

# KORAY AKSU

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Istanbul Technical University, Faculty of Civil Engineering, Department of Geomatics Engineering, Maslak, Istanbul, 34469, Turkey

## OBJECTIVE

Koray Aksu received a Bachelor's degree in Geomatics Engineering and Civil Engineering (double major) from Istanbul Technical University, Türkiye, and an M.Sc. degree in Geomatics Engineering from the same institution. He is pursuing a Ph.D. in Geomatics Engineering, focusing on Geographic Information Systems, Agent-Based Modeling, and Deep/Reinforcement Learning. His current research interests include spatial data analysis, BIM and Game Engine integration, rule-based spatial simulations, 3D reconstruction, Scan to BIM, and point cloud segmentation.

## EXPERIENCE

- **Istanbul Technical University**  2021 - Present  
Research Assistant Istanbul, Turkey

## EDUCATION

- **Istanbul Technical University** 2023 - Present  
Geomatics Engineering (PhD) Istanbul, Turkey
  - GPA: 3.93/4.00
- **Istanbul Technical University** 2020 - 2023  
Geomatics Engineering (MSc) Istanbul, Turkey
  - GPA: 3.94/4.00
- **Istanbul Technical University** 2017 - 2021  
Civil Engineering (BSc) Istanbul, Turkey
  - GPA: 3.26/4.00
- **Istanbul Technical University** 2016 - 2020  
Geomatics Engineering (BSc) Istanbul, Turkey
  - GPA: 3.41/4.00

## PROJECTS

- **Positive ROBust Ped Localities - PROPEL** 2023 - 2026  
Project Supported by the Scientific and Technological Research Council of Türkiye, 122N696, ENPED  
Hande Demirel (Executive)
- **Building Information Model Based Fire Evacuation Simulation - YBIMS** 2021 - 2024  
Project Supported by the Scientific and Technological Research Council of Türkiye, 121Y099, 1001  
Hande Demirel (Executive)
- **Production of High-Definition Maps for ITU Ayazağa Campus Digital Road Infrastructure** 2021 - 2023  
Project Supported by the Istanbul Technical University Scientific Research Projects Coordination Unit, 43340, GRP  
Mustafa Yanalak (Executive)
- **Effects of Cooperative Vehicle Dynamics in Traffic Flow Modeling: Simulation and Control** 2021 - 2023  
Project Supported by the Scientific and Technological Research Council of Türkiye, 120M576, 1001  
Hilmi Berk Çelikoğlu (Executive)

## PATENTS AND PUBLICATIONS

C=CONFERENCE, A=ARTICLE, P=PATENT, S=IN SUBMISSION, T=THESIS

- [A.1] Aldoğan, C.F., **Aksu, K.**, Demirel, H. (2024). Enhancement of Sentinel-2A Images for Ship Detection via Real-ESRGAN Model. *Applied Sciences*, Vol. 14(24), 11988. DOI: 10.3390/app142411988
- [A.2] **Aksu, K.**, Demirel, H. (2024). Extracting Structural Elements From 3D Point Clouds in Indoor Environments via Machine Learning Techniques. *IEEE Access*, Vol. 12, pp. 94461 - 94476. DOI: 10.1109/ACCESS.2024.3423425
- [A.3] **Aksu, K.**, Demirel, H. (2024). Integration of Building Information Model into a Game Engine Platform for Indoor Accessibility Analyses. *WSEAS Transactions on Environment and Development*, Vol. 20, pp. 391-396. DOI: 10.37394/232015.2024.20.36
- [C.1] **Aksu K.**, Aşıroğlu, A. A., Terzi A. F., Koçyiğit A., Demirel H. (2024). Yapı Bilgi Modelinin Görselleştirilmesi: Mekansal Gösterge Paneli. In 8. *Coğrafi Bilgi Sistemleri Kongresi 2024*, Ankara, Türkiye.
- [C.2] **Aksu K.**, Koçyiğit A., Terzi A. F., Demirel H. (2024). Yapı Bilgi Modellemede Semantik Zenginleştirme ve Güncelleştirme için Farklı Ölçme Tekniklerinin Uygulanması. In IX. *Uzaktan Algılama ve Coğrafi Bilgi Sistemleri Sempozyumu (UZAL-CBS 2024)*, Aksaray, Türkiye.

- [C.3] Koçyiğit A., Terzi A. F., **Aksu K.**, Demirel H. (2024). Pandemi Öncesi ve Sonrası Trafiğin Çevresel ve Sosyal Etkilerinin CBS Tabanlı Analizi. In *IX. Uzaktan Algılama ve Coğrafi Bilgi Sistemleri Sempozyumu (UZAL-CBS 2024)*, Aksaray, Türkiye.
- [C.4] Terzi A. F., Koçyiğit A., **Aksu K.**, Demirel H. (2024). Ataşehir İlçesinin 15 Dakikalık Şehir Kavramı Açısından İncelemesi. In *IX. Uzaktan Algılama ve Coğrafi Bilgi Sistemleri Sempozyumu (UZAL-CBS 2024)*, Aksaray, Türkiye.
- [C.5] **Aksu K.**, Günaydın E., Duran Z., (2024). Comparative Analysis of 3D Models Generated by Close Range Photogrammetry and Smartphone-Based LiDAR Sensor. In *9th Advanced Engineering Days (AED)*, pp. 295-297, Tabriz, Iran.
- [C.6] **Aksu K.**, Özcan T., Karadağ İ., Demirel H. (2023). Üç Boyutlu Yapı Bilgi Modeli Kullanılarak Yangın Dinamiği ve Yangın Tahliyesinin Simülasyonu. In *Uluslararası Yangın ve Güvenlik Sempozyumu ve Yangın Güvenliği Sergisi*, İstanbul, Türkiye.
- [C.7] **Aksu K.**, Demirel H., Alkan R.M., Yanalak M. (2023). Digital Transformation of Campuses: The Role of HD Map. In *European Transport Conference 2023*, Milan, Italy.
- [C.8] **Aksu K.**, Arslan A.E., Demirel H. (2023). Makine Öğrenme Yöntemleri ile İç Mekan Nokta Bulutlarının Semantik Segmentasyonu. In *TUFUAB XII. Teknik Sempozyumu*, Sivas, Türkiye.
- [C.9] **Aksu K.**, Demirel H. (2023). Kapalı Alan Yangın Tahliye Senaryolarının Dijital Ortamda Oluşturulması. In *Mimarlık ve Yangın Sempozyumu*, pp. 47-54, İstanbul, Türkiye.
- [T.1] **Aksu, K.** (2023). Classification of three-dimensional point cloud via machine learning methods. Graduate School, İstanbul Technical University, Thesis Advisor: Prof. Dr. Hande Demirel.

## SKILLS

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- **Programming Languages:** Python, C#, Java
- **Database Systems:** PostgreSQL/PostGIS
- **Data Science & Machine Learning:** Pytorch, Keras/Tensorflow, Docker
- **Cloud Technologies:** High Computing Grid Systems, Kaggle, Google Colab, Google Earth Engine
- **Mathematical & Statistical Tools:** MATLAB
- **Other Tools & Technologies:** QGIS, ArcGIS Pro, CloudCompare, Feature Manipulation Engine (FME), Revit, DynamoBIM, AutoCAD, Blender, Unity3D, Agisoft Metashape

## HONORS AND AWARDS

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- **Graduate Thesis Competition** December 2024  
*IEEE GRSS Türkiye Chapter* 
  - Best M.Sc. Thesis Award - First Place

## PROFESSIONAL MEMBERSHIPS

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- **IEEE Graduate Student Member**, Membership ID: 100018430 2024 - Present
- **Turkish Chamber of Survey and Cadastre Engineers**, Membership ID: 23387 2023 - Present

## ADDITIONAL INFORMATION

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**Languages:** Turkish, English

Updated: 16/01/2025