Emircan Gündoğdu

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Personal Website

I am an MSc student in Computer Science at ETH Zürich. My research focuses on 4D human and scene reconstruction using Gaussian splatting at the Computer Vision and Geometry Group, in collaboration with Google Research. Previously, I was a student researcher at KAIST, INSAIT, and Imperial College London. I received my BSc in Computer Engineering from Istanbul Technical University, ranking first. A first-generation scholar.

Education

ETH Zürich — *Zürich, Switzerland*
M.Sc. in Computer Science — *Sep 2024 – Present*

Istanbul Technical University — *Istanbul, Turkey*
B.Sc. in Computer Engineering. GPA: 3.95/4.0. Faculty Rank: 1/267 — *Sep 2019 – Jul 2024*

Core Experience

Google Research & Computer Vision and Geometry Group (CVG), ETH — *Zürich, Switzerland*
Research Project — *February 2025 – ongoing*

- Advised by Dr. Marie-Julie Rakotosaona and Prof. Daniel Barath.
- Developing a feed-forward monocular video pipeline for 4D human–scene reconstruction, combining 3D Gaussian scene representations with SMPL-X human priors and investigating metric scale and translation alignment between reconstructed humans and scenes.

ETH Zürich — *Zürich, Switzerland*
Teaching Assistant — *February 2025 – ongoing*

- Supporting tutorials and preparing course material on computer vision and theoretical machine learning for Advanced Machine Learning, an MSc-level ETH course.
- Preparing applied machine learning, prompt-engineering, and reinforcement learning material for AI and IT in Industry, a MAS-level executive course for business managers.

Interaction Lab (KIXLAB), KAIST — *Daejeon, South Korea*
Visiting Student Researcher — *June 2025 – September 2025*

- Advised by Prof. Juho Kim.
- Researched text-to-video diffusion for complex scene generation, focusing on vision–language reasoning for multi-object interactions, semantic constraints, and scene-level consistency.

INSAIT (Institute for Computer Science, AI and Technology) — *Sofia, Bulgaria*
Research Fellow — *June 2024 – September 2024*

- Advised by Prof. Martin Vechev.
- Analyzed training dynamics in deep networks, focusing on neural collapse, low-rank gradient structure, and their implications for machine unlearning.

Istanbul Technical University — *Istanbul, Turkey*
Research Assistant – Vision Lab — *June 2023 – July 2024*

- Advised by Prof. Gözde Ünal.
- Studied machine unlearning for facial attribute classification, evaluating approximate unlearning methods across ResNet and ViT architectures under single- and multi-attribute removal settings.
- Work accepted to FG 2024 as oral [2].

Research Assistant – Nanomechanics group — *September 2023 – July 2025*

- Applied machine learning and graph-based models to nanomechanics problems, contributing to two publications on data-driven nanoscale material modeling.

Brain And SIgnal Research & Analysis Lab (BASIRA), Imperial College London — *Remote, UK*
Undergraduate Researcher — *November 2022 – June 2024*

- Advised by Prof. Islem Rekik.
- Researched federated learning for longitudinal medical graph prediction, focusing on domain alignment for heterogeneous multi-view brain connectome trajectories across decentralized hospital datasets.
- Work accepted to PRIME @ MICCAI 2023 as oral [3].

Additional Experience

Yapı Kredi Technology *Istanbul, Turkey*
Computer Vision Engineer *June 2022 – June 2024*

- Developed liveness detection models processing hundreds of thousands of in-the-wild customer-uploaded selfies.
- Implemented diffusion models for tabular transaction data generation, processing millions of records.
- Built a supervised vision model to detect and redact sensitive regions on ID cards in scanned documents.

i2i Systems *Istanbul, Turkey*
Software Engineer Intern *August 2021 – September 2021*

- Implemented Oracle SQL database procedures and integrated Hazelcast, Kafka, and Akka in Java.

Projects

3D Point Tracking with Dynamic Reconstruction Methods [Code] *November 2024 – June 2025*
ETH Zürich, Computer Vision and Learning Group

- Benchmarked and analyzed DUSt3R, VGGT, Dynamic 3D Gaussians, and Shape of Motion for 3D point tracking, contributing to the Multi-View 3D Point Tracking project accepted to ICCV 2025 as oral [1].

Texture- and Semantic-Aware Depth Refinement [Code] [Report] *February 2025 – June 2025*
ETH Zürich, Computational Intelligence Lab

- Proposed Dual U-Net, a residual refinement model for zero-shot monocular depth estimation that fuses texture-aware RGB-depth cues and CLIP-conditioned semantic features to improve VGGT depth predictions.

Geometrically Accurate Gaussian Avatars [Code] [Report] *March 2025 – June 2025*
ETH Zürich, Digital Humans

- Integrated recent 3D Gaussian avatar reconstruction components into a 3DGS-Avatar pipeline and evaluated their effect on human geometry and rendering consistency.

Honors & Awards

Imperial College London full M.Sc. scholarship – **One Turkish student/year**, declined for ETH. *2024*
Faculty rank in Computer Engineering – **Rank: 1/267**. *2024*
3 merit-based BSc scholarships. *2019–2024*
Nationwide university entrance exam – **Top 1,600 / 2.5 million** (top 0.06%). *2019*

Professional Expertise

Skills	Computer Vision, 3D Reconstruction, Gaussian Splatting, Advanced Machine Learning, Deep Learning, Machine Unlearning.
Programming	Python, C/C++, Java, SQL, Haskell.
Frameworks	PyTorch, PyTorch Lightning, CUDA, TensorFlow.
Tools	Slurm, Linux, Git, Docker, LaTeX.
Languages	Turkish (native), English (TOEFL 102/120).

Selected Publications

[1] Frano Rajič, Haofei Xu, Marko Mihajlovic, Siyuan Li, Irem Demir, **Emircan Gündoğdu**, Lei Ke, Sergey Prokudin, Marc Pollefeys, and Siyu Tang. "Multi-View 3D Point Tracking". In: *Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**)*. 2025. [Project Page] [arXiv] [Code]. **Oral (top 0.5%)**.

[2] **Emircan Gündoğdu**, Altay Ünal, and Gözde Ünal. "A Study Regarding Machine Unlearning on Facial Attribute Data". In: *IEEE 18th International Conference on Automatic Face and Gesture Recognition (**FG**)*. 2024. [Code]. **Oral**.

[3] **Emircan Gündoğdu** and Islem Rekik. "Alignment for Predicting Heterogeneous Brain Graph Evolution Trajectories from Baseline". In: *International Workshop on Predictive Intelligence in Medicine (**PRIME**) at MICCAI*. 2023. [Code]. **Oral**.