

# Efe Tarhan

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## Education

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### École Polytechnique Fédérale de Lausanne

*MSc in Communication Systems*

*Lausanne, Switzerland*

*Sep 2024 – Jul 2026*

- GPA: NA/6.0
- Granted with **Excellence Scholarship**
- Specialization in **Signal & Image Processing**

### Ihsan Dogramaci Bilkent University

*BSc in Electrical and Electronics Engineering*

*Ankara, Turkey*

*Sep 2020 – Jun 2024*

- 3.95/4.0 GPA
- Ranked **2<sup>nd</sup> among 180 people** in 2020 cohort.
- Data Science & Engineering Certificate

## Experience

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### Graduate Research Assistant

*École Polytechnique Fédérale de Lausanne*

*Lausanne, Switzerland*

*Sep 2024 – Present*

- Working on the development of an efficient multiresolution algorithm for ptychography imaging under the BIG Lab directed by [Prof. Michaël Unser](#) 📄

### Undergraduate Research Assistant

*Bilkent University*

*Ankara, Turkey*

*Mar 2023 – Sep 2024*

- Conducted research under the guidance of [Prof. Sinan Gezici](#) 📄, focusing on intelligent reflective surfaces and visible light positioning schemes.
- Published the journal paper [IRS aided visible light positioning with a single LED transmitter](#) 📄 in Elsevier DSP.

### Signal Processing Engineer

*NANOTAM*

*Ankara, Turkey*

*Apr 2023 – May 2024*

- Worked in the research complex directed by [Prof. Ekmel Özbay](#) 📄. Processed OTDR data using statistical signal processing techniques with MATLAB, Python, and C++.
- Designed a real-time and time-efficient processing pipeline for the OTDR data.

### Antenna Engineer Intern

*ASELSAN*

*Ankara, Turkey*

*Jul 2023 – Aug 2023*

- Worked on physical design and material effects on tightly coupled phased array absorbers.
- Designed a vertically meandered Archimedean spiral antenna using Ansys HFSS software.

### Computer Vision Intern

*UMRAM*

*Ankara, Turkey*

*June 2022 – July 2022*

- Worked on the multilabel-multiclass disease classification task of chest tomography.
- Learned and used transfer learning approaches with classical backbone models and CNNs.
- Conducted research on Capsule Networks

## Publications

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### IRS aided visible light positioning with a single LED transmitter

Jan 2025

*Efe Tarhan*, Furkan Kokdogan, Sinan Gezici

*Elsevier Digital Signal Processing Journal*

10.1016/j.dsp.2024.104799 📄

## Projects

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### A Multiresolution Framework for Ptychography

- Multiresolution Optimization, Ptychography, B-Splines, Phase Retrieval

### Road Segmentation from Aerial Images

[Github](#) 

- Semantic Segmentation, UNet, PSPNet, SegFormer

### Wireless Train Signalization

[Github](#) 

- Industrial Design Project, Embedded Systems, RFID, WiFi, GPS, Cloud Database, GUI Design.

### ML-Enhanced VLP in IRS-Assisted Indoor Environments with a Single LED Transmitter

[Github](#) 

- Indoor Visible Light Localization, Intelligent Reflective Surfaces, Illumination Modelling, K-Nearest Neighbours.

### Flight Price Prediction

[Github](#) 

- Ridge Regression, LASSO, Decision Trees, Random Forest, Neural Networks

### IdentiFusion: Finding faces from text input

[Github](#) 

- Natural Language Processing, Computer Vision, Transfer Learning, BERT, Model Fusion.

### Disease Detection from X-Ray Images with Transfer Learning

[Github](#) 

- Multilabeled/Multiclass Image Classification, Deep Learning, Pytorch, Tensorflow

## Achievements & Awards

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- École Polytechnique Fédérale de Lausanne **Excellence Scholarship**.
- Bilkent University Electrical and Electronics Engineering **Academical Excellence Award**.
- TÜBİTAK 2209-B Industry Oriented Projects Support Fund.
- 2247 - C STAR-Intern Researcher Scholarship.
- İhsan Doğramacı Bilkent University **Full Comprehensive Scholarship**.
- Ranked **441<sup>st</sup> among 2 million students** in university entrance exam (YKS).

## Skills

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**Coding Languages:** Python, MATLAB, C/C++, R

**Technologies:** PyTorch, TensorFlow, Pandas, Google Firebase, Qt,

**Languages:** Turkish (Native), English (Full Working Proficiency), French (A2)