

BERK KIVILCIM

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EDUCATION

Sabanci University

Faculty of Engineering and Natural Sciences

2025 – Ongoing
Istanbul, Turkey

- **Fully Funded Ph.D. in Computer Science and Engineering, GPA: 3.7 / 4.0**
- **Teaching Assistant:** CS419 - Digital Image and Video Analysis, EE417 - Computer Vision
- **Current Ongoing Research:** Studying the Evolutionary Genetic Algorithms for Gaussian Splatting
- **Courses:** Machine Learning, Evolutionary Biology for AI Applications, Deep Learning, Data Mining

Karlsruhe Institute of Technology (KIT)

Department of Civil Engineering, Geo and Environmental Sciences

2022 – 2024
Karlsruhe, Germany

- **Master of Science in Remote Sensing and Geoinformatics, GPA: 1.3** (German Grading Scale – *Very good*)
- **Elective Profile Module:** Computer Vision and Geoinformatics
- **Thesis** [Computer Graphics and Visualization Group (TU Delft), Institute of Photogrammetry and Remote Sensing (KIT), 2024]: *Studying the Geometric Convergence Behaviour of Neural Radiance Fields (NeRFs) for Improving Training Time*
 - Developed an adaptive strategy by utilizing voxels to terminate training when 3D geometric convergence reaches a sufficient level to significantly conserve time and computation resources without compromising the quantitative and qualitative qualities
 - Developed a method that leverage pixel depth information to mask pixels that see converged regions, allowing the model to focus on unconverged regions during training to mitigate the divergence issue that might arise in long-term training
 - Thesis, codes and implementation details shared on [GitHub](#)
- **Lab Rotation II** [Computer Graphics and Visualization Group (TU Delft), Institute of Photogrammetry and Remote Sensing (KIT), 2023]: *Evaluation of NeRF Methods – Impact of Trajectories and Implications for Real-Time 3D Reconstruction*
- **Lab Rotation I** [Geodetic Institute, 2023]: *CityGML to Voxel Conversion for Geodetic Applications – Designing an Efficient Algorithm to Simulate Time Dilations to Test the Precision of Voxelized Methods*
- **Computer Vision Courses:** Computer Vision and Remote Sensing, Advanced Topics in Computer Vision, Active Sensors for Computer Vision, Deep Learning for Computer Vision and Remote Sensing, Seminar Topics of Image Analysis
- **Geoinformatics Courses:** Geoinformatics, Geo-Databases, 3D/4D GIS, Mobile GIS and Location Based Services

Hacettepe University

Geomatics Engineering Department

2016 – 2021
Ankara, Turkey

- **Bachelor of Science in Geomatics Engineering, GPA: 3.01/4.00** (*Honours*)
- **Graduation Project:** Investigation of Forest Fires with Google Earth Engine (as a group of three, 2021)
 - Shared the algorithms and the process of using them with GEE [on GitHub alongside a tutorial](#)
 - Reached the 2021 finals of [TUBITAK](#) 2242 project competition in the environment and energy field
- **Computer Vision Courses:** Digital Imaging and Interpretation, Photogrammetry, Digital Image Processing, Signal Processing, Photogrammetric Image Analysis, Fundamentals of Laser Scanning
- **Geoinformatics Courses:** Geospatial Data Management, Geographic Information Systems, Spatial Analysis, Programming in Geographic Information Systems, Special Topics in Geomatics Engineering

PUBLICATIONS

Co-Author : Extending a GeoDB Framework for AI-Based Analysis of DEM to Support EO A **11 November 2025**

- Liu R., Kuper P.V., **Kivilcim B.**, Breunig M: Extending a Geodatabase Framework for AI-Based Analysis of Digital Elevation Models to Support Earth Observation Applications, *International Conference on Data Science and Artificial Intelligence*. Singapore: Springer Nature Singapore, 2025
https://doi.org/10.1007/978-981-95-4409-7_22

First Author: A Data-Driven Approach for Urban Heat Island Predictions

6 May 2025

- **Kivilem, B.**, Bradley P.E: A Data-Driven Approach for Urban Heat Island Predictions: Rethinking the Evaluation Metrics and Data Preprocessing, *Urban Sci.* **2025**, 9(5), 151, <https://doi.org/10.3390/urbansci9050151>, 2025

Co-Author: Density-based Geometric Convergence of NeRFs at Training Time

13 Dec 2024

- Haitz, D., **Kivilem, B.**, Ulrich, M., Weinmann, M., and Weinmann, M.: Density-based Geometric Convergence of NeRFs at Training Time: Insights from Spatio-temporal Discretization, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-2/W7-2024, 49–56, <https://doi.org/10.5194/isprs-archives-XLVIII-2-W7-2024-49-2024>, 2024

RESEARCH & WORK EXPERIENCE

Sabancı University

Teaching Assistant: “Digital Image and Video Analysis” (Fall 25/25), Computer Vision (Spring 2026)

Karlsruhe Institute of Technology (KIT)

2022 – 2024

Research Assistant at the Geodetic Institute

Karlsruhe, Germany

- Worked on the [Distributed Simulation of Processes in Buildings and City Models](#) research project, predicting urban heat islands to support urban planners by enhancing the correlation rate between indicator parameters, and insights about trained model evaluations with image comparison metrics

Karlsruhe Institute of Technology (KIT)

2023 – 2024

Teaching Assistant: “Numerical Mathematics” (Winter 23/24)

Karlsruhe, Germany

[Akdeniz University](#)

2020 – 2021

Intern at the Department of Space Sciences and Technologies

- Researched various machine-learning algorithms to analyze forest fires with the help of Google Earth Engine

[Geotech Company](#)

2019

Intern

Ankara, Turkey

- Generated 3D surface and terrain models of the city of Medina
- Studied the impact of different filtering parameters on the generation of terrain models

SKILLS & QUALIFICATIONS

- **Technical:** Python, Nerfstudio, 3DGS, Matlab, QGIS, PostgreSQL, LaTeX, Javascript, Erdas
- **Research Interests:** **Main Interests:** Deep Learning and Artificial Intelligence, Gaussian Splatting, Neural Radiance Fields, Computer Vision, Geoinformatics, Data Science
Familiar Topics: Geodesy, Photogrammetry, Remote Sensing
- **Language:** Turkish (Native), English (Advanced)
IELTS Academic: Overall Score: C1 - 7.0 (L: 7.5, R: 7.5, W: 6.0, S: 6.0)
- **Activities:** President of capoeira community at Hacettepe University 2017 – 2019
[Competitor in the Capoeira World Championship, senior category](#) 2018
Vice-president of capoeira community at Hacettepe University 2016 – 2017

REFERENCES

- **Prof. Dr. Martin Breunig** martin.breunig@kit.edu Tel: +49 (0)721 608 42302
- **Dr. Patrick Erik Bradley** erik.bradley@kit.edu Tel: +49 (0)721 608 47304
- **Prof. Dr. Mustafa Türker** mturker@hacettepe.edu.tr Tel: +90 (0) 312 297 6990
- **Assoc. Prof. Dr. Berk Anbaroğlu** banbar@hacettepe.edu.tr Tel: +90 (0)533 360 4032

MORE INFORMATION AVAILABLE ON [GITHUB](#)
