

# Cagatay Isil

## Resume

UCLA Electrical and Computer Engineering Department  
Engineering IV Building, Los Angeles, CA 90095-1594, USA

*e-mail:* cagatayisil@ucla.edu  
*phone:* +1 xxx xxx xxxx  
*website:* cagatayisil.github.io/

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EDUCATION	<b>University of California, Los Angeles, USA</b>  Ph.D. in Electrical and Computer Engineering Sep 2019 – Present <ul style="list-style-type: none"><li>• Supervisor: Prof. Aydogan Ozcan</li></ul> <b>Middle East Technical University, Ankara, Turkey</b>  M.S. in Electrical and Electronics Engineering Sep 2017 – Jul 2019 <ul style="list-style-type: none"><li>• Development of reliable &amp; robust algorithms for phase retrieval</li><li>• Supervisor: Asst. Prof. Figen S. Oktem</li></ul> B.S. in Physics (Double Major) Sep 2015 – Jun 2018 B.S. in Electrical and Electronics Engineering Sep 2012 – Jun 2017 <ul style="list-style-type: none"><li>• Development of a phase-space approach for the analysis of coherent imaging systems</li><li>• Supervisor: Asst. Prof. Figen S. Oktem</li></ul> <b>Adana Anatolian High School, Adana, Turkey</b>
SKILLS	<b>Languages</b> Turkish (Native), English (Fluent), German (Intermediate)  <b>Programming</b> MATLAB, Python, CAD, C/C++, LabVIEW, Zemax, L <sup>A</sup> T <sub>E</sub> X
PROFESSIONAL EXPERIENCE	<b>Graduate Student Researcher</b>  University of California, Los Angeles, USA Sep 2019 – Present <ul style="list-style-type: none"><li>• Deep learning enabled diffractive computing and computational microscopy</li><li>• Supervisor: Prof. Aydogan Ozcan</li></ul> <b>Research Engineer</b>  ASELSAN Research Center, Ankara, Turkey Feb 2017 – Aug 2019 <ul style="list-style-type: none"><li>• Application of deep learning for the resolution enhancement of microscopy images</li><li>• Development of a variational autoencoder with triplet loss for representation learning</li><li>• Supervisor: Dr. Aykut Koc</li></ul>
JOURNAL PAPERS	<b>Işıl, Ç., Mengu, D., Zhao, Y., Tabassum, A., Li, J., Luo, Y., Jarrahi, M., &amp; Ozcan, A. (2022). Super-resolution image display using diffractive decoders. <i>arXiv</i> (under review)</b> <b>Işıl, Ç., de Haan, K., Gorocs, Z., Koydemir, H. C., Peterman, S., Baum, D., Song, F., Skandakumar, T., Gumustekin, E., &amp; Ozcan, A. (2021). Phenotypic Analysis of Microalgae Populations Using Label-Free Imaging Flow Cytometry and Deep Learning. <i>ACS Photonics</i>, 8(4), 1232–1242.</b> <b>Işıl, Ç., Oktem, F. S., &amp; Koç, A. (2019) Deep Iterative Reconstruction for Phase Retrieval. <i>Applied Optics</i>, 58, 5422–5431.</b> <b>Işıl, Ç., Yorulmaz, M., Solmaz, B., Turhan, A. B., Yurdakul, C., Ünlü, S., Özbay, E., &amp; Koç, A. (2018). Resolution enhancement of wide-field interferometric microscopy by coupled deep autoencoders. <i>Applied Optics</i>, 57(10), 2545–2552.</b>

- 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<sup>th</sup> 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