# Oğuzhan Fatih Kar

## PERSONAL DETAILS

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|---|---|
| *Mail* | oguzhan.kar@epfl.ch |
| *Website* | https://ofkar.github.io/ |
| *Interests* | computer vision, machine learning, computational imaging |

## EDUCATION

**Ph.D. in Computer Science**                                           Ongoing
*Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland*
    *Advisor*: Amir Zamir
    *Start-End Dates:* September 2019 - September 2024 (expected)

**M.S. in Electrical and Electronics Engineering**                      Completed
*Middle East Technical University (METU), Ankara, Turkey*
    *Advisor*: Figen S. Oktem
    *Thesis*: Computational spectral imaging techniques using diffractive lenses and compressive sensing
    *CGPA*: 3.93/4.00
    *Start-End Dates:* September 2017 - July 2019

**B.S. in Electrical and Electronics Engineering**                      Completed
*Middle East Technical University (METU), Ankara, Turkey*
    *CGPA*: 3.90/4.00
    *Start-End Dates:* September 2013 - June 2017

## PROFESSIONAL EXPERIENCE

**Student Researcher**                                                  Current
*Google, Zurich, Switzerland*
    *Start-End Dates:* November 2023 - March 2024

- Research on multi-modal foundational models.

**Research and Teaching Assistant**                                     Current
*Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland*
    *Start-End Dates:* September 2019 - September 2024 (expected)

- Research on robust, adaptive, multi-modal machine learning models.
- TA courses: Analysis I (Fall 2020, 2022), Analysis II (Spring 2020, 2021), Analysis-A (Spring 2022), Visual intelligence : machines and minds (Fall 2021, Spring 2023 (**Head TA**)).

**Research Engineer**                                                   Past
*ASELSAN Research Center, Ankara, Turkey*
    *Start-End Dates:* July 2017 - August 2019

- Research on novel reconstruction techniques for computational imaging.

**Research Intern**                                                     Past
*ASELSAN Research Center, Ankara, Turkey*
    *Start-End Dates:* June 2016 - July 2016

- Developed and implemented non-uniformity correction algorithms for infrared imaging.

**Research Intern** <span style="background:black;color:white">Past</span>
*TUBITAK SAGE, Ankara, Turkey*
   *Start-End Dates:* June 2015 - July 2015

- Implemented communication protocols between FPGA and ADC.

# AWARDS AND HONORS

**EPFL Computer and Communication Sciences Doctoral Program**: EDIC Fellowship for the first year of Ph.D. studies (52k CHF), 2019-2020
**TUBITAK** (Scientific and Technical Research Council of Turkey): Full scholarship for M.S. studies, 2017-2019
**METU Graduate School of Natural and Applied Sciences**: Graduate courses performance award, 2019
**METU Electrical and Electronics Engineering Department**: Best Poster Presentation award in GRAD STAR Departmental Poster Competition, 2018
**IEEE**: Travel award for International Conference on Image Processing (ICIP), 2018
**METU Electrical and Electronics Engineering Department**: Dr. Bulent Kerim Altay award for 4.0/4.0 GPA in Fall semester, 2015
**8 times (all semesters)** listed in Dean's High Honor Roll, METU, 2013-2017
**Ranked 228th** in National University Entrance Exam 1st stage among 2 million students, 2012
**Ranked 159th** in National University Entrance Exam 2nd stage among 2 million students, 2012

# PUBLICATIONS

Also available in Google Scholar.

## Conference Publications (* denotes equal contribution)

**1.** R. Bachmann*, **O. F. Kar***, D. Mizrahi*, A. Garjani, M. Gao, D. Griffiths, J. Hu, A. Dehghan, A. Zamir, "Scaling Vision Models to Tens of Tasks and Modalities." arXiv, 2024 (in review). Project page: Link
**2.** D. Mizrahi*, R. Bachmann*, **O. F. Kar**, T. Yeo, M. Gao, A. Dehghan, A. Zamir, "4M: Massively Multimodal Masked Modeling." NeurIPS, 2023 (**Spotlight, top 4%**). Project page: Link
**3.** T. Yeo, **O. F. Kar**, Z. Sodagar, A. Zamir, "Rapid Network Adaptation: Learning to Adapt Neural Networks Using Test-Time Feedback." ICCV, 2023. Project page: Link
**4. O. F. Kar**, T. Yeo, A. Atanov, A. Zamir, "3D common corruptions and data augmentation." CVPR, 2022. (**Oral presentation, top 4%**). Project page: Link
**5. O. F. Kar**, T. Yeo, A. Zamir, "3D common corruptions for object recognition." ICML Shift Happens Workshop, 2022. (**Invited**). Project page: Link
**6.** T. Yeo*, **O. F. Kar***, A. Zamir, "Robustness via cross-domain ensembles." ICCV, 2021. (**Oral presentation, top 3%**). Project page: Link
**7.** A. Zamir*, A. Sax*, T. Yeo, **O. F. Kar**, N. Cheerla, R. Suri, Z. Cao, J. Malik, L. Guibas, "Robust learning through cross-task consistency." arXiv, 2020. CVPR, 2020. (**Oral presentation, best paper award nomination**). Project page: Link
**8. O. F. Kar**, A. Gungor, H. E. Guven, "Real-time compressive video reconstruction for spatial multiplexing cameras." IEEE Global Conference on Signal and Information Processing (GLOBALSIP), 2019. (**Oral presentation**)
**9. O. F. Kar**, A. Gungor, H. E. Guven, "Learning based regularization for spatial multiplexing cameras." IEEE Global Conference on Signal and Information Processing (GLOBALSIP), 2019.

**10.** A. Gungor\*, **O. F. Kar\***, "A transform learning based deconvolution technique with super-resolution and microscanning applications." IEEE International Conference on Image Processing (ICIP), 2019.
**11. O. F. Kar**, F. S. Oktem, "Fast computational spectral imaging using photon sieves." OSA Imaging and Applied Optics Congress, 2019. (**Oral presentation**)
**12. O. F. Kar**, A. Gungor, H. E. Guven, "Optimal number of measurement analysis for coded compressive focal plane array imager." IEEE Signal Processing and Communications Applications Conference (SIU), 2019. (**Oral presentation**) (**National conference**)
**13. O. F. Kar**, A. Gungor, H. E. Guven, "Compressive focal plane array imager reconstruction using learning based regularization." IEEE Signal Processing and Communications Applications Conference (SIU), 2019. (**Oral presentation**) (**National conference**)
**14. O. F. Kar**, A. Gungor, S. Ilbey, C. B. Top, H. E. Guven, "A performance analysis on the optimal number of measurements for coded compressive imaging." IEEE Global Conference on Signal and Information Processing (GLOBALSIP), 2018. (**Oral presentation**)
**15.** A. Gungor, **O. F. Kar**, H. E. Guven, "A matrix-free reconstruction method for compressive focal plane array imaging." IEEE International Conference on Image Processing (ICIP), 2018.
**16. O. F. Kar**, U. Kamaci, F. C. Akyon, F. S. Oktem, "Compressive photon-sieve spectral imaging." OSA Imaging and Applied Optics Congress, 2018. (**Oral presentation**)
**17. O. F. Kar**, A. Gungor, S. Ilbey, H. E. Guven, "An efficient parallel algorithm for single-pixel and FPA imaging." SPIE Defense and Commercial Sensing Conference, 2018. (**Oral presentation**)
**18. O. F. Kar**, A. Gungor, H. E. Guven, "An adaptive relaxed alternating direction method of multipliers for compressive focal plane array imaging." IEEE Signal Processing and Communications Applications Conference (SIU), 2018. (**Oral presentation**) (**National conference**)
**19. O. F. Kar**, U. Kamaci, F. C. Akyon, F. S. Oktem, "Effect of different sparsity priors on compressive photon-sieve spectral imaging." IEEE Signal Processing and Communications Applications Conference (SIU), 2018. (**Oral presentation**) (**National conference**)

### Journal Publications

**1.** F. S. Oktem, **O. F. Kar**, C. D. Bezek, F. Kamalabadi , "High-resolution multi-spectral imaging with diffractive lenses and learned reconstruction." IEEE Transactions on Computational Imaging, 2021.
**2. O. F. Kar**, F. S. Oktem, "Compressive spectral imaging with diffractive lenses." Optics Letters, 2019.

## OTHER ACADEMIC ACTIVITIES

**Invited Talks:**

- **Rising Stars in AI Symposium**, KAUST, Saudi Arabia (February 2023).

- **TrustML Young Scientist Seminar**, RIKEN AIP, Japan (November 2022).

**Academic Demo:**

- **O. F. Kar**, A. Sax, T. Yeo, A. Zamir, "Robust learning through cross-task consistency." ECCV, 2020.

**Journal Reviewer:**

- Optics Express (2019, 2020), Applied Optics (2019, 2020)

**Conference Reviewer:**

- CVPR (2022, 2023, 2024), ECCV (2020, 2022), ICCV (2021, 2023), ICLR(2023), NeurIPS (2023), EUSIPCO (2018, 2019)

**PhD Application Evaluator:**

- ELLIS: Fall 2021 (pre-screening)

- EPFL CS Doctoral Program (EDIC): Fall 2021, Spring 2022, Fall 2022

**Head Teaching Assistant:**

- CS-503: Visual intelligence: machines and minds (Spring 2023)

**EPFL EDIC Buddy Program:**

- Volunteered at the PhD Buddy Program aimed at helping new students integrate with the school and Lausanne for the years 2021, 2022, 2023.

## SKILLS

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| *Languages* | Turkish (mother tongue) |
| | English (advanced) |
| | French (A2) |
| | German (A1) |
| *Computer* | Python, PyTorch, JAX, MATLAB, C, C++, LaTeX, Linux, Bash, Javascript |