

David B. Lindell

Curriculum Vitae

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Education & Experience

- 9/2016–1/2021 **Ph.D. Student**, *Electrical Engineering*, Stanford University, Stanford, CA.
(anticipated) Advisor: Gordon Wetzstein
- 9/2015–4/2016 **M.Sc. Student**, *Electrical Engineering*, Brigham Young University, Provo, UT.
Advisor: David G. Long
- 9/2009–4/2015 **B.Sc. Student**, *Electrical Engineering*, Brigham Young University, Provo, UT.
Advisors: David G. Long, Aaron Hawkins

Internships

- 6/2018–11/2018 **Intern**, *Intelligent Systems Lab*, Intel Corporation, Santa Clara, CA.
Advisor: Vladlen Koltun
- 6/2016–7/2016 **Intern**, Rincon Research Corporation, Tucson, AZ.

Awards

- 2020 ACM SIGGRAPH Thesis Fast Forward Honorable Mention
- 2020 CVPR Outstanding Reviewer
- 2016–2020 Stanford Graduate Research Fellowship
- 2015 BYU Office of Research & Creative Activities Grant
- 2014 Tau Beta Pi Scholarship
- 2012–2015 BYU Heritage Scholarship

Professional Activities

- Program Chair** CVPR Workshop on Computational Cameras and Displays (CCD) 2020
- Program Committee** Int. Conference on Computational Photography (ICCP) 2019–2020
- Paper Reviewer** Nature, Nature Communications, Nature Photonics, Nature Communications Physics, JOSA A, Optics Express, SIGGRAPH, TPAMI, CVPR, ECCV, TCI, ICCP, Optics Express
- Member** ACM, IEEE

Teaching Experience

- Teaching Assistant Computational Imaging, EE367/CS448i (Stanford 2020)
- Course Organizer Computational Time-Resolved Imaging, Single-Photon Sensing and Non-Line-of-Sight Imaging (ACM SIGGRAPH 2020)
- Presenter Imaging and Microscopy Reading Group (Stanford 2016–2020)

Journal Publications

- [J11] **D. B. Lindell** and G. Wetzstein, “Three-dimensional imaging through scattering media based on confocal diffuse tomography,” *Nature Communications*, vol. 11, no. 4517, 2020.
- [J10] C. A. Metzler, **D. B. Lindell**, G. Wetzstein, “Keyhole imaging: Non-line-of-sight imaging and tracking of moving objects along a single optical path at long standoff distances,” *IEEE Trans. Comput. Imag.*, 2020, (Accepted).

- [J9] Z. Sun, **D. B. Lindell**, O. Solgaard, G. Wetzstein, "SPADnet: Deep RGB-SPAD sensor fusion assisted by monocular depth estimation," *Optics Express*, vol. 28, no. 10, pp. 14 948–14 962, 2020.
- [J8] F. Heide, M. O'Toole, K. Zang, **D. B. Lindell**, S. Diamond, G. Wetzstein, "Non-line-of-sight imaging with partial occluders and surface normals," *ACM Trans. Graph.*, 2019.
- [J7] **D. B. Lindell**, G. Wetzstein, M. O'Toole, "Wave-based non-line-of-sight imaging using fast f-k migration," *ACM Trans. Graph. (SIGGRAPH)*, vol. 38, no. 4, 2019.
- [J6] F. Heide, S. Diamond, **D. B. Lindell**, G. Wetzstein, "Sub-picosecond photon-efficient 3D imaging using single-photon sensors," *Scientific Reports*, vol. 8, no. 17726, 2018.
- [J5] **D. B. Lindell**, M. O'Toole, G. Wetzstein, "Single-photon 3D imaging with deep sensor fusion," *ACM Trans. Graph. (SIGGRAPH)*, vol. 37, no. 4, 2018.
- [J4] M. O'Toole, **D. B. Lindell**, G. Wetzstein, "Confocal non-line-of-sight imaging based on the light cone transform," *Nature*, vol. 555, no. 7696, p. 338, 2018.
- [J3] **D. B. Lindell** and D. G. Long, "High-resolution soil moisture retrieval with ASCAT," *IEEE Geosci. Remote Sens. Lett.*, vol. 13, no. 7, pp. 972–976, 2016.
- [J2] **D. B. Lindell** and D. G. Long, "Multiyear Arctic sea ice classification using OSCAT and QuikSCAT," *IEEE Trans. Geosci. Remote Sens.*, vol. 54, no. 1, pp. 167–175, 2016.
- [J1] **D. B. Lindell** and D. G. Long, "Multiyear Arctic ice classification using ASCAT and SSMIS," *Remote Sensing*, vol. 8, no. 4, p. 294, 2016.

Conference Publications

- [C9] A. W. Bergman, **D. B. Lindell**, G. Wetzstein, "Deep adaptive LiDAR: End-to-end optimization of sampling and depth completion at low sampling rates," in *IEEE International Conference on Computational Photography (ICCP)*, 2020.
- [C8] **D. B. Lindell**, M. O'Toole, G. Wetzstein, "Efficient non-line-of-sight imaging with computational single-photon imaging," in *Advanced Photon Counting Techniques XIV*, 2020.
- [C7] **D. B. Lindell** and G. Wetzstein, "Confocal diffuse tomography for single-photon 3D imaging through highly scattering media," in *Computational Optical Sensing and Imaging (COSI)*, 2020.
- [C6] M. Nishimura, **D. B. Lindell**, C. Metzler, G. Wetzstein, "Disambiguating monocular depth estimation with a single transient," in *European Conference on Computer Vision (ECCV)*, 2020.
- [C5] V. Sitzmann, J. N. Martel, A. W. Bergman, **D. B. Lindell**, G. Wetzstein, "Implicit neural representations with periodic activation functions," in *Advances in Neural Information Processing Systems (NeurIPS)*, 2020, **(Oral)**.
- [C4] S. I. Young, **D. B. Lindell**, B. Girod, D. Taubman, G. Wetzstein, "Non-line-of-sight surface reconstruction using the directional light-cone transform," in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020, **(Oral)**.
- [C3] **D. B. Lindell**, G. Wetzstein, V. Koltun, "Acoustic non-line-of-sight imaging," in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019, **(Oral)**.
- [C2] **D. B. Lindell**, M. O'Toole, G. Wetzstein, "Towards transient imaging at interactive rates with single-photon detectors," in *IEEE International Conference on Computational Photography (ICCP)*, 2018.
- [C1] M. O'Toole, F. Heide, **D. B. Lindell**, K. Zang, S. Diamond, G. Wetzstein, "Reconstructing transient images from single-photon sensors," in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017, **(Spotlight)**.

Theses

- 2021 Computational Imaging with Single-Photon Detectors. Ph.D. Thesis.
- 2016 Arctic Sea Ice Classification and Soil Moisture Estimation Using Microwave Sensors. Master's Thesis.

Public Demonstrations

- 2018 **Real-time non-line-of-sight imaging**, *M. O'Toole, D.B. Lindell, G. Wetzstein*, 2018, ACM SIGGRAPH Emerging Technologies.
- 2018 **Real-time non-line-of-sight imaging**, *M. O'Toole, D.B. Lindell, G. Wetzstein*, 2018, IEEE Conference on Computer Vision and Pattern Recognition (CVPR).

Invited Talks

- 2020 Computational Time-Resolved Imaging, Single-Photon Sensing and Non-Line-of-Sight Imaging, ACM SIGGRAPH 2020 course, Virtual
- 2019 A camera to see around corners, TEDxBeaconStreet, Boston, MA.
- 2019 Computational Imaging with Single-Photon Detectors, Boston University Center for Information & Systems Engineering (CISE), Boston, MA.
- 2019 Efficient Confocal Non-Line-of-Sight Imaging, MIT RLE, Cambridge, MA.
- 2019 Efficient Confocal Non-Line-of-Sight Imaging, MIT Media Lab, Cambridge, MA.
- 2019 Computational Imaging with Single-Photon Detectors, Berkeley Center for Computational Imaging, Berkeley, CA.
- 2019 Computational Single-Photon Imaging, Silicon Valley ACM SIGGRAPH Chapter, San Jose, CA.
- 2019 Computational Imaging with Single-Photon Detectors, Stanford Center for Image Systems Engineering (SCIEN), Stanford, CA.
- 2019 Computational Single-Photon Imaging, Carnegie Mellon University Graphics Lab, Pittsburgh, PA.

Mentorship

- Ph.D.** **Qingqing Zhao**, *Stanford*, Fall 2020.
- Manu Gopakumar**, *Stanford*, Fall 2020.
- Thomas Teisberg**, *Stanford*, Fall 2019.
- Alex Bergman**, *Stanford*, Summer 2019.
- Mark Nishimura**, *Stanford*, Summer 2019.
- Zhanghao Sun**, *Stanford*, Winter 2019.
- High School** **Jason Corona**, *South San Francisco High School CA*, 2019–2020.