# Mahmut Yurt

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## Research Interests

- Machine Learning
- Computer Vision
- Generative AI
- Language Models
- Foundation Models

## Education

**Stanford University,** PhD in Electrical Engineering **Sep 2021 – Jun 2026**
Thesis: Data-efficient deep learning for multimodal medical imaging | Advisor: Prof. John Pauly California, United States

**Bilkent University,** MSc in Electrical Engineering **Sep 2019 – Aug 2021**
Thesis: Deep learning for multi-contrast MRI synthesis | Advisor: Prof. Tolga Cukur Ankara, Turkiye

**Bilkent University,** BSc in Electrical Engineering **Sep 2014 – Jun 2019**
Thesis: Autonomous vehicle applications | Advisor: Prof. Cem Tekin Ankara, Turkiye

## Research & Professional Experience

**Google,** Software Engineering Intern | Supervisors: Joseph Li, Sikun Lin, Feng Yang **June 2025 – Sep 2025**
- developed novel techniques for large text-to-image models, research paper in preparation

**Bosch,** Research Scientist Intern | Supervisors: Burhaneddin Yaman, Xin Ye **March 2025 – June 2025**
- built LLMs-guided diffusion models for long-tail augmentation in 3D detection, achieving 34.75% improvement
- organized a workshop for ICCV 2025 on distillating foundation models for autonomous driving (WDFM-AD)

**Stanford University,** Graduate Researcher, PhD Candidate **Sep 2021 – March 2025**
- developed transformer-based networks for video imaging of the heart, in collaboration with GE Healthcare
- built conditional denoising diffusion models on pixel and latent spaces for multimodal image-to-image translation
- innovated a semi-supervised framework for image generation, patent licensed by Siemens, achieves 16x acceleration

**Stanford University,** Instructor **June 2024 – Aug 2024**
- principal investigator of the EE261 course, Fourier Transform and its Applications

**Bilkent University,** Graduate Researcher, MSc Student **Sep 2019 – Sep 2021**
- developed a multi-stream generative model for robust processing of multimodal medical image data
- designed a 2.5D progressive volumetrization model to leverage 2D simpler subtasks to handle complex 3D recovery
- built a weakly-supervised learning approach for multimodal image synthesis

**Moonsoft Software Company,** Co-founder and Chief Technology Officer **Jul 2020 – Sep 2021**
- led a successful initiative resulting in the acquisition of a $30K grant from the BIGG entrepreneurship support program
- innovated an end product based on deep learning for 3D AutoCAD reconstruction, 50x faster than manual methods
- provided leadership and supervision to a 10-member team, ensuring efficient teamwork and project success

## Selected Publications (Google Scholar link for the full list with 2000+ citations)

- Yurt et al. LTDA-Drive: LLMs-guided gen. models based long-tail data augmentation, under review at EMNLP, 2025
- Yurt et al. Foundation model for image-to-image translation with language guidance, ICCV-VLM3D, 2025
- Yurt et al. Multi-task applications of BERT in natural language processing, Stanford CS224n, 2024
- Yurt et al. Conditional denoising diffusion probabilistic models for inverse MR image recovery, ISMRM, 2023 (top 3%)
- Yurt et al. Semi-supervision for clinical contrast-weighted image synthesis from MRF, ISMRM, 2023 (top 10%)
- Xiang et al. DDM$^2$: Self-supervised diffusion MRI denoising with generative diffusion models, ICLR, 2023
- Yurt et al. Semi-supervised learning of MRI synthesis without fully-sampled ground truths, IEEE TMI, 2022
- Yurt et al. Progressively volumetrized deep generative models for data-efficient contextual learning, MEDIA, 2022
- Dalmaz et al. ResViT: Residual vision transformers for multimodal medical image synthesis, IEEE TMI, 2022
- Yurt et al. mustGAN: multi-stream generative adversarial networks for MR image synthesis, MEDIA, 2021

## Honors & Awards

- **Workshop on Data Sampling, Poster Award:** selected as best poster among 50 candidates
- **Stanford University, L. & B. Terman Fellowship**: full tuition waiver and stipend during the first year
- **UC Berkeley, Graduate Fellowship:** multi-year fellowship awarded to exceptional Ph.D. applicants
- **BIGG Grant Start-Up:** merit-based grant of $30K, awarded to 144 start-ups among 4000 competitors
- **Turkish Prime Ministry Fellowship:** merit-based undegrad fellowship, granted to only 100 students
- **Turkish National University Entrance exam:** ranked 27th among 2.2 million candidates

## Technical Skills

**Programming Languages**: Python, Matlab, Java, C++
**Developer Tools**: LaTeX, VS Code, Jupyter, Inkscape, Illustrator, Imagine
**Technologies/Frameworks**: Linux, PyTorch, TensorFlow, NumPy, Matplotlib, OpenCV, Github