Efe Tarhan

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Work Permit B

Education

École Polytechnique Fédérale de Lausanne (EPFL) — *Lausanne, Switzerland*
MSc in Communication Systems — *Sep 2024 – Present*

- **GPA: 5.8/6.0**
- Granted with **Excellence Scholarship**
- Specialization in **Signal & Image Processing**

Ihsan Dogramaci Bilkent University — *Ankara, Turkey*
BSc in Electical and Electronics Engineering — *Sep 2020 – Jun 2024*

- **3.95/4.0 GPA**
- Ranked **2nd among 180 people** in 2020 cohort.
- Specialization in **Data Science**

Experience

Graduate Research Assistant — *Lausanne, Switzerland*
Visual Intelligence and Learning Lab — *Jul 2025 – Present*

- Working on multimodal foundational models in VILAB directed by Prof. Amir Zamir.

Graduate Research Assistant — *Lausanne, Switzerland*
Image and Visual Representation Lab — *Jan 2025 – Jun 2025*

- Worked on relighting and editing 3D scene representations (NeRFs and Gaussian Splats) in IVRL directed by Prof. Sabine Süsstrunk. Successfully delivered a research project on the subject.

Graduate Research Assistant — *Lausanne, Switzerland*
Biomedical Imaging Group — *Sep 2024 – Jul 2025*

- Worked on an efficient multiresolution algorithm for ptychography imaging in the Biomedical Imaging Group, under the supervision of Prof. Michaël Unser. Successfully delivered a research project on the subject.

Undergraduate Research Assistant — *Ankara, Turkey*
Bilkent University — *Mar 2023 – Sep 2024*

- Conducted research on intelligent reflecting surfaces and visible light positioning systems under the supervision of Prof. Sinan Gezici. Published the journal article *IRS-Aided Visible Light Positioning with a Single LED Transmitter* in *Elsevier Digital Signal Processing*.

Signal Processing Engineer — *Ankara, Turkey*
NANOTAM — *Apr 2023 – May 2024*

- Worked in the research facility directed by Prof. Ekmel Özbay, focusing on Optical Time Domain Reflectometry (OTDR). Developed a real-time, time-efficient processing pipeline for OTDR data using statistical signal processing techniques in MATLAB, Python, and C++.

Antenna Engineer Intern — *Ankara, Turkey*
ASELSAN — *Jul 2023 – Aug 2023*

- Worked on phsysical design and material effects on tightly coupled phased array absorbers. Designed an Archimedean spiral antenna using Ansys HFSS software under the supervision of Dr. Mustafa Kuloglu.

Computer Vision Intern *Ankara, Turkey*
UMRAM *June 2022 – July 2022*

- Worked in the research group of Prof. Tolga Çukur, on the multilabel-multiclass disease classification task of chest tomography samples. Developed deep learning based solutions using classical backbones.

Publications

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

A Multiresolution Framework for Ptychography *Sep 2024 – Jun 2025*
Github

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

From Pixels to Wireframes: 3D Reconstruction via CLIP-Based Sketch Abstraction *Apr 2025 – Jun 2025*
Website

- Gaussian Splatting, Bezier Curves, Abstract Representation, CLIP

DetoxText: Text Detoxification Using Finetuned Encoder-Decoder Models *Apr 2025 – Jun 2025*
Github

- Hate Speech Removal, Supervised Finetuning, BERT, GWEN

Large-Scale 3D Scene Relighting using Pre-Trained Diffusion Models *Mar 2025 – Jun 2025*
Github

- NeRF, Gaussian Splatting, Diffusion Models, Scene Relighting

Road Segmentation from Aerial Images *Nov 2024 – Jan 2025*
Github

- Semantic Segmentation, UNet, PSPNet, SegFormer

Wireless Train Signalization *Sep 2023 – Jun 2024*
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 *Sep 2023 – Jan 2024*
Github

- Visible Light Positioning, Intelligent Reflective Surfaces, Illumination Modelling, KNN.

Achievements & Awards

- 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 **441st among 2 million students** in university entrance exam (YKS).

Skills

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

Technologies: PyTorch, Kubernetes, Docker, Git, TensorFlow, Pandas, Google Firebase, Qt

Languages: English - Full Working Proficiency, French - Intermediate Proficiency