Kauvar, I., Chang, J., Wetzstein, G., IEEE
  IEEE.2017: 83–94
- **Optimizing VR for All Users Through Adaptive Focus Displays**
  Padmanaban, N., Konrad, R., Cooper, E. A., Wetzstein, G., Assoc Comp Machinery
  ASSOC COMPUTING MACHINERY.2017
- **Reconstructing Transient Images from Single-Photon Sensors**
  O'Toole, M., Heide, F., Lindell, D. B., Zang, K., Diamond, S., Wetzstein, G., IEEE
  IEEE.2017: 2289–97
- **Consensus Convolutional Sparse Coding**
  Choudhury, B., Swanson, R., Heide, F., Wetzstein, G., Heidrich, W., IEEE
  IEEE.2017: 4290–98
- **Computational Near-Eye Displays: Engineering the Interface to the Digital World**
  Wetzstein, G., Natl Acad Engn
  NATL ACADEMIES PRESS.2017: 7–12
- **Photonic Multitasking Interleaved Si Nanoantenna Phased Array** *NANO LETTERS*
  Lin, D., Holsteen, A. L., Maguid, E., Wetzstein, G., Kik, P. G., Hasman, E., Brongersma, M. L.
  2016; 16 (12): 7671-7676
- **Factored Displays Improving resolution, dynamic range, color reproduction, and light field characteristics with advanced signal processing** *IEEE SIGNAL PROCESSING MAGAZINE*
  Wetzstein, G., Lanman, D.
  2016; 33 (5): 119-129
- **Computational Imaging with Multi-Camera Time-of-Flight Systems** *ACM TRANSACTIONS ON GRAPHICS*
  Shrestha, S., Heide, F., Heidrich, W., Wetzstein, G.
  2016; 35 (4)
- **ProxImaL: Efficient Image Optimization using Proximal Algorithms** *ACM TRANSACTIONS ON GRAPHICS*
  Heide, F., Diamond, S., Niessner, M., Ragan-Kelley, J., Heidrich, W., Wetzstein, G.
  2016; 35 (4)
- **Convolutional Sparse Coding for High Dynamic Range Imaging** *COMPUTER GRAPHICS FORUM*
  Serrano, A., Heide, F., Gutierrez, D., Wetzstein, G., Masia, B.
  2016; 35 (2): 153-163
- **Tensor low-rank and sparse light field photography** *COMPUTER VISION AND IMAGE UNDERSTANDING*

Kamal, M. H., Heshmat, B., Raskar, R., Vandergheynst, P., Wetzstein, G.
2016; 145: 172-181

- **3D Displays** *ANNUAL REVIEW OF VISION SCIENCE, VOL 2*
  Banks, M. S., Hoffman, D. M., Kim, J., Wetzstein, G.
  2016; 2: 397-435
- **Novel Optical Configurations for Virtual Reality: Evaluating User Preference and Performance with Focus-tunable and Monovision Near-eye Displays**
  Konrad, R., Cooper, E. A., Wetzstein, G., ACM
  ASSOC COMPUTING MACHINERY.2016: 1211-1220
- **DEPTH AUGMENTED STEREO PANORAMA FOR CINEMATIC VIRTUAL REALITY WITH FOCUS CUES**
  Thatte, J., Boin, J., Lakshman, H., Wetzstein, G., Girod, B., IEEE
  IEEE.2016: 1569-1573
- **Variable Aperture Light Field Photography: Overcoming the Diffraction-limited Spatio-angular Resolution Tradeoff**
  Chang, J., Kauvar, I., Hu, X., Wetzstein, G., IEEE
  IEEE.2016: 3737–45
- **3D Displays.** *Annual review of vision science*
  Banks, M. S., Hoffman, D. M., Kim, J. n., Wetzstein, G. n.
  2016; 2: 397–435
- **Extended field-of-view and increased-signal 3D holographic illumination with time-division multiplexing** *OPTICS EXPRESS*
  Yang, S. J., Allen, W. E., Kauvar, I., Andalman, A. S., Young, N. P., Kim, C. K., Marshel, J. H., Wetzstein, G., Deisseroth, K.
  2015; 23 (25): 32573-32581
- **Adaptive Color Display via Perceptually-driven Factored Spectral Projection** *ACM TRANSACTIONS ON GRAPHICS*
  Kauvar, I., Yang, S. J., Shi, L., McDowall, I., Wetzstein, G.
  2015; 34 (6)
- **Doppler Time-of-Flight Imaging** *ACM TRANSACTIONS ON GRAPHICS*
  Heide, F., Heidrich, W., Hullin, M., Wetzstein, G.
  2015; 34 (4)
- **The Light Field Stereoscope Immersive Computer Graphics via Factored Near-Eye Light Field Displays with Focus Cues** *ACM TRANSACTIONS ON GRAPHICS*
  Huang, F., Chen, K., Wetzstein, G.
  2015; 34 (4)
- **Fast and Flexible Convolutional Sparse Coding**
  Heide, F., Heidrich, W., Wetzstein, G., IEEE
  IEEE.2015: 5135-5143
- **Vision Correcting Displays Based on Inverse Blurring and Aberration Compensation**
  Barsky, B. A., Huang, F., Lanman, D., Wetzstein, G., Raskar, R., Agapito, L., Bronstein, M. M., Rother, C.
  SPRINGER-VERLAG BERLIN.2015: 524-538
- **Toward BxDF Display using Multilayer Diffraction** *ACM TRANSACTIONS ON GRAPHICS*
  Ye, G., Jolly, S., Bove, V. M., Dai, Q., Raskar, R., Wetzstein, G.
  2014; 33 (6)
- **Ultra-fast Lensless Computational Imaging through 5D Frequency Analysis of Time-resolved Light Transport** *INTERNATIONAL JOURNAL OF COMPUTER VISION*
  Wu, D., Wetzstein, G., Barsi, C., Willwacher, T., Dai, Q., Raskar, R.
  2014; 110 (2): 128-140
- **Computational Schlieren Photography with Light Field Probes** *INTERNATIONAL JOURNAL OF COMPUTER VISION*
  Wetzstein, G., Heidrich, W., Raskar, R.
  2014; 110 (2): 113-127

- **Light Field Reconstruction Using Sparsity in the Continuous Fourier Domain** *ACM TRANSACTIONS ON GRAPHICS*
  Shi, L., Hassanieh, H., Davis, A., Katabi, D., Durand, F.
  2014; 34 (1)
- **Wide field of view compressive light field display using a multilayer architecture and tracked viewers** *JOURNAL OF THE SOCIETY FOR INFORMATION DISPLAY*
  Chen, R., Maimone, A., Fuchs, H., Raskar, R., Wetzstein, G.
  2014; 22 (10): 525-534
- **Attenuation-corrected fluorescence spectra unmixing for spectroscopy and microscopy** *OPTICS EXPRESS*
  Ikoma, H., Heshmat, B., Wetzstein, G., Raskar, R.
  2014; 22 (16)
- **A Compressive Light Field Projection System** *ACM TRANSACTIONS ON GRAPHICS*
  Hirsch, M., Wetzstein, G., Raskar, R.
  2014; 33 (4)
- **Simultaneous whole-animal 3D imaging of neuronal activity using light-field microscopy** *NATURE METHODS*
  Prevedel, R., Yoon, Y., Hoffmann, M., Pak, N., Wetzstein, G., Kato, S., Schroedel, T., Raskar, R., Zimmer, M., Boyden, E. S., Vaziri, A.
  2014; 11 (7): 727-U161
- **Eyeglasses-free Display: Towards Correcting Visual Aberrations with Computational Light Field Displays** *ACM TRANSACTIONS ON GRAPHICS*
  Huang, F., Wetzstein, G., Barsky, B. A., Raskar, R.
  2014; 33 (4)
- **Compressive multi-mode superresolution display** *OPTICS EXPRESS*
  Heide, F., Gregson, J., Wetzstein, G., Raskar, R., Heidrich, W.
  2014; 22 (12): 14981-14992
- **Dual-coded compressive hyperspectral imaging** *OPTICS LETTERS*
  Lin, X., Wetzstein, G., Liu, Y., Dai, Q.
  2014; 39 (7): 2044-2047
- **A Switchable Light Field Camera Architecture with Angle Sensitive Pixels and Dictionary-based Sparse Coding**
  Hirsch, M., Sivaramakrishnan, S., Jayasuriya, S., Wang, A., Molnar, A., Raskar, R., Wetzstein, G., IEEE
  IEEE.2014
- **Nonlinear Fluorescence Spectra Unmixing**
  Ikoma, H., Heshmat, B., Wetzstein, G., Raskar, R., IEEE
  IEEE.2014
- **Display adaptive 3D content remapping** *COMPUTERS & GRAPHICS-UK*
  Masia, B., Wetzstein, G., Aliaga, C., Raskar, R., Gutierrez, D.
  2013; 37 (8): 983-996
- **A survey on computational displays: Pushing the boundaries of optics, computation, and perception** *COMPUTERS & GRAPHICS-UK*
  Masia, B., Wetzstein, G., Didyk, P., Gutierrez, D.
  2013; 37 (8): 1012-1038
- **Focus 3D: Compressive Accommodation Display** *ACM TRANSACTIONS ON GRAPHICS*
  Maimone, A., Wetzstein, G., Hirsch, M., Lanman, D., Raskar, R., Fuchs, H.
  2013; 32 (5)
- **Adaptive Image Synthesis for Compressive Displays** *ACM TRANSACTIONS ON GRAPHICS*
  Heide, F., Wetzstein, G., Raskar, R., Heidrich, W.
  2013; 32 (4)
- **Compressive Light Field Photography using Overcomplete Dictionaries and Optimized Projections** *ACM TRANSACTIONS ON GRAPHICS*
  Marwah, K., Wetzstein, G., Bando, Y., Raskar, R.
  2013; 32 (4)

- **Real-time Image Generation for Compressive Light Field Displays** *9th International Symposium on Display Holography (ISDH)*
  Wetzstein, G., Lanman, D., Hirsch, M., Raskar, R.
  IOP PUBLISHING LTD.2013
- **Depth of Field Analysis for Multilayer Automultiscopic Displays** *9th International Symposium on Display Holography (ISDH)*
  Lanman, D., Wetzstein, G., Hirsch, M., Raskar, R.
  IOP PUBLISHING LTD.2013
- **Construction and Calibration of Optically Efficient LCD-based Multi-Layer Light Field Displays** *9th International Symposium on Display Holography (ISDH)*
  Hirsch, M., Lanman, D., Wetzstein, G., Raskar, R.
  IOP PUBLISHING LTD.2013
- **On Plenoptic Multiplexing and Reconstruction** *INTERNATIONAL JOURNAL OF COMPUTER VISION*
  Wetzstein, G., Ihrke, I., Heidrich, W.
  2013; 101 (2): 384-400
- **Compressive Light Field Displays** *IEEE COMPUTER GRAPHICS AND APPLICATIONS*
  Wetzstein, G., Lanman, D., Hirsch, M., Heidrich, W., Raskar, R.
  2012; 32 (5): 6-11
- **Tensor Displays: Compressive Light Field Synthesis using Multilayer Displays with Directional Backlighting** *ACM TRANSACTIONS ON GRAPHICS*
  Wetzstein, G., Lanman, D., Hirsch, M., Raskar, R.
  2012; 31 (4)
- **Compressive Light Field Photography** *Special-Interest-Group-on-Computer-Graphics-and-Interactive-Techniques Conference (SIGGRAPH)*
  Marwah, K., Wetzstein, G., Veeraraghavan, A., Raskar, R.
  ASSOC COMPUTING MACHINERY.2012
- **Beyond Parallax Barriers: Applying Formal Optimization Methods to Multi-Layer Automultiscopic Displays**
  Lanman, D., Wetzstein, G., Hirsch, M., Heidrich, W., Raskar, R., Woods, A. J., Holliman, N. S., Favalora, G. E.
  SPIE-INT SOC OPTICAL ENGINEERING.2012
- **Frequency Analysis of Transient Light Transport with Applications in Bare Sensor Imaging**
  Wu, D., Wetzstein, G., Barsi, C., Willwacher, T., O'Toole, M., Naik, N., Dai, Q., Kutulakos, K., Raskar, R., Fitzgibbon, A., Lazebnik, S., Perona, P., Sato, et al
  SPRINGER-VERLAG BERLIN.2012: 542-555
- **Polarization Fields: Dynamic Light Field Display using Multi-Layer LCDs** *ACM TRANSACTIONS ON GRAPHICS*
  Lanman, D., Wetzstein, G., Hirsch, M., Heidrich, W., Raskar, R.
  2011; 30 (6)
- **Computational Plenoptic Imaging** *COMPUTER GRAPHICS FORUM*
  Wetzstein, G., Ihrke, I., Lanman, D., Heidrich, W.
  2011; 30 (8): 2397-2426
- **Layered 3D: Tomographic Image Synthesis for Attenuation-based Light Field and High Dynamic Range Displays** *ACM TRANSACTIONS ON GRAPHICS*
  Wetzstein, G., Lanman, D., Heidrich, W., Raskar, R.
  2011; 30 (4)
- **Refractive Shape from Light Field Distortion**
  Wetzstein, G., Roodnick, D., Heidrich, W., Raskar, R., IEEE
  IEEE.2011: 1180-1186