

# Cagatay Isil

## Resume

Department of Electrical and Electronics Engineering  
Middle East Technical University, Ankara 06800, Turkey

*e-mail:* cagatay.isil@metu.edu.tr  
*phone:* +90 XXX XXXX  
*website:* cagatayisil.github.io/

---

RESEARCH INTERESTS Computational imaging, machine learning, signal processing, optics

PROFESSIONAL EXPERIENCE **ASELSAN Research Center**, Ankara, Turkey

Research Engineer Feb 2017 – Present

- Development of a deep learning-based algorithm for the resolution enhancement of microscopy images
- Development of a modified variational autoencoder by utilizing triplet loss for representation learning
- Supervisor: Dr. Aykut Koc

EDUCATION **Middle East Technical University**, Ankara, Turkey

M.S. in Electrical and Electronics Engineering, CGPA: 3.93 / 4.00 Sep 2017 – Present

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

B.S. in Physics (Double Major), CGPA: 3.62 / 4.00 Sep 2015 – Jun 2018

B.S. in Electrical and Electronics Engineering, CGPA: 3.70 / 4.00 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

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
- 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

JOURNAL  
PAPERS

1. **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.
2. **Işıl, Ç.** & Oktem, F. S. **A phase-space approach for the analysis of coherent imaging systems**. *(to be submitted)*
3. **Işıl, Ç.**, Oktem, F. S. & Koç, A. **Deep Iterative Phase Retrieval**. *(to be submitted)*

CONFERENCE  
PAPERS

1. **Işıl, Ç.**, & Oktem, F. S. (2018, June). **A phase-space approach to diffraction-limited resolution.** In *Adaptive Optics: Analysis, Methods & Systems* (pp. JM4A-32). Optical Society of America.
2. **Işıl, Ç.**, Solmaz, B., & Koç, A. (2018, May). **Variational autoencoders with triplet loss for representation learning.** In *2018 26th Signal Processing and Communications Applications Conference (SIU)* (pp. 1-4). IEEE.
3. Yorulmaz, M., **Işıl, Ç.**, Seymour, E., Yurdakul, C., Solmaz, B., Koç, A. & Ünlü, M. S. (2017, October). **Single-particle imaging for biosensor applications.** In *Emerging Imaging and Sensing Technologies for Security and Defence II* (Vol. 10438, p. 104380I). International Society for Optics and Photonics.
4. **Işıl, Ç.**, Oktem, F. S. & Koç, A **Deep Learning-Based Hybrid Approach for Phase Retrieval.** (*sessioned for oral presentation at OSA Imaging and Applied Optics Congress 2019*)

INDUSTRIAL &  
ACADEMIC  
EXPERIENCE

**Summer Intern**

ASELSAN Research Center, Ankara

Jun 2016 – Aug 2016

Implementation of fast computation methods for 2D Linear Canonical Transforms

TUBITAK SAGE, Guidance & Control Division, Ankara

Jun 2015 - Jul 2015

Sea surface simulation; Infrared imaging of sea surface with ray tracing

**Undergraduate Researcher**

Supervisor: Asst. Prof. Figen S. Oktem,

Nov 2015 - Jun 2017

Development of a phase-space approach for the analysis of coherent imaging systems

SKILLS

**Languages**

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

**Programming**

MATLAB, Python, C/C++, Zemax, LabVIEW, CAD, L<sup>A</sup>T<sub>E</sub>X

VOLUNTEER  
ACTIVITIES

**Social Responsibility Project Group Associate Coordinator**

IEEE METU, Ankara

May 2013 – May 2014

REFERENCES

Asst. Prof. Figen S. Oktem

◊ Department of Electrical and Electronics Engineering, Middle East Technical University, Ankara, Turkey

★ E-mail: figeno@metu.edu.tr, phone: +90-312-210-2342

Dr. Aykut Koc

◊ Artificial Intelligence & Information Technologies Research Programs Department, ASELSAN Research Center, Ankara, Turkey

★ E-mail: aykutkoc@aselsan.com.tr, phone: +90-312-592-6277

Prof. Cagatay Candan

◊ Department of Electrical and Electronics Engineering, Middle East Technical University, Ankara, Turkey

★ E-mail: ccandan@metu.edu.tr, phone: +90-312-210-2355

Asst. Prof. Elif Vural

◊ Department of Electrical and Electronics Engineering, Middle East Technical University, Ankara, Turkey

★ E-mail: velif@metu.edu.tr, phone: +90-312-210-2370