David B. Lindell

40 St. George St., Room 4283 – Toronto, ON M5S 2E4, Canada ☐ +1 507 514 2491 • ☑ lindell@cs.toronto.edu • ❖ davidlindell.com

Current Appointments	
Assistant Professor	
Dept. of Computer Science, University of Toronto	2022–present
Faculty Affiliate Vector Institute	2022 mragant
	2022–present
Faculty Fellow AXL	2025–present
Education	
Stanford University	Stanford, CA
Ph.D. Electrical Engineering	2016–2021
Committee: Gordon Wetzstein, Bernd Girod, Mark Horowitz, Vivek Goyal, James Harris	Drovo IIT
Brigham Young University M.Sc. Electrical Engineering	Provo, UT 2015–2016
Advisor: David G. Long	2010 2010
Brigham Young University	Provo, UT
B.Sc. Electrical Engineering	2009–2015
Advisors: David G. Long, Aaron Hawkins	
Previous Professional Experience	
Stanford University	Stanford, CA
Postdoctoral Scholar	2021–2022
Advisor: Gordon Wetzstein	
	Santa Clara CA
Intelligent Systems Lab, Intel Corporation Intern	Santa Clara, CA 2018
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun	2018
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation	2018 Tucson, AZ
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun	2018
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation	2018 Tucson, AZ
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern	2018 Tucson, AZ
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards	2018 Tucson, AZ 2016
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award	2018 Tucson, AZ 2016 2025
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award	2018 Tucson, AZ 2016 2025 2025
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award	2018 Tucson, AZ 2016 2025 2025 2024
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award	2018 Tucson, AZ 2016 2025 2025 2024 2023
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award David Marr Prize (ICCV Best Paper Award)	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023 2023
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award David Marr Prize (ICCV Best Paper Award) Connaught New Researcher Award	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023 2023 2023
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award David Marr Prize (ICCV Best Paper Award) Connaught New Researcher Award ACM SIGGRAPH Outstanding Doctoral Dissertation Honorable Mention ACM SIGGRAPH Thesis Fast Forward Honorable Mention	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023 2023 2023 2023 2021
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award David Marr Prize (ICCV Best Paper Award) Connaught New Researcher Award ACM SIGGRAPH Outstanding Doctoral Dissertation Honorable Mention	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023 2023 2023 2023 2021 2020
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award David Marr Prize (ICCV Best Paper Award) Connaught New Researcher Award ACM SIGGRAPH Outstanding Doctoral Dissertation Honorable Mention ACM SIGGRAPH Thesis Fast Forward Honorable Mention CVPR Outstanding Reviewer	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023 2023 2023 2021 2020 2020
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award David Marr Prize (ICCV Best Paper Award) Connaught New Researcher Award ACM SIGGRAPH Outstanding Doctoral Dissertation Honorable Mention ACM SIGGRAPH Thesis Fast Forward Honorable Mention CVPR Outstanding Reviewer Stanford Graduate Research & Creative Activities Grant	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023 2023 2023 2021 2020 2020 2016–2020
Intelligent Systems Lab, Intel Corporation Intern Advisor: Vladlen Koltun Rincon Research Corporation Intern Awards CVPR Best Student Paper Award Ontario Early Researcher Award Google Research Scholar Award Sony Focused Research Award Sony Faculty Innovation Award David Marr Prize (ICCV Best Paper Award) Connaught New Researcher Award ACM SIGGRAPH Outstanding Doctoral Dissertation Honorable Mention ACM SIGGRAPH Thesis Fast Forward Honorable Mention CVPR Outstanding Reviewer Stanford Graduate Research Fellowship	2018 Tucson, AZ 2016 2025 2025 2024 2023 2023 2023 2023 2021 2020 2020 2016–2020 2015

Conference Organization/Editorial Positions

Area Chair: Neural Information Processing Systems (NeurIPS)	2023-2025
Area Chair: IEEE Conference on Computer Vision and Pattern Recognition (CVPR)	2023-2025
Associate Editor: ACM Transactions on Graphics	2025–
Associate Editor: IEEE Transactions on Computational Imaging	2023–
Computational Imaging Technical Committee: IEEE Signal Processing Society	2025–
Finance Co-Chair: Int. Conference on Computational Photography (ICCP)	2022
Organizer: 2nd Workshop on Neural Fields Beyond Conventional Cameras (CVPR)	2025
Program Co-Chair: Int. Conference on Computational Photography (ICCP)	2025
Program Co-Chair: IEEE Workshop on Computational Cameras and Displays (CCD)	2020,2021,2023
Program Committee: Int. Conference on Computational Photography (ICCP)	2019–2024
Technical Papers Committee: SIGGRAPH Asia	2023
Technical Papers Committee: SIGGRAPH	2025

Referee Service

CVPR	2020–
ECCV	2020–
ICCV	2021–
ICCP	2019–
ICLR	2021-
NeurIPS	2021–
SIGGRAPH	2020–
SIGGRAPH Asia	2022-
WACV	2024–

Nature

Nature Communications

Nature Photonics

Optica

Optics Express

Science Advances

IEEE Transactions on Computational Imaging

IEEE Transactions on Pattern Analysis and Machine Intelligence

University Service

AI Curriculum Committee: Computer Science Department, University of Toronto	2023–2024
Outreach Committee: Computer Science Department, University of Toronto	2023-2025
Undergraduate Affairs Committee: Computer Science Department, University of Toronto	2022-2024
Faculty Search Committee: Computer Science Department, University of Toronto	2024-2025

Teaching

University of Toronto	Instructor
CSC2539: Physics-Informed Neural Representations for Visual Computing	2025
University of Toronto	Instructor
CSC2529: Computational Imaging	2022-2024

University of Toronto

CSC420: Introduction to Image Understanding

2023-2025 Instructor

AAAI Conference on Artificial Intelligence

AI for Emerging Inverse Problems in Computational Imaging

Stanford University

EE367/CS448i: Computational Imaging

Instructor

2024 Instructor

2022

2020

Stanford University Teaching Assistant EE367/CS448i: Computational Imaging 2020

Instructor **ACM SIGGRAPH**

Computational Time-Resolved Imaging, Single-Photon Sensing and Non-Line-of-Sight Imaging

Journal Publications

- E. Y. Lin, Z. Wang, R. Lin, D. Miau, F. Kainz, J. Chen, X. C. Zhang, D. B. Lindell, K. N. Kutulakos, "Learning lens blur fields," IEEE Transactions on Pattern Analysis and Machine Intelligence, 2025, To Appear.
- []14] D. Verma, I. Ruffolo, D. B. Lindell, K. N. Kutulakos, A. Mariakakis, "Chromaflash: Snapshot hyperspectral imaging using rolling shutter cameras," Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (Ubicomp), vol. 8, no. 3, pp. 1–31, 2024.
- C. Shentu, E. Li, C. Chen, P. T. Dewi, D. B. Lindell, J. Burgner-Kahrs, "MoSS: Monocular shape sensing for continuum robots," IEEE Robotics and Automation Letters, 2023.
- J. N. P. Martel, D. B. Lindell, C. Z. Lin, E. R. Chan, M. Monteiro, G. Wetzstein, "ACORN: Adaptive []12] coordinate networks for neural scene representation," ACM Transactions on Graphics (SIGGRAPH), vol. 40, no. 4, pp. 1–13, 2021.
- D. B. Lindell and G. Wetzstein, "Three-dimensional imaging through scattering media based on confocal diffuse tomography," Nature Communications, vol. 11, no. 4517, 2020.
- C. A. Metzler, D. B. Lindell, G. Wetzstein, "Keyhole imaging: Non-line-of-sight imaging and [J10] tracking of moving objects along a single optical path at long standoff distances," IEEE Transactions on Computational Imaging, vol. 7, pp. 1–12, 2020.
 - 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. 14948–14962, 2020.
- 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 Transactions on Graphics (ToG), vol. 38, no. 3, 2019.
- []7] D. B. Lindell, G. Wetzstein, M. O'Toole, "Wave-based non-line-of-sight imaging using fast f-k migration," ACM Transactions on Graphics (SIGGRAPH), vol. 38, no. 4, 2019.
- F. Heide, S. Diamond, D. B. Lindell, G. Wetzstein, "Sub-picosecond photon-efficient 3D imaging []6] using single-photon sensors," Scientific Reports, vol. 8, no. 17726, 2018.
- D. B. Lindell, M. O'Toole, G. Wetzstein, "Single-photon 3D imaging with deep sensor fusion," [J5] ACM Transactions on Graphics (SIGGRAPH), vol. 37, no. 4, 2018.
- 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, pp. 338–341, 2018.
- D. B. Lindell and D. G. Long, "High-resolution soil moisture retrieval with ASCAT," IEEE Geoscience and Remote Sensing Letters, vol. 13, no. 7, pp. 972–976, 2016.
- D. B. Lindell and D. G. Long, "Multiyear Arctic ice classification using ASCAT and SSMIS," Remote Sensing, vol. 8, no. 4, p. 294, 2016.
- D. B. Lindell and D. G. Long, "Multiyear Arctic sea ice classification using OSCAT and QuikSCAT," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 54, no. 1, pp. 167–175, 2016.

Conference Publications

- [C37] M. Anagh, B. Attal, A. Xie, M. O'Toole, **D. B. Lindell**, "Neural inverse rendering from propagating light," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025, (Best Student Paper).
- [C36] S. Bahmani, I. Skorokhodov, G. Qian, A. Siarohin, W. Menapace, A. Tagliasacchi, **D. B. Lindell**, S. Tulyakov, "AC3D: Analyzing and improving 3D camera control in video diffusion transformers," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR*), 2025.
- [C35] S. Bahmani, I. Skorokhodov, A. Siarohin, W. Menapace, G. Qian, M. Vasilkovsky, H.-Y. Lee, C. Wang, J. Zou, A. Tagliasacchi, D. B. Lindell, S. Tulyakov, "VD3D: Taming large video diffusion transformers for 3D camera control," in *International Conference on Learning Representations (ICLR)*, 2025.
- [C34] K. Namekata, S. Bahmani, Z. Wu, Y. Kant, I. Gilitschenski, **D. B. Lindell**, "SG-I2V: Self-guided trajectory control in image-to-video generation," in *International Conference on Learning Representations* (*ICLR*), 2025.
- [C33] S. Nousias, M. Wei, H. Xiao, M. Wu, S. Athar, K. J. Wang, A. Malik, D. A. Barmherzig, **D. B. Lindell**, K. Kutulakos, "Opportunistic single-photon time of flight," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025, (Oral Presentation).
- [C32] F. Taubner, R. Zhang, M. Tuli, **D. B. Lindell**, "CAP4D: Creating animatable 4D portrait avatars with morphable multi-view diffusion models," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025, (Oral Presentation).
- [C31] V. Zehtab, **D. B. Lindell**, M. A. Brubaker, M. S. Brown, "Efficient neural network encoding for 3d color lookup tables," in *AAAI Conference on Artificial Intelligence*, 2025.
- [C30] S. Bahmani, X. Liu, Y. Wang, I. Skorokhodov, V. Rong, Z. Liu, X. Liu, J. J. Park, S. Tulyakov, G. Wetzstein, A. Tagliasacchi, **D. B. Lindell**, "TC4D: Trajectory-conditioned text-to-4D generation," in *European Conference on Computer Vision (ECCV)*, 2024.
- [C29] S. Bahmani, I. Skorokhodov, V. Rong, G. Wetzstein, L. Guibas, P. Wonka, S. Tulyakov, J. J. Park, A. Tagliasacchi, D. B. Lindell, "4D-fy: Text-to-4D generation using hybrid score distillation sampling," in IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024.
- [C28] W. Luo, A. Malik, D. B. Lindell, "Transientangelo: Few-viewpoint surface reconstruction using single-photon lidar," in IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2024.
- [C27] A. Malik, N. Juravsky, R. Po, G. Wetzstein, K. N. Kutulakos, **D. B. Lindell**, "Flying with photons: Rendering novel views of propagating light," in *European Conference on Computer Vision (ECCV)*, 2024, (Oral Presentation).
- [C26] P. Mirdehghan, B. Buscaino, M. Wu, D. Charlton, M. E. Mousa-Pasandi, K. N. Kutulakos, **D. B.** Lindell, "Coherent optical modems for full-wavefield lidar," in *ACM SIGGRAPH Asia*, 2024.
- [C25] P. Mirdehghan, M. Wu, W. Chen, **D. B. Lindell**, K. N. Kutulakos, "TurboSL: Dense, accurate and fast 3D by neural inverse structured light," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (CVPR), 2024.
- [C24] R. Rangel, X. Sun, A. Barman, R. Gulve, S. Bajic, J. Wang, H. Wang, **D. B. Lindell**, K. N. Kutulakos, R. Genov, "23,000-exposures/s 360fps-readout software-defined image sensor with motion-adaptive spatially varying imaging speed," in *IEEE Symposium on VLSI Technology and Circuits*, 2024.
- [C23] V. Rong, J. Chen, S. Bahmani, K. N. Kutulakos, **D. B. Lindell**, "GStex: Per-primitive texturing of 2D Gaussian splatting for decoupled appearance and geometry modeling," in *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024.
- [C22] S. Shekarforoush, **D. B. Lindell**, M. A. Brubaker, D. J. Fleet, "CryoSPIN: Improving ab-initio cryo-EM reconstruction with semi-amortized pose inference," in *Advances in Neural Information Processing Systems* (NeurIPS), 2024.
- [C21] K. Yin, V. Rao, R. Jiang, X. Liu, P. Aarabi, **D. B. Lindell**, "SCE-MAE: Selective correspondence enhancement with masked autoencoder for self-supervised landmark estimation," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.

- [C20] R. Gulve, R. Rangel, A. Barman, D. Nguyen, M. Wei, M. A. Sakr, X. Sun, **D. B. Lindell**, K. N. Kutulakos, R. Genov, "Dual-port CMOS image sensor with regression-based HDR flux-to-digital conversion and 80 ns rapid-update pixel-wise exposure coding," in *IEEE International Solid-State Circuits Conference (ISSCC)*, 2023.
- [C19] A. Malik, P. Mirdehghan, S. Nousias, K. N. Kutulakos, **D. B. Lindell**, "Transient neural radiance fields for lidar view synthesis and 3d reconstruction," in *Advances in Neural Information Processing Systems* (*NeurIPS*), 2023, (Spotlight).
- [C18] S. Sinha, J. Y. Zhang, A. Tagliasacchi, I. Gilitschenski, **D. B. Lindell**, "SparsePose: Sparse-view camera pose regression and refinement," in *IEEE Conference on Computer Vision and Pattern Recognition* (*CVPR*), 2023.
- [C17] M. Wei, S. Nousias, R. Gulve, D. B. Lindell, K. N. Kutulakos, "Passive ultra-wideband single-photon imaging," in IEEE/CVF International Conference on Computer Vision (ICCV), 2023, (Marr Prize).
- [C16] A. W. Bergman, P. Kellnhofer, Y. Wang, E. R. Chan, **D. B. Lindell**, G. Wetzstein, "Generative neural articulated radiance fields," in *Advances in Neural Information Processing Systems* (*NeurIPS*), 2022.
- [C15] C. Z. Lin, **D. B. Lindell**, E. R. Chan, G. Wetzstein, "3D GAN inversion for controllable portrait image animation," in *ECCV 2022 Workshop on Learning to Generate 3D Shapes and Scenes*, 2022.
- [C14] **D. B. Lindell**, D. Van Veen, J. J. Park, G. Wetzstein, "BACON: Band-limited coordinate networks for neural scene representation," in *IEEE Conference on Computer Vision and Pattern Recognition* (*CVPR*), 2022, (**Oral Presentation**).
- [C13] S. Shekarforoush, **D. B. Lindell**, D. J. Fleet, M. A. Brubaker, "Residual multiplicative filter networks for multiscale reconstruction," in *Advances in Neural Information Processing Systems* (*NeurIPS*), 2022.
- [C12] D. Van Veen, R. Van der Sluijs, B. Ozturkler, A. D. Desai, C. Bluethgen, R. D. Boutin, M. H. Willis, G. Wetzstein, **D. B. Lindell**, S. Vasanawala, J. Pauly, A. S. Chaudhari, "Scale-agnostic super-resolution in MRI using feature-based coordinate networks," in *Medical Imaging with Deep Learning*, 2022.
- [C11] Q. Zhao, **D. B. Lindell**, G. Wetzstein, "Learning to solve PDE-constrained inverse problems with graph networks," in *International Conference on Machine Learning (ICML)*, 2022.
- [C10] **D. B. Lindell**, J. N. P. Martel, G. Wetzstein, "AutoInt: Automatic integration for fast neural volume rendering," in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.
- [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*, SPIE, 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)*, OSA, 2020.
- [C6] M. Nishimura, **D. B. Lindell**, C. A. Metzler, G. Wetzstein, "Disambiguating monocular depth estimation with a single transient," in *European Conference on Computer Vision (ECCV)*, 2020.
- [C5] V. Sitzmann, J. N. P. 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 Presentation).
- [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 Presentation).
- [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 Presentation).
- [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).

Public Demonstrations

- [D3] R. Gulve, R. Rangel, A. Barman, D. Nguyen, M. Wei, M. A. Sakr, X. Sun, **D. B. Lindell**, K. N. Kutulakos, R. Genov, "Low-cost coded-exposure pixel cameras for robust high-speed computational imaging at up to 18,000 exposures per second," in *CVPR Demos*, 2023.
- [D2] M. O'Toole, **D. B. Lindell**, G. Wetzstein, "Real-time non-line-of-sight imaging," in *ACM SIG-GRAPH Emerging Technologies*, 2018.
- [D1] M. O'Toole, **D. B. Lindell**, G. Wetzstein, "Real-time non-line-of-sight imaging," in *CVPR Demos*, 2018.

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.

Keynotes

2025: Inverse Rendering from Propagating Light, IEEE Conference on Computational Imaging Using Synthetic Apertures, College Park, Maryland

2024: Flying with Photons: Rendering Novel Views of Propagating Light, 1st Workshop on Neural Fields Beyond Conventional Cameras (ECCV 2024), Milan, Italy

Invited Talks

2025: Inverse Rendering from Propagating Light, SIGGRAPH TPC Workshop, Vancouver, BC

2025: From Pixels to Perception: Artificial Intelligence and Computer Vision, CS Academy, Toronto, ON

2025: Capturing Dynamic Scenes from Seconds to Picoseconds, MERL, Virtual

2024: Capturing Dynamic Scenes from Seconds to Picoseconds, Computer Vision Seminar, Seoul National University, Seoul, South Korea

2024: Capturing Dynamic Scenes from Seconds to Picoseconds, Graphics Seminar, POSTECH University, Pohang, South Korea

2024: Neural Scene Reconstruction from Videos of Propagating Light, Korea AI Summit, Seoul, South Korea

2024: Capturing Dynamic Scenes from Seconds to Picoseconds, Computational Imaging Seminar, Sony Corporation, Tokyo, Japan

2024: Capturing Dynamic Scenes from Seconds to Picoseconds, Computer Vision Seminar, University of Tokyo, Tokyo, Japan

2024: Imaging Anytime Anywhere All at Once: Capturing Dynamic Scenes from Seconds to Picoseconds, UC Berkeley Photobears, Berkeley, CA

2024: Imaging Anytime Anywhere All at Once: Capturing Dynamic Scenes from Seconds to Picoseconds, Stanford Center for Image Systems Engineering (SCIEN), Stanford, CA

2024: Flying with Photons: Rendering Novel Views of Propagating Light, Conference on Robots and Vision, Guelph, ON

2024: Text-to-4D Generation Using Hybrid Score Distillation Sampling, UTMIST Immersion Night, Toronto, ON

2024: Passive Ultra-Wideband Single-Photon Imaging, Stanford EE367 Computational Imaging (Guest Lecture), Virtual

2024: From Pixels to Perception: Artificial Intelligence and Computer Vision, DGP Academy, Toronto, ON

2024: Passive Ultra-Wideband Single-Photon Imaging, Simon Fraser University (GrUVi Lab), Vancouver,

BC

2024: Passive Ultra-Wideband Single-Photon Imaging, National Research Council Ultrafast Quantum Photonics Group, Ottawa, ON

2023: Passive Ultra-Wideband Single-Photon Imaging, 3rd International Computational Imaging Conference, Virtual

2023: From Pixels to Perception: Artificial Intelligence and Computer Vision, Leadership by Design Workshop, Toronto, ON

2023: Neural Rendering at One Trillion Frames per Second, UTMIST EigenAI Conference, Toronto, ON

2023: Passive Ultra-Wideband Single-Photon Imaging, Photons Canada, Virtual

2023: Neural Rendering at One Trillion Frames per Second, BIRS Workshop on Generative 3D Models, Banff, AB

2023: Passive Ultra-Wideband Single-Photon Imaging, Photonics North, Montreal, QC

2023: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, University of Windsor, Windsor, ON

2022: Recent Advances in Non-Line-of-Sight Imaging, IEEE Signal Processing Society Webinar, Virtual

2022: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, Purdue Computational Imaging Seminar, Virtual

2022: Confocal Non-Line-of-Sight Imaging and Diffuse Tomography Using Single-Photon Sensors, Imaging and Applied Optics Congress, Vancouver, BC

2022: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, Caltech, Pasadena, CA

2022: Implicit Neural Representation Networks for Fitting Signals, Derivatives, and Integrals, Silicon Valley ACM SIGGRAPH Chapter, Virtual

2021: Implicit Neural Representation Networks for Fitting Signals, Derivatives, and Integrals, Samsung AI Centre, Virtual

2021: Implicit Neural Representation Networks for Fitting Signals, Derivatives, and Integrals, University of Erlangen-Nuremberg, Virtual

2021: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, University of Michigan, Virtual

2021: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, MIT RLE, Virtual

2021: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, University of Chicago, Virtual

2021: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, University of Toronto, Virtual

2021: Physics-Based Visual Computing for Efficient 3D Vision and Sensing, Texas A&M, Virtual

2021: AutoInt: Automatic Integration for Fast Neural Volume Rendering, Google, Virtual

2020: Implicit Neural Representation Networks for Fitting Signals, Derivatives, and Integrals, Graphics and Mixed Environment Seminar (GAMES), Virtual

2020: A Camera to See Around Corners, Playground/Akasha Imaging, Palo Alto, CA

2019: A Camera to See Around Corners, TEDxBeaconStreet, Boston, MA

 $\textbf{2019}: \ Computational \ Imaging \ with \ Single-Photon \ Detectors, \ Boston \ University \ Center \ for \ Information \ \& \ Systems \ Engineering \ (CISE), \ Boston, \ MA$

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

 $\textbf{2019}: \ Computational \ Imaging \ with \ Single-Photon \ Detectors, Stanford \ Center \ for \ Image \ Systems \ Engineering \ (SCIEN), Stanford, CA$

2019: Computational Single-Photon Imaging, Carnegie Mellon University Graphics Lab, Pittsburgh, PA

PhD Advising

rnD Advising	
Victor Chu University of Toronto	Sep 2025–
Michael Neumayr University of Toronto	Sep 2025–
Sophia Yang University of Toronto	Sep 2025–
Felix Taubner University of Toronto	Sep 2024-
Sherwin Bahmani University of Toronto	Sep 2023–
Victor Rong University of Toronto Co-advised with Kyros Kutulakos	Sep 2023–
Anagh Malik University of Toronto	Sep 2022–
Samarth Sinha <i>University of Toronto</i> Co-advised with Igor Gilitschenski	Sep 2022–
Esther Lin University of Toronto Co-advised with Kyros Kutulakos	Sep 2022–
Master's Advising	
Andrew Guo MSc, University of Toronto	Sep 2024–
Andrew Xie MSc, University of Toronto	Sep 2024–
Kelly Zhu MSc, University of Toronto	Sep 2024-
Maxx Wu MSc, University of Toronto Co-advised with Kyros Kutulakos	Sep 2023–May 2025
Noé Artru MScAC, University of Toronto Ubisoft	May 2024–Dec 2025
Umar Masud MScAC, University of Toronto Samsung	May 2024–Dec 2024
Steven Hyun MScAC, University of Toronto Samsung	May 2024–Dec 2024
Faraz Ali <i>MScAC, University of Toronto</i> Samsung	May 2024–Dec 2024
Carolina Villamizar MScAC, University of Toronto DWave	May 2024–Dec 2024
Kartik Kumar MScAC, University of Toronto	May 2023–Dec 2023

DNEG Yihan (Nick) Ni MG-AG Hairmaita of Taranta	May 2023–Dec 2023
MScAC, University of Toronto DNEG	
Kejia Yin MScAC, University of Toronto MODIFACE	May 2023–Dec 2023
Vahid Zehtab MScAC, University of Toronto Samsung	May 2023–Dec 2023
EJay Guo MScAC, University of Toronto DNEG	May 2022–Dec 2022
Visiting Students	
Siddharth Somasundaram	Sep 2024–Dec 2024
MIT Co-advised with Kyros Kutulakos, Ramesh Raskar	-
Michael Neumayr	Sep 2024–Apr 2025
TUM Co-advised with Matthias Nießner	1 1
Co-advised with Matthias Meisher	
Undergraduate Advising	
Ruihang Zhang University of Toronto	Sep 2024–May 2025
Allison Lau University of Toronto	Sep 2024–Dec 2024
Koichi Namekata University of Toronto	July 2024–Dec 2024
Howard Xiao <i>University of Toronto</i> NSERC Undergraduate Student Research Award	May 2024–Aug 2025
Mehar Khurana IIT Madras Mitacs Globalink	May 2024–Aug 2024
Weihan Luo University of Toronto	Sep 2023–Aug 2025
Zixin Guo <i>University of Toronto</i> University of Toronto Excellence Award	Jan 2023–Dec 2024
Zach Salehe University of Toronto NSERC Undergraduate Student Research Award	Jan 2023–May 2024
Jason Zhu University of Toronto	Sep 2023–May 2024
Steven Luo University of Toronto	Jan 2024–May 2024
Ariel Chen University of Toronto	Sep 2023–May 2024
Haojun Qiu University of Toronto	Sep 2022–May 2024

Andrew Qiu University of Toronto	Sep 2023–Dec 2023
Kevin Vaidyan <i>University of Toronto</i>	May 2023–May 2024
Noah Juravsky University of Toronto	May 2023–May 2024
Dorsa Molaverdikhani University of Toronto	Jan 2023–May 2024
Shahmeer Athar University of Toronto	Jan 2023–May 2024
Rishit Dagli University of Toronto	Jan 2023–Dec 2023
Roland Gao University of Toronto NSERC Undergraduate Student Research Award	Jan 2023–Sep 2023
Qing (Amy) Lyu University of Toronto	Jan 2023–May 2023
Louis Zhang University of Toronto	Jan 2023–May 2023
Junru Lin University of Toronto	Sep 2022–May 2023
Justin Tran <i>University of Toronto</i> Thesis: Generative 3D shape modeling using latent space diffusion	Sep 2022–May 2023
Skyler Zhang University of Toronto Thesis: Towards coded high-speed video acquisition using diffusion models	Sep 2022–May 2023
Funding	
NSERC Alliance Generative Video Models for Controllable Digital Human Avatars	Dec 2024 – Dec 2027
NSERC Alliance–Mitacs Grant Implicit Representations for 4D Digital Humans	Jul 2024 – July 2028
Sony Focused Research Award Multiview Burst Imaging for High Dynamic Range and Low-Light Neural Radiance Fields	Sep 2024 – Sep 2025
Sony Faculty Innovation Award Differentiable Computational Imaging Using Coded Exposure Sensors and Flux-to-Digital Co	Sep 2024 – Sep 2025
LG Research Grant Learning Controllable 4D Avatars from Portrait Video Collections	May 2024 – April 2025
Google Research Scholar Award Computational Single-Photon Photography for Dynamic Vision in the Dark	Apr 2024 –
Snap Inc. Research Gift Camera Control in 2D Video Generators	Feb 2024 –
NSERC Alliance–Mitacs Grant Ultrafast Phase-Modulated Coherent Lidar Using Off-the-Shelf Optical Modems	Jan 2024 – Jan 2026
CFI Infrastructure Operating Fund Neural Signal Representations for Active 3D Imaging	Dec 2023 – Dec 2028

NSERC Research Tools and Instruments Grant

Sep 2023 – Sep 2024

Single-Photon Cameras for Extreme Computer Vision and Computational Astronomy

XSeed/TRANSFORM HF Grant

Sep 2023 – Sep 2025

Towards Home Monitoring of Heart Failure Patients via Robust and Unbiased Spatial Frequency Domain Imaging

Connaught New Researcher Award

Apr 2023 – Apr 2025

Neural Signal Representations for Active 3D Imaging

NSERC Discovery Launch Supplement

Apr 2022 – Apr 2027

Neural Signal Representations for Physics-Based Machine Learning and Active 3D Imaging

NSERC Discovery Grant

Apr 2022 – Apr 2027

Neural Signal Representations for Physics-Based Machine Learning and Active 3D Imaging

Canada Foundation for Innovation John R. Evans Leaders Fund

Sep 2022 – Mar 2026

Neural Signal Representations for Active 3D Imaging