

PERSONAL INFORMATION

Dr. Deniz Gerçek



📍 Izmir Institute of Technology (IZTECH), Gülbahçe Campus, 35430 Urla, İzmir, Türkiye

✉ denizgercek@iyte.edu.tr

WORK EXPERIENCE

2020 - current

Associate Professor

Izmir Institute of Technology (IZTECH), Turkey (<https://en.iyte.edu.tr/>)

City and Regional Planning

- Higher education and research
- Research Themes: Climate Change- Disaster Risk & Resilience – Urban Quality of Life,
- Methods & Technologies: GeoAI - GIS - Remote Sensing - Spatial Analysis - Spatial Statistics

2015 - 2019

Assistant Professor

Kocaeli University, Turkey

Department of Architecture

- Higher education
- Research: Disaster Risk & Resilience – GIS, Remote Sensing

2011 - 2015

Research Assistant, PhD

Kocaeli University, Turkey

Signal and Image Processing Laboratory, Electrical & Telecommunications Engineering Department

- research
- Remote Sensing – Image Processing

2008 (6 months)

Visiting Researcher

Z-GIS Salzburg, Austria

Zentrum für GeoInformatics (Center of Excellence)

- Research:
- Object-based Image Analysis (OBIA)

2002 - 2010

Research Assistant

Middle East Technical University (**METU**), Turkey

Remote Sensing and GIS Laboratory, Geological Engineering Department

- Research
- GIS – Remote Sensing – Terrain Modeling

1999 - 2002

GIS Specialist

HAT GIS Inc., Turkey

GIS Solutions

- project development and management - GIS technical support

EDUCATION AND TRAINING

2010 **Ph.D.**

Middle East Technical University (**METU**) - Geodetic and Geographic Information Technologies

- Model development for automated classification of terrain features using Object-based Image analysis (OBIA)

2003 **M.Sc.**

Middle East Technical University (**METU**) - Geodetic and Geographic Information Technologies

- Remote Sensing – Automated Landuse/Landcover classification

1999 **B.Sc.**

Gazi University – Urban Planning

- City and Regional Planning, Faculty of Engineering and Architecture

PERSONAL SKILLS

Mother tongue(s) **Turkish**

Other Language(s)

English C1**German** A1

ADDITIONAL INFORMATION

Google Scholar:

<https://scholar.google.com/citations?user=v3Ldzl0AAAAJ&hl=en>

Linked In:

<https://www.linkedin.com/in/deniz-ger%C3%A7ek-646a1a18/>

Publications
(SCI, SCIE, SSCI, AHCI)

GERÇEK D., (2026). Urban Resilience as Lived Experience: A Structural Evaluation of Residential Satisfaction in Post-Earthquake Izmit. *Sustainability*, 18, 5877. Doi: 10.3390/su18125877

GERÇEK D., YUCEER H., OZCAN Y., USTUK O., UZELLI T., GULER S., BABAA. (2025). Traditional Water Harvesting Systems In Climate Change Adaptation: Insights From A Semi-Arid Mediterranean Village. *METU Journal of the Faculty of Architecture*, 42(1), 203-227.

GERÇEK D., GÜVEN İ.T., (2023). Urban Earthquake Vulnerability Assessment and Mapping at the Microscale Based on the Catastrophe Progression Method, *International Journal of Disaster Risk Science*, 14, 768–781. Doi: 10.1007/s13753-023-00512-y

GERÇEK D., GÜVEN İ.T., (2023). Assessment of Mutual Variation of Near-Surface Air Temperature, Land Surface Temperature and Driving Urban Parameters at Urban Microscale, *Sustainability*, 15(22), 15710. Doi: 10.3390/su152215710

YUCEER H., BABAA., GONULAL Y.Ö., UŞTUK O., **GERÇEK D.**, GÜLER S., UZELLİ U., (2021) Valuing groundwater heritage: the historic wells of Kadiovacık, *Geoheritage* 13 (4), 97. Doi: 10.1007/s12371-021-00625-0

GERÇEK D. (2017). A Conceptual Model for Delineating Land Management Units (LMUs) Using Geographical Object-Based Image Analysis. *International Journal of Geo-Information*, 6(6), 1-18. Doi: 10.3390/ijgi6060170

GERÇEK D., ÇESMECI D., GÜLLÜ MK., ERTÜRK A., ERTÜRK S., (2016). Automated co registration of satellite images through luminance transformation. *The Photogrammetric Record*, 31(156), 407-427. Doi: 10.1111/phor.12160

ERTÜRK A., GÜLLÜ MK., ÇESMECI D., **GERÇEK D.**, ERTÜRK SARP, (2014). Spatial Resolution Enhancement of Hyperspectral Images Using Unmixing and Binary Particle Swarm Optimization. *IEEE Geoscience and Remote Sensing Letters*, 11(12), 2100-2104. Doi:10.1109/LGRS.2014.2320135

ERTÜRK A., ÇESMECI D., GÜLLÜ MK., **GERÇEK D.**, ERTÜRK S., (2014). Endmember Extraction Guided by Anomalies and Homogeneous Regions for Hyperspectral Images. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 7(8), 3630-3639. Doi: 10.1109/JSTARS.2014.2330364

GERÇEK D., TOPRAK V., STROBL J., (2011). Object based classification of landforms based on their local geometry and geomorphometric context. *International Journal of Geographical Information Science*, 25(6), 1011-1023., Doi: 10.1080/13658816.2011.558845

Publications
(other international)

MARAL Ş., **GERÇEK D.** (2026). Assessment of Factors Affecting Water Consumption: The Case of İzmir, Türkiye, Gazi University Journal of Science, 39(1), 147-175.

AYDIN H., **GERÇEK D.** (2026). Vulnerability Assessment in the Context of Earthquake Resilience: Case Study of Bayraklı, İzmir, Turkey. Journal of Natural Hazards and Environment, 12(1), 1-32.

GERÇEK D., (2024). Assessment of the trending change of climate conditions in relation to the environmental degradation: The case of İzmir and Karaburun Peninsula, Athens Journal of Mediterranean Studies 2024, 10: 1-10

GERCEK D. (2023). Assessment of Spatial Clustering of Socioeconomic Variables and Facilities at District Level: The Case of Körfez-Derince-İzmit, *Resilience*, 7 (2), 209-220.

ÖZTURK S., **GERCEK D.**, GUVEN IT., GAGA E., OZDEN O., CIVAN M., (2021). Particulate Matter (Pm2.5) Concentration Levels, Spatial and Seasonal Evaluation in Kocaeli Izmit District, *Journal of Engineering Sciences and Design*, 9(3), 809-821.

GERCEK D., GUVEN IT., (2021). Perceived Safety and Affecting Factors In Urban Neighbourhoods. *Journal of Engineering Sciences and Design*, 9(2), 554-560., Doi:10.21923/jesd.675141

GERCEK D., GUVEN IT., (2018). , Analysis of Distribution Pattern and Properties of Public Security Crimes in an Urban Environment: Case of izmit City, *Journal of Engineering Sciences*, 6 (2), 265-272

GERCEK D., GUVEN IT., (2017)., Evaluating The Sufficiency, Accessibility and Integrity of Green Spaces in Urban Environments, *Journal of Engineering Sciences & Design*, 5 (2), 393-397

GERCEK D., GUVEN IT., (2016)., Analysis of Urban Resilience Through Geographic Information Systems: Earthquake and Izmit City, *Electronic Journal of Map Technologies*, 8(1), 51-64.

GERÇEK D., ÇESMECİ D., GÜLLÜ MK., ERTÜRK A., ERTÜRK S., (2012). Accuracy improvement and evaluation measures for registration of multisensor remote sensing imagery. *Journal of Geodesy and GeoInformation* (JGG), 1(2), 97-103.

Projects

Lead (2020 -2025) - Evaluation of Earthquake Resilience of Cities with Spatial Analysis Methods: The Case of Izmit City, Funding: Disaster and Emergency Management Presidency, Türkiye (**AFAD**),

Researcher (2021 -2024) - Tool development for urban building energy modelling (UBEM) against climate change supported by machine learning and building simulations, Funding: Scientific and Technological Research Council of Türkiye (**TÜBİTAK-1001**)

Researcher (2021 -2025) - The Effect of Simulation-based Earthquake Scenarios in İzmir Bornova Basin on the Distribution of Structural Vulnerability and Resilient Urban Planning, Funding: Scientific and Technological Research Council of Türkiye (**TÜBİTAK-1001**)

Lead (2018-2020) - Assessment of the Spatial Variation of Urban Quality of Life: The Case of Izmit City, Funding: Kocaeli Metropolitan Municipality

Lead (2016-2018) - Identification and Assessment of Urban Heat Island Effect in Kocaeli, Funding: Kocaeli Metropolitan Municipality

Lead (2013-2016)- Accuracy Improvement of Hyperspectral Images through Sub-pixel based Approaches, Funding: Scientific and Technological Research Council of Türkiye- EEEAG (**TÜBİTAK-1001**)

Lead (2006-2007) - Assessment of the Distribution of Settlements for their Potential Relationship with Topography, Funding: Ministry of Development

Researcher (2004-2006) - Monitoring of change in Büyük Menderes delta coastline with remote sensing and GIS, Funding: Scientific and Technological Research Council of Türkiye (**TÜBİTAK-1001**)

Presentations in
Conferences

GERCEK D., GUVEN IT., ERDOGAN H. (2024). Comparison of the Objective Building Performance values based on the Rapid Visual Screening Technique and the Subjective Perception of Building Earthquake Resilience Based on Surveys, International Disaster Resilience Congress (IDRC), December 16-19, Ankara

GERÇEK D., (2024). Spatial analysis of local scale socioeconomic disparities: The case of İzmir". 23rd Conference on Demographics and Regional Policies, 18-19 October 2024, Heraklion Greece

GERÇEK D., (2024). Assessment of the trending change of climate conditions in relation to the environmental degradation: The case of İzmir and Karaburun Peninsula, 12th Annual International Conference on Ecology, Ecosystems and Climate Change, 15-18 July 2024, Athens, Greece

GERCEK D., GUVEN IT., ERDOGAN H. (2023). Earthquake Vulnerability Assessment with Spatial Analysis and Modelling Methods: The Case of Izmit City. IDRC 2023 - 5th International Disaster and Resilience Congress, 437.

MARAL S, **GERÇEK D.**, (2022). Domestic Water Consumption In The Karaburun Peninsula. GEDİZSEM 2022 - International Symposium of Gediz and Ege River Basins

GULER S., YUCEER H., BABAA., OZCAN y. USTUK O, **GERCEK D.**, UZELLI T., (2022). Water Heritage for Future: The Groundwater Route of Peninsula (Izmir, Türkiye). SW22 - The Second Edition of MAASI Scientific Week

GERCEK D., YUCEER H., OZCAN Y., USTUK O., UZELLI T., GULER S., BABAA. (2021). An Interdisciplinary Approach in Examination of Traditional and Local Water Harvesting Methods Within the Context of Climate Change Resilience: Barbaros Village, Karaburun Peninsula. IDRC 2021 - 3rd International Disaster and Resilience Congress, 37-38.

ERTEM H., VELIBEYOGLU K., **GERCEK D.**, (2020). A Review on Critical Infrastructure and Its Applications. IDRC 2020- 2nd International Disaster and Resilience Congress, 261-267.

GUVEN IT., **GERCEK D.**, (2019). Site Selection for Solar Energy Panels Using Geographic Information Systems. Second International Conference on Life and Engineering Sciences, 1(1), 105-111.

GERCEK D., GUVEN IT., (2019). Exploring Factors Contributing Perceived Safety in Urban Neighbourhoods. 2nd International Conference on Life and Engineering Sciences, 1(1), 1-6.

GERCEK D., GUVEN IT., (2017). Analysis of Urban Built Environment within the Scope of Assessing Urban Quality of Life. International Symposium on GIS Applications in Geography and Geosciences, 148-148.

GUVEN IT., **GERCEK D.**, (2017). The GIS-based Earthquake Risk and Network Analysis of Degirmendere. International Symposium on GIS Applications in Geography and Geosciences, 121

GERCEK D., GUVEN IT., (2017). Assessment of measures of Urban Built Environment versus Socio-economic Indicators in a Socio-geographical Perspective. The IAFOR International Conference on the City, Barcelona, Spain

GERCEK D., GUVEN IT., (2017). Analysis of Public Security Crimes at District Level in an Urban Environment. GI_Forum, Salzburg, Austria

GERCEK D., GUVEN IT., (2016). Geographical Information Systems in Crime Analysis. IV. International Contemporary Urban Issues Conference, 1(1), 25-31.

GERCEK D., GUVEN IT., (2016). Developing Resilience through Spatial Organization and Accessibility of Health Facilities in Urban Environments. SBE2016 Smart Metropolises, 1(1), 444-453.

GERCEK D., GUVEN IT., OKTAY IC., (2016). Analysis of the Intra City Variation of Urban Heat Island and its Relation to Land Surface Cover Parameters. ISPRS 2016, XXIII ISPRS Congress, 8, Prague, Czech Republic

GERCEK D., (2015). Implementation of International standards for Spatial Data Example of INSPIRE. 12th International Conference "Standardization, Prototypes and Quality, 269-276.

ERTURK A., CESMECI D., **GERCEK D.**, GULLU MK., ERTURK S. (2013). Integrating anomaly detection to spatial preprocessing for endmember extraction of hyperspectral images. 1087-1090, IEEE Geoscience and Remote Sensing Symposium (IGARSS), Melbourne, Australia

GERCEK D., CESMECI D., GULLU MK., ERTURK A., ERTURK S. (2012). An automated fine registration of multisensor remote sensing imagery. 1361-1364. Geoscience and Remote Sensing Symposium (IGARSS 2012), Munich, Germany

GERCEK D., ZEYDANLI U., (2010). Object based Classification of Landscape into Land

Management Units LMUs. GEOBIA 2010 Conference, Ghent, Belgium

GERCEK D. (2009). Object based classification of landforms based on their local geometry. Object-Based Landscape Analysis Symposium, 27-27., Nottingham, U.K.

GERCEK D. (2006). Mapping Land Cover on a Continental Region with the use of Remotely Sensed and Digital Terrain Data. International Symposium on Terrain Analysis and Digital Terrain Modelling (TADTM 2006), Nanjing, China

GERCEK D. (2004). Improvement of Image Classification with The Integration of Topographical Data. XXth ISPRS Congress, Istanbul, Turkey

Honours and awards

Project Performance Award (2017), Scientific and Technological Research Council of Turkey (TÜBİTAK)

Best Researchers Award (2018), Kocaeli University, Turkey

Refereeing

International Journal of Geographic Information Science (SCI)

European Journal of Remote Sensing (SCIE)

IET Image Processing (SCIE)

Journal of Selected Topics in Applied Remote Sensing (SCIE)

Remote Sensing (SCIE)

International journal of Geo-Information (SCIE)

Sustainability (SCIE)

Buildings (SCIE)

Diversity (SCIE)

Journal of Mountain Science (SCIE)

Geoderma (SCIE)

Natural Hazards (SCIE)

Scientific Reports (SCIE)

Courses Offered

Undergraduate

CP 266 Introduction to GIS

CP 466 Basics of Remote Sensing

CP 469 Planning Support Systems

CP 201 Site Planning

Graduate

CP 561 Advanced GIS

CP 562 Remote Sensing and Image Processing

CP 559 Spatial Statistics, Analysis and Modeling

CP 524 Disaster Risk and Resilience Assessment

CP 502 Studio Options

IWR 522 GIS Applications in Water Resources Science