Cagatay Isil
Resume

UCLA Electrical and Computer Engineering Department
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Education

University of California, Los Angeles, USA

Ph.D. in Electrical and Computer Engineering — Sep 2019 – Present

- Supervisor: Prof. Aydogan Ozcan

Middle East Technical University, Ankara, Turkey

M.S. in Electrical and Electronics Engineering — Sep 2017 – Jul 2019

- Development of reliable & robust algorithms for phase retrieval
- Supervisor: Asst. Prof. Figen S. Oktem

B.S. in Physics (Double Major) — Sep 2015 – Jun 2018

B.S. in Electrical and Electronics Engineering — Sep 2012 – Jun 2017

- Development of a phase-space approach for the analysis of coherent imaging systems
- Supervisor: Asst. Prof. Figen S. Oktem

Adana Anatolian High School, Adana, Turkey

Skills

Languages

Turkish (Native), English (Fluent), German (Intermediate)

Programming

MATLAB, Python, CAD, C/C++, LabVIEW, Zemax, LaTeX

Professional Experience

Graduate Student Researcher

University of California, Los Angeles, USA — Sep 2019 – Present

- Deep learning enabled diffractive computing and computational microscopy
- Supervisor: Prof. Aydogan Ozcan

Research Engineer

ASELSAN Research Center, Ankara, Turkey — Feb 2017 – Aug 2019

- Application of deep learning for the resolution enhancement of microscopy images
- Development of a variational autoencoder with triplet loss for representation learning
- Supervisor: Dr. Aykut Koc

Journal Papers

Işıl, Ç., Mengu, D., Zhao, Y., Tabassum, A., Li, J., Luo, Y., Jarrahi, M., & Ozcan, A. (2022). **Super-resolution image display using diffractive decoders**. *arXiv*

Işıl, Ç., de Haan, K., Gorocs, Z., Koydemir, H. C., Peterman, S., Baum, D., Song, F., Skandakumar, T., Gumustekin, E., & Ozcan, A. (2021). **Phenotypic Analysis of Microalgae Populations Using Label-Free Imaging Flow Cytometry and Deep Learning**. *ACS Photonics, 8*(4), 1232–1242.

Işıl, Ç., Oktem, F. S., & Koç, A. (2019) **Deep Iterative Reconstruction for Phase Retrieval**. *Applied Optics, 58*, 5422–5431.

Işıl, Ç., Yorulmaz, M., Solmaz, B., Turhan, A. B., Yurdakul, C., Ünlü, S., Özbay, E., & Koç, A. (2018). **Resolution enhancement of wide-field interferometric microscopy by coupled deep autoencoders**. *Applied Optics, 57*(10), 2545–2552.

Conference Papers

Işıl, Ç., de Haan, K., Gorocs, Z., Koydemir, H. C., Peterman, S., Baum, D., Song, F., Skandakumar, T., Gumustekin, E., & Ozcan, A. **Label-free imaging flow cytometry for phenotypic analysis of microalgae populations using deep learning**. In *Frontiers in Optics + Laser Science*. (Optical Society of America, 2021).

Işıl, Ç., de Haan, K., Koydemir, H. C., Gorocs, Z., Baum, D., Song, F., Skandakumar, T., Gumustekin, E., & Ozcan, A. **Label-free analysis of micro-algae populations using a high-throughput holographic imaging flow cytometer and deep learning**. In *Label-free Biomedical Imaging and Sensing*. (International Society for Optics and Photonics, 2021).

Işıl, Ç.*, Oktem, F. S. **Model-based Phase Retrieval with Deep Denoiser Prior**. In *Imaging and Applied Optics Congress*. (Optical Society of America, 2020).

Işıl, Ç.*, Oktem, F. S. & Koç, A. **Deep Learning-Based Hybrid Approach for Phase Retrieval**. In *Imaging and Applied Optics Congress*. (Optical Society of America, 2019).

Işıl, Ç., & Oktem, F. S.* **A phase-space approach to diffraction-limited resolution**. In *Adaptive Optics: Analysis, Methods & Systems*. (Optical Society of America, 2018).

Işıl, Ç.*, Solmaz, B., & Koç, A. **Variational autoencoders with triplet loss for representation learning**. In *Signal Processing and Communications Applications Conference (SIU)*. (IEEE, 2017).

Yorulmaz, M.*, **Işıl, Ç.**, Seymour, E., Yurdakul, C., Solmaz, B., Koç, A., & Ünlü, M. S. **Single-particle imaging for biosensor applications**. In *Emerging Imaging and Sensing Technologies for Security and Defence II*. (International Society for Optics and Photonics, 2017).

*Speakers of the conferences

Achievements, Certificates & Honors

- TUBITAK (The Scientific and Technological Research Council of Turkey) Scholarship for the M.S. degree
- TUBITAK Scholarship for the double major
- Dean's High Honor List, Middle East Technical University (All semesters, except for one)
- LabVIEW Certified Associate Developer (2017-2019)
- Honor Certificate in High School
- Ranked 2115$^{\text{th}}$ in the national university entrance examination among two million students, 2012
- Information & Communication Technologies Certificate by Ericsson

Research Interests

Computational imaging, machine learning, image processing

Volunteer Activities

Social Responsibility Project Group Associate Coordinator
IEEE METU, Ankara — May 2013 – May 2014