EREN CETIN

MSc Student at ETH Zurich
Excellence Scholar

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EDUCATION

ETH Zurich *Zurich, Switzerland*
MSc in Electrical Engineering and Information Technology *09/2022 - present*
- Specialization in Machine Learning and Signal Processing
- Awarded with Excellence Scholarship by ETH Foundation
- GPA: 5.76/6.00 (without Thesis)
- Related Coursework: Deep Learning, Machine Perception, Computer Vision, Probabilistic AI, Robot Learning (3D Reconstruction, NIR), Large Language Models

Koç University *Istanbul, Turkey*
BSc in Electrical & Electronics Engineering / Double Major in Economics *09/2017 - 06/2022*
- Salutatorian of the class of 2022, Top ranked student in both EEE and Economics
- Awarded with full-tuition scholarship and Vehbi Koç Honor Award each semester
- GPA: 4.00/4.00
- Specialization in Digital Image/Video Processing, Machine Learning, Deep Learning, AI

RESEARCH EXPERIENCE

Computer Vision and Geometry Group, ETH Zurich *Zurich, Switzerland*
Graduate Research Student *08/2024 - present*
- Research on generalizable sparse view 3D Gaussian splatting for 3D reconstruction. I am working on multi-view stereo approaches with feed-forward neural networks for 3D Gaussian estimation.
- Python, PyTorch, CUDA, C/C++

Computer Vision Lab, ETH Zurich *Zurich, Switzerland*
Graduate Research Student *03/2024 - 06/2024*
- Representing a scene with 3D Gaussian splatting has high storage complexity. This project focused on adoption of learned image compression methods for Gaussian splatting compression.
- Python, PyTorch, CUDA, C/C++

KUIS AI Lab, Koç University *Istanbul, Turkey*
Undergraduate Research Assistant *02/2021 - 09/2022*
- Research on image/video compression using recurrent and fully convolutional auto-encoders under supervision of Murat Tekalp. Presented our work on bidirectional video compression in ICIP 2022.
- Python, PyTorch

MA-CSSL, Koç University *Istanbul, Turkey*
Undergraduate Research Assistant *01/2022 - 03/2022*
- Participated in research project, "IMF Decides, Machine Learns" to achieve a high accuracy prediction of IMF decisions. Assisted in building a large dataset of IMF transcripts.
- Python, Office

KUIS AI Lab, Koç University *Istanbul, Turkey*
Summer Research Intern *06/2021 - 09/2021*
- Research and study on style transfer and image manipulation using GANs. Reimplemented the paper "Swapping Autoencoder for Deep Image Manipulation" by Park et al. (2020).
- Python, PyTorch

PROFESSIONAL EXPERIENCE

Visium SA *Zurich, Switzerland*
Junior Machine Learning Engineer *08/2023 - 02/2024*
- Developed a document storage and retrieval system based on Retrieval-Augmented Generation for a client. Scoped and maturized a production pipeline optimization project.
- Python, PyTorch, Project Scoping, Collaboration, Use-case Development

ART Labs *Istanbul, Turkey*
Computer Vision Intern *07/2021 - 09/2021*
- Designed a 3D garment texture optimizer using multiple still images and 3D model.
- Python, PyTorch, OpenCV

Softtech *Istanbul, Turkey*
Natural Language Processing Intern *06/2021 - 07/2021*
- Assisted building a text classification model and preparing a text corpus for a client bank.
- Python, PyTorch

ABOUT ME

Focus on neural rendering and 3D reconstruction with an interest in generative models and data compression.

SKILLS

Python

PyTorch

MATLAB

C/C++

CUDA Programming

LANGUAGES

English • Fluent (TOEFL iBT 115/120)
German • Beginner
Turkish • Native

PROJECT TOPICS

- Generalizable 3D reconstruction using MVS and Gaussian splatting
- 3D Gaussian splatting representation compression
- Sparse neural 3D reconstruction
- Neural video/image compression
- DNA sequencing using transformers
- Course projects on optical flow estimation, image enhancement, deblurring and various CV problems

PUBLICATIONS

- E. Cetin, M.A. Yilmaz, A.M. Tekalp. "Flexible-Rate Learned Hierarchical Bi-Directional Video Compression With Motion Refinement and Frame-Level Bit Allocation," in International Conference on Image Processing, Bordeaux, France, 2022.

TEACHING EXPERIENCE

ETH Zurich   *Zurich, Switzerland*
STUDENT TEACHING ASSISTANT FOR MACHINE PERCEPTION LECTURES   *02/2024 - 06/2024*

- Prepared and presented tutorials for 417 students in the Machine Perception course. The course involves a wide-range of Computer Vision applications and is offered to a diverse group of students at ETH Zurich
- PyTorch, Deep Learning, Tutoring, Presentation, Public Speaking

Koç University   *Istanbul, Turkey*
TEACHING ASSISTANT IN ECON 333, GAME THEORY   *09/2020 - 01/2021*

- Teaching assistant for the "Game Theory & Strategy" lectures. I conducted problem sessions for over 80 students weekly and arranged office hours.

EDUCATIONAL TUTOR IN ELEC 100, INTRO TO EEE   *02/2019 - 06/2019*

- Tutoring over 90 freshman students in the "Introduction to EEE" lectures for a support program provided by Koç University.