

AVIAD LEVIS

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EDUCATION

- 2014-2019 Ph.D. (direct track), Viterbi Faculty of Electrical Engineering,
Technion - Israel Institute of Technology, Israel.
Thesis: *Volumetric Imaging of the Natural Environment*;
Supervisor: Prof. Yoav Schechner.
- 2009-2013 B.Sc. in Electrical Engineering, *Cum Laude*.
Ben-Gurion University, Israel.
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EMPLOYMENT AND INTERNSHIPS

- 2020-present Postdoctoral researcher at the Computing & Mathematical Sciences, Caltech.
Imaging of black holes. Part of the *Event Horizon Telescope Collaboration*.
- 2018 Research internship at Google Research, Perception team.
Artificial intelligence for audio-visual signal analysis.
- 2014 Research internship at the Jet Propulsion Laboratory (NASA-Caltech).
Three-dimensional remote sensing of the atmosphere.
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SELECTED ACCOMPLISHMENTS, HONORS, AND AWARDS

- 2020 Technion Viterbi postdoctoral fellowship for nurturing future faculty members.
- 2020 Zuckerman STEM leadership program postdoctoral fellowship.
- 2019 Young scientist participant in the 69th Lindau Nobel Laureate Meeting.
- 2019 [Space mission](#) derived from my Ph.D. research, won ERC funding (€14 Million).
- 2018 [International Space Science Institute \(ISSI\) Team](#) - Invited Young Scientist.
- 2018 Jacobs-Qualcomm fellowship for academic achievement of Ph.D. students.
- 2017 Jury award for distinguished graduate students.
- 2017 Jacobs-Qualcomm fellowship for academic achievement of Ph.D. students.
- 2015 Jacobs fellowship for academic achievement of M.Sc. students.
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TEACHING

- 2020 Summer Undergraduate Research Fellowships (SURF) mentor, Caltech.
- 2020 Guest lecture in the course Computational Imaging, CMS department. Caltech.
- 2014-2019 Undergraduate project supervisor, EE department. Technion.
- 2014-2016 Teaching assistant, EE department. Technion. Courses: Image Processing; Signals and Systems.
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ACADEMIC SERVICE

- 2014-present Reviewer: CVPR, ECCV, ICCP, Optics Express, ICIP, Journal of Inverse Problems, JSQRT (Elsevier), MDPI Remote Sensing.
- 2021 Program committee IEEE International Workshop on Computational Cameras and Displays.
- 2021 Graduate admission committee, CMS department, Caltech.
- 2020 Program committee IEEE ICCP, 2021.
- 2020 EE systems seminars committee, Caltech.
- 2020 Science organizing committee, 3rd imaging workshop, EHT collaboration.
- 2019 Organizer, CloudCT workshop, Technion, Israel.

PUBLICATIONS

Invited Talks at International Conferences

1. A. Levis, D. Lee, C. F. Gammie, K. L. Bouman *Imaging fluid-dynamics by stochastic model fitting*, Computational Imaging XIX, Electronic Imaging, 2021.
2. A. Levis, Y. Y. Schechner, R. Talmon, *Statistical tomography of microscopic life*, CVPR Workshop on Automated Analysis of Marine Video for Environmental Monitoring, 2018.
3. A. Aides, Y. Y. Schechner, V. Holodovsky, A. Levis, D. Althausen, *Measuring Atmospheric Scattering in 3D*, Propagation Through and Characterization of Atmospheric and Oceanic Phenomena, OSA, 2018.
4. Y. Y. Schechner, A. Aides, A. Levis and V. Holodovski, *Sensing aerosol distributions and clouds in 3D to better understand their climatic role*, ISEES 46th Annual Conf. Science and the Environment, 2018.
5. A. Levis, A. Aides, Y. Y. Schechner, A. B. Davis and V. Holodovsky, *Inverse-scattering Bridging Micron to Kilometer Scales*, CVPR Workshop on Computational Cameras and Displays, Hawaii, USA, 2017.
6. A. Levis, *Remote Sensing of 3D Cloud Microphysics via Radiative Transfer*, JpGU-AGU Joint Meeting, Makuhari Messe, Japan, 2017.
7. A. Levis, *Three-Dimensional Microphysical Tomography of Clouds*, The 16th Electromagnetic and Light Scattering Conference, Maryland, USA, 2017.
8. D. J. Diner, J. Chen, A. B. Davis, M. J. Garay, O. V. Kalashnikova, F. Seidel, M. Tosca, G. van Harten, F. Xu, A. Levis, Y. Schechner, *Capabilities and challenges in remote sensing of aerosol (and cloud) properties using multiangular and polarimetric imaging*, Gordon Research Conference, Radiation and Climate, 2015

Peer Reviewed Papers¹

9. A. Levis, D. Lee, J. A. Tropp, C. F. Gammie, and K. L. Bouman, *Inference of Black Hole Fluid-Dynamics from Sparse Interferometric Measurements*, Proc. IEEE ICCV - Int. Conference on Computer Vision, 2021.
10. A. Levis, Y. Y. Schechner, A. B. Davis, and J. Loveridge, *Multi-View Polarimetric Scattering Cloud Tomography and Retrieval of Droplet Size*, Remote Sensing, 2020.
11. T. Loeub, A. Levis, V. Holodovsky and Y. Y. Schechner, *Monotonicity Prior for Cloud Tomography*, European Conference on Computer Vision (ECCV), 2020.
12. A. Aides, A. Levis, V. Holodovsky, Y. Y. Schechner, D. Althausen, and A. Vainiger *Distributed Sky Imaging Radiometry and Tomography*, Proc. IEEE ICCP - Int. Conference on Computational Photography, 2020.
13. F. A. Mejia, B. Kurtz, A. Levis, Í Parra and J. Kleissl *Cloud Tomography Applied to Sky Images: A Virtual Testbed*, Solar Energy, 2018.
14. A. Levis, Y. Y. Schechner and R. Talmon, *Statistical Tomography of Microscopic Life*, Proc. IEEE CVPR - Computer Vision and Pattern Recognition, 2018.
15. A. Levis, Y. Y. Schechner and A. B. Davis, *Multiple-Scattering Microphysics Tomography*, Proc. IEEE CVPR - Computer Vision and Pattern Recognition, 2017.
16. V. Holodovsky, Y. Y. Schechner, A. Levin, A. Levis and A. Aides, *In-Situ Multi-View Multi-Scattering Stochastic Tomography*, Proc. IEEE ICCP - Int. Conference on Computational Photography, 2016.
17. A. Levis, Y. Y. Schechner, A. Aides and A. B. Davis, *Airborne Three-Dimensional Cloud Tomography*, Proc. IEEE ICCV - Int. Conference on Computer Vision, 2015. - **Oral presentation (3.3% acceptance)**.
18. D. Veikherman, A. Aides, Y. Y. Schechner and A. Levis, *Clouds in The Cloud*, Proc. ACCV - Asian Conference on Computer Vision, 2014.

EHT Collaboration Papers

19. The Event Horizon Collaboration et al. *Polarimetric properties of Event Horizon Telescope targets from ALMA*, The Astrophysical Journal Letters, 910(1):L14, 2021.
20. The Event Horizon Collaboration et al. *First M87 Event Horizon Telescope Results: VIII. Magnetic field structure near the event horizon*, The Astrophysical Journal Letters, 910(1):L13, 2021.

¹In major competitive computer vision conferences, full-length papers undergo a rigorous double-blind review process (the authors are anonymous at submission). Acceptance is typically tougher than in journals, particularly for Oral presentation. Acceptance ratios in recent (2015) CVPR and ICCV conferences were: Orals:3% Posters:23% Rejected \approx 72%.

21. The Event Horizon Collaboration et al. *First M87 Event Horizon Telescope Results: VII. Polarization of the ring*, The Astrophysical Journal Letters, 910(1):L12, 2021.
22. The Event Horizon Collaboration et al. *Broadband multi-wavelength properties of M87 during the 2017 Event Horizon Telescope campaign*, The Astrophysical Journal Letters, 910(1):L11, 2021.

Other Conference Publications

23. A. Levis, Y. Y. Schechner, A. B. Davis, J. Loveridge *Droplet Size Tomography Using Multi-View Polarimetric Measurements*, AGU Fall Meeting 2020.
24. L. Forster, Y. Kölling, V. Pörtge, T. Zinner, B. C. Mayer, A. Levis, J. R. Loveridge, A. B. Davis *3D cloud tomography during EUREC4A: Synergy of MISR multi-angle satellite imaging and airborne remote sensing onboard HALO*, AGU Fall Meeting 2020.
25. A. Levis, V. Holodovsky, Y. Y. Schechner, E. Eytan, I. Koren, A. Aumann, K. Schilling *CloudCT: Spaceborne scattering tomography by a large formation of small satellites for improving climate*, The 4th COSPAR Symposium, Herzliya, Israel, 2019.
26. V. Holodovsky, M. Fisher, Y. Y. Schechner, D. Rosenfeld, A. Levis *Geometric aspects of stereoscopic spaceborne imaging of dynamic clouds in the CLOUD experiment*, The 4th COSPAR Symposium, Herzliya, Israel, 2019.
27. D. Rosenfeld, C. Cornet, S. Aviad, P. Crebassol, P. Dandini, E. Defer, C. Fallet, V. Holodovsky, A. Levis, A. Kaidar, C. Price, D. Ricard, Y. Schechner, P. Tabary, Y. Yair *C³ IEL : Cluster for Climate and Cloud Imaging of Evolution and Lightning, an innovative way to observe clouds and their environment*, The 4th COSPAR Symposium, Herzliya, Israel, 2019.
28. A. B. Davis, F. Xu, G. V. Harten, D. J. Diner, A. Levis, Y. Y. Schechner and G. Matheou, *Inherent Properties of Clouds in the PBL Derived from Multi-angle Spectro-Polarimetric Imaging at the "Edge of Space:" New Capabilities of JPL's AirMSPI Sensor on NASA's Airborne ER-2 Platform*, AGU Fall Meeting, San Francisco, USA, 2019.
29. A. Levis, Y. Y. Schechner and R. Talmon, *Statistical Tomography of Microscopic Life*, Proc. IEEE ICCP - Int. Conference on Computational Photography, Pittsburgh, USA, 2018.
30. A. Levis, Y. Y. Schechner, R. Talmon, *In-situ Tomography of Plankton*, MOST Workshop on Exploring Translucent Media, 2018.
31. A. Levis, Y. Y. Schechner, A. Aides and A. B. Davis, *3D Cloud Tomography via Solar Radiative Transfer*, International Radiation Symposium, Auckland, New Zealand, 2016.
32. A. Levis, Y. Y. Schechner, A. Aides and A. B. Davis, *3D Cloud Tomography using Solar Radiative Transfer*, Atmospheric Radiation Science Workshop, Boulder, Colorado, 2016.
33. A. Levis, Y. Y. Schechner and A. Aides, *Three-Dimensional Cloud Tomography*, Israel Computer Vision Day, IDC Herzelia, Israel, 2016.
34. V. Holodovsky, A. Levis, Y. Y. Schechner, A. Levin, A. Aides, and A. B. Davis, *3D Multi-Scattering Tomography*, Int. Conf. Computational Photography, Evanston, Illinois, 2016.
35. A. Levis, Y. Y. Schechner, A. Aides and A. B. Davis, *Airborne Three-Dimensional Cloud Tomography*, Israeli Machine Vision Conference, Tel-Aviv, Israel, 2016.
36. D. Rosenfeld, A. Levis, I. Bibi, Y. Y. Schechner, A. Rosenfeld, D. Fischer and J. Woytach, *Globe Imaging of 3D Motion: Microphysics to centuries of change*, ICCV Extreme Imaging Workshop, Santiago, Chile, 2015.
37. A. Levis, A. Aides, V. Holodovsky, Y. Y. Schechner, A. Levin and A. B. Davis, *Efficient 3D Atmospheric Tomography of Scatter Distribution*, AGU-GAC-MAC-CGU Joint Assembly, Montreal, Canada, 2015.
38. A. Aides, D. Veikherman, A. Levis and Y. Y. Schechner *Ground-Based Multi-Angle Imaging Network for 3D Atmospheric Sensing*, AGU-GAC-MAC-CGU Joint Assembly, Montreal, Canada, 2015.
39. D. Veikherman, A. Aides, Y. Y. Schechner and A. Levis, *Clouds in The Cloud*, Israel Computer Vision Day, IDC Herzelia, Israel, 2016.