

# Amit Aides, Ph.D.

*curriculum vitæ*

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📄 [amitibo.github.io](https://github.com/amitibo)

## Education

- 2012–2018 **Ph.D.**, *Technion, Israel Institute of Technology.*
- Developed novel inverse algorithms for remote sensing.
  - Developed unique large camera networks for remote sensing.
- 2008–2011 **Master of Science**, *Technion, Israel Institute of Technology.*
- Developed computer vision algorithms for video processing.
- GPA: 93.4, Final Examination: 92*
- 1991–1996 **Bachelor of Science**, *Technion, Israel Institute of Technology.*
- Study Fields:
- Computers.
  - Control systems
  - Biological systems and signals.
- Academic Project:
- Design of Phase Array antenna controller for the Technion satellite.
- GPA: 85.8*

## PhD thesis

- title *Lightfield Analysis and Recovery of the Atmosphere*
- supervisors Professor Yoav Y. Schechner

## Master thesis

- title *Multiscale Ultrawide Video Extrapolation*
- supervisors Professor Yoav Y. Schechner

## Experience

### Vocational

- 2019–Present **Medical Imaging Research**, *Google Health, Israel.*
- Develop computer vision algorithms for a medical application.
- 2015–2019 **Deeplearning Researcher**, *IBM, Israel.*
- Developed audio-visual algorithms for Multi-Modal Biometrics.
  - Developed audio-visual algorithms for video enhancement.
  - Developed object detection and recognition algorithms.
- 2008–2016 **Teaching Assistant**, *Technion, Israel Institute of Technology.*
- Served as team leader and lead developer of the optical payload and image processing system for the Technion's team in the **AUVSI Student UAS Competition** (achieving 2<sup>nd</sup> and 4<sup>th</sup> places in **2015** and **2016** respectively).
  - Developed and taught the Linux Kernel hands-on course for the OS Laboratory.
  - Supervised undergraduate projects in the Vision and Image Sciences Laboratory.
  - Served as teaching assistant for the Microprocessors and Logic Design courses.

- 2007–2010 **Part time SW engineer**, *Sick Sensors Ltd.*
- Designed and developed automatic testing environment for rotary encoders.
  - Designed micro-controller's firmware.
- 2004–2006 **Co-founder**, *DigitalPeers*.
- Co-authored CamTrack, pioneering webcam software.
  - Developed robust real-time face tracking algorithm.
  - Developed scriptable graphic engine based on python.
  - Designed DigitalPeers's Website.
- 2002–2003 **HW engineer**, *Marvell Israel (M.I.S.I) Ltd.*
- Developed a testing environment in C++ for Chip Verification.
- 2000–2001 **HW engineer**, *ISD Ltd.*
- Designed chips using VHDL.
- 1994–1996 **Teaching Assistant**, *Technion, Israel Institute of Technology.*
- Served as instructor in the Energy Conversion Laboratory.
- 1992–1993 **HW engineer**, *IBM Israel Ltd.*
- Supported a synthesis tool in the VLSI department.

#### Military service

- 1996–2000 **Technical Officer**, *Israeli Navy.*
- Supported underwater systems and their test equipment.
  - Managed the Electrical Technician school.

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#### Languages

Hebrew (native), English (fluent), Spanish (fluent).

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#### Computer Skills

Python, C++, C, Matlab.

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#### Open Source Projects

##### Software I Developed

- **CameraNetwork** - Software for remote sensing camera network.
- **AUVSI-TAS-System** - Payload system developed by the Technion team for the **AUVSI SUAS** 2015-2016 competitions.
- **Experiment** - Framework for running Python experiments.
- **pycompense** - Python toolbox for compressed sensing and sparse reconstruction algorithms.
- **pyrwt** - Python wrapper for the *RICE* Wavelet Toolbox.
- **pyoslabgrader** - A package for writing automatic tests for the linux kernel course taught in the Technion.
- **pydirect** - Python wrapper for the *DIRECT* global optimization algorithm.
- **cyipopt** - Python wrapper for the *IPOPT* optimization package.

##### Software I Contributed to

- **ignite** - High-level library to help with training neural networks in PyTorch.
- **chainer** - A flexible framework of neural networks for deep learning.
- **scikits-learn** - Easy-to-use and general-purpose machine learning in Python.

## Publications

Amit Aides, Tamar Avraham, and Yoav Y. Schechner. Multiscale ultrawide foveated video extrapolation. In *IEEE International Conference on Computational Photography (ICCP)*, Apr 2011.

Amit Aides, Yoav Y. Schechner, Vadim Holodovsky, Michael J. Garay, and Anthony B. Davis. Multi sky-view 3d aerosol distribution recovery. *Opt. Express*, 21(22):25820–25833, Nov 2013.

Dmitry Veikherman, Amit Aides, Yoav Y. Schechner, and Aviad Levis. Clouds in the cloud. In *The 12th Asian Conference on Computer Vision (ACCV)*, Nov 2014.

Aviad Levis, Yoav Y. Schechner, Amit Aides, and Anthony B Davis. Airborne three-dimensional cloud tomography. In *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*, 2015.

Aviad Levis, Yoav Y Schechner, Amit Aides, and Anthony B Davis. An efficient approach for optical radiative transfer tomography using the spherical harmonics discrete ordinates method. *arXiv preprint arXiv:1501.06093*, 2015.

Vadim Holodovsky, Yoav Y Schechner, Anat Levin, Aviad Levis, and Amit Aides. In-situ multi-view multi-scattering stochastic tomography. In *IEEE International Conference on Computational Photography (ICCP)*. IEEE, 2016.

Amit Aides and Hagai Aronowitz. Text-dependent audiovisual synchrony detection for spoofing detection in mobile person recognition. In *INTERSPEECH*, Sep 2016.

Ahmad Kiswani, Amit Aides, and Mark Silberstein. Deep learning in aerial systems using jetson. <https://devblogs.nvidia.com/parallelforall/deep-learning-in-aerial-systems-jetson/>, 2016.

Aviad Levis, Amit Aides, Yoav Y. Schechner, Anthony B. Davis, and Vadim Holodovsky. Inverse-scattering bridging micron to kilometer scales. *CVPR workshop on Computational Cameras and Displays*, 2017.

Amit Aides, Dov David, and Hagai Aronowitz. Robust audiovisual liveness detection for biometric authentication using deep joint embedding and dynamic time warping. In *2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 3026–3030. IEEE, 2018.

Leonid Karlinsky, Joseph Shtok, Sivan Harary, Eli Schwartz, Amit Aides, Rogerio Feris, Raja Giryes, and Alex M. Bronstein. Repmet: Representative-based metric learning for classification and few-shot object detection. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2019.

Amit Alfassy, Leonid Karlinsky, Amit Aides, Joseph Shtok, Sivan Harary, Rogerio Feris, Raja Giryes, and Alex M. Bronstein. Laso: Label-set operations networks for multi-label few-shot learning. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2019.

Amit Aides, Vadim Holodovsky, Yoav Y. Schechner, and Dietrich Althausen. Calibrated distributed sky imaging radiometry. Unpublished Manuscript, 2019.