

Curriculum Vitae

EMRE DEMIR, Ph.D.

EDUCATION

University of Missouri - Columbia **Columbia, MO, USA**
Ph.D., Civil Engineering - Transportation **May 2013**

- Dissertation title: "Identification and Characterization of Network Paths"

Newcastle University **Newcastle upon Tyne, UK**
M.Sc., Transport Engineering and Operations **Oct 2008**

- Dissertation title: "Vehicle and Household Characteristics and Their Contributions to Carbon Footprint in Tyne-Wear Region"

Boğaziçi University (ABET Accredited) **Istanbul, Türkiye**
B.Sc., Civil Engineering **Jun 2007**

- Project title: "Preliminary Design of an Interchange on E-5 Motorway"

POSITIONS

Assistant Professor (Aug 2014 - Jun 2024) & Associate Professor (Jun 2024 - present)
Department of Civil Engineering, Faculty of Engineering and Natural Sciences, Antalya Bilim University

Administrative Work for the Faculty of Engineering and Natural Sciences

- Faculty Administrative Board member: Assistant professor faculty representative. (25.04.2022-present)
- Social contribution commission: The faculty representative (02.05.2023-present)

Administrative Work for the Department

- Social contribution and publicity commission member (09.11.2022-present)
- Member of foreign languages education commission member (02.11.2020-present)
- Adjustment and course adaptation commission member (08.05.2019-present)
- Deputy Head of Department (05.02.2019-31.03.2022)
- Complaint management system unit officer (28.11.2019-09.11.2022)
- International student admission commission member (08.05.2019-30.09.2021)
- Member of Erasmus+ department coordinators (08.05.2019-30.09.2021)
- Curriculum and education commission member (28.11.2019-30.09.2021)
- Accreditation Commission member for Müdek (24.07.2019-30.09.2021)
- Internship directive commission member (09.01.2017-03.03.2017)
- Head of Department (14.11.2016-26.01.2017)

Research in the areas of Transportation Engineering, Transportation, Traffic, Optimization, Multi-criteria decision making (MCDM)

- Possessing the ability to conduct high-quality, independent research for publication in reputable journals
- Actively participating in scientific meetings, shares personal research, and stays current with developments in the field.
- Maintaining an organized and timely approach to scientific activities.
- My research outputs are in the section of 'Publications' below.

Teaching Work for the Department

- *Undergraduate level teaching in English:* Transportation Engineering, Traffic Systems, Surveying, Earth Sciences, Materials Science, Engineering Drawing, Statics, Mechanics of Materials, Building Science and Technologies, Civil Engineering Case Studies, Senior Project, Industrial Training
- *Graduate level teaching in English and Turkish:* Traffic Flow Theory, Intelligent Transportation Systems, Case Studies in Traffic Engineering, Master Thesis

Assistant Professor (Jul 2018 - Nov 2022)

Construction Technologies Department, Vocational School, Antalya Bilim University

Administrative Work for the Department

- Head of Department (18.07.2018-16.11.2022)

Teaching Work for the Department

- *Teaching in Turkish:* Transportation Techniques, Surveying, Earth Sciences, Graduation Project

Control and Project Engineer (Jul 2013 - Jul 2014)

Compulsory service work, Istanbul

*Reconnaissance and technical report writing based on used structures and future projects
Inspections on site according to data from approved projects*

Research Assistant (Dec 2009 - May 2013)

Department of Civil and Environmental Engineering, University of Missouri - Columbia

Inferring network paths from discrete point observations

- Developed unique automated optimization methodology that infers paths from spatio-temporal data (e.g., Global Positioning Systems (GPS) point observations).
- Compared the new model with the traditional techniques, and presented the superiority of the new algorithm.

Associating discrete observations of activities with epoch based ancillary data

- Developed a methodology of geospatial data transfer and matching GPS and physical activity measurements.
- Explored GPS observations matched with on-board accelerometry data on a Geographic Information Systems (GIS) environment.

Assessing geospatial context of travel paths inferred

- Associated geographical features such as land use/land cover and recreational opportunities with transportation related movement activities.

Evaluating path similarity and comparing travel paths

- Developed methodologies and processing systems assessing the extent to which a set of travel paths correspond to one another using optimization techniques and available GIS tools.

Teaching Assistant (Oct 2008 - Jul 2009)

Department of Civil Engineering, Istanbul Kültür University

Semester-long projects, Problem solving sessions, review sessions, grading, preparing online course materials

- Assisted with courses: Transportation Engineering and Infrastructure, Statics, Strength of Materials, Surveying, Introduction to Civil Engineering.

PUBLICATIONS

Articles Published in International Peer-reviewed Journals (SCI, SCI-expanded, SSCI, ESCI)

- Akgöl, K., **Demir, E.**, Aydogdu, I., & Murat, Y. S. (2024). Efficiency in public transportation: a new flow direction method for optimizing multi-route networks. *Transportation Letters*. DOI: 10.1080/19427867.2024.2437849 (accepted) (SCI-e)
- Sadic, S., **Demir, E.**, & Crispim, J. (2024). Towards a connected world: Collaborative networks as a tool to accomplish the SDGs. *Journal of Cleaner Production*, 142726. DOI: 10.1016/j.jclepro.2024.142726 (SCI-e)
- Şimşek, H., & **Demir, E.** (2024). Determination of pharmacy transportation quality index based on a fuzzy approach: a case study in Antalya. *Transport*. (accepted) (SCI-e)
- Ak, M. F., & **Demir, E.** (2024). A novel qualitative risk assessment using the interval-valued spherical fuzzy extension of TOPSIS method: a case study in rail transit systems. *Neural Computing and Applications*, 36(10), 5109-5132. DOI: 10.1007/s00521-023-09224-2 (SCI-e)
- Akgöl, K., **Demir, E.**, & Aydoğdu, İ. (2024). Path inference implementing the cluster path covering method. *Pamukkale University Journal of Engineering Sciences*, 30(1), 53-62. DOI: 10.5505/pajes.2023.09522 (ESCI)
- **Demir, E.**, Ak, M. F., & Sarı, K. (2023). Pythagorean fuzzy based AHP-VIKOR integration to assess rail transportation systems in Turkey. *International Journal of Fuzzy Systems*, 25(2), 620-632. DOI: 10.1007/s40815-022-01404-x (SCI-e)
- **Demir, E.** (2022). Weiszfeld, tree-seed, and whale optimization algorithms comparison via locating transportation facilities with weightings considering the vulnerability and uncertainty. *Plos one*, 17(6), e0269808. DOI: 10.1371/journal.pone.0269808 (SCI-e)
- **Demir, E.**, & Kockal, N. U. (2019). Iterative methodology on locating a cement plant. *Journal of Inequalities and Applications*, 2019(1), 174. DOI: 10.1186/S13660-019-2122-7 (SCI-e)
- Matisziw, T. C., & **Demir, E.** (2016). Measuring spatial correspondence among network paths. *Geographical Analysis*, 48(1), 3-17. DOI: 10.1111/GEAN.12078 (SSCI)
- Matisziw, T. C., & **Demir, E.** (2012). Inferring network paths from point observations. *International Journal of Geographical Information Science*, 26(10), 1979-1996. DOI: 10.1080/13658816.2012.674137 (SCI-e)

Articles Published in International Peer-reviewed Journals (Other indexed journals)

- Shaukat, N., Sadic, S., & **Demir, E.** (2024). Sustainability assessment of public transportation in Twin Cities of Pakistan: a DEMATEL analysis. *Journal of Turkish Operations Management*, 8(2), 426-441. DOI: 10.56554/jtom.1505796
- **Demir, E.**, & Uçar, S. (2021). Effect of traffic flow on electricity generation with photovoltaic panels on roads. *Urban Academy*, 14(2), 335-346. (in Turkish) DOI: 10.35674/kent.873920
- **Demir, E.**, & Akar, C. (2021). Artificial neural networks driven data-based optimization analysis to locate crisis reaction offices for marine transportation in Antalya. *International Journal of Engineering and Applied Sciences*, 13(4), 126-139. DOI: 10.24107/ijeas.1031068
- **Demir, E.** (2021). Traffic data based ideal airport suggestions providing regional service in disasters. *Journal of Natural Hazards and Environment*, 7(1), 101-109. (in Turkish) DOI: 10.21324/dacd.732727
- **Demir, E.** (2018). Determining the most suitable location for receiving support in emergency cases prior to takeoff at airports by applying the Weber problem. *Turkish Geographical Review*, (70), 81-85. (in Turkish) DOI: 1917211/tcd.396278

Authored International Book Chapters

- **Demir, E.** (2024). Evaluation of rail transportation stops efficiency in Antalya by applying Intuitionistic Fuzzy TOPSIS analysis. In *Interdisciplinary Studies on Contemporary Research Practices in Engineering in the 21st Century-VI*, Özgür Publications, Gaziantep, Türkiye, 89-102. ISBN: 978-975-447-882-2 DOI: 10.58830/ozgur.pub426

- **Demir, E.** (2023). A TOPSIS-based evaluation of urban transportation and supermarket accessibility: A case study of Konyaaltı in Antalya. In *Sustainable Transportation Systems in Civil Engineering and Managerial Informatics Assessments in Construction Systems*, BIDGE Publications, Ankara, Türkiye, 25-44. ISBN: 978-625-6707-52-8
- Yalçın, M. E., & **Demir, E.** (2021). Traffic-induced road noise reduction: A case study in Izmir. In *Recent Researches in Engineering Sciences, Livre de Lyon, Lyon, France*, 79-105. ISBN: 978-2-38236-155-9
- **Demir, E.** (2020). Network distance coefficient effect on determining transportation facility location. In *Academic Studies in Engineering Sciences, Livre de Lyon, Lyon, France*, 171-181. ISBN: 978-2-38236-050-7
- Al-Turjman, F., & **Demir, E.** (2019). Drones path planning for collaborative data collection in ITS. In *Drones in IoT-enabled Spaces* (pp. 59-74). CRC Press. ISBN: 978-0-42929-432-7

Full-text Papers Presented at International Scientific Meetings and Published in Proceedings

- **Demir, E.** & Kockal, N.U., “Utilization of repulsion weights application as an optimizing parameter,” *Proceedings Book of the 5th Mediterranean International Conference of Pure and Applied Mathematics and Related Areas - MICOPAM 2022*, 85-87, Antalya, Türkiye, 2022. ISBN: 978-625-00-0917-8
- **Demir, E.** & Bulut, B., “Transportation detouring and facility location optimization after the flood in the Black Sea region,” *13th International Scientific Conference on Aeronautics, Automotive and Railway Engineering and Technologies - BulTrans-2022, Technical University of Sofia*, 33-39, Sozopol, Bulgaria, 2022. ISSN: 1313-955X
- Alagok, E., Simsek, E., **Demir, E.** & Ozgun, K., “Effects of pedestrian traffic changes due to COVID-19 pandemic: case study in Antalya, Turkey,” *6th International New York Conference on Evolving Trends in Interdisciplinary Research & Practices Proceedings Book*, 132-138, New York, NY, USA, 2022. ISBN: 978-1-955094-20-7
- Yalçın, M. E. & **Demir, E.**, “Application of noise barriers between Bayraklı-Ege University considering regional differences,” (in Turkish) *Proceedings Book of the 3rd International Aegean Symposiums on Innovation Technologies and Engineering*, 37-45, ISPEC Publishing House, İzmir, Türkiye, 2021. ISBN: 978-625-7720-27-4
- **Demir, E.**, Sandıkçioğlu Deniz, T. & Deniz, C., “Shopping mall parking lot entrance application in metropolitan cities: Antalya case,” (in Turkish) *Proceedings Book of the 3rd International Congress of Academic Research - ICAR 2020*, 781-789, Bolu, Türkiye, 2020. ISBN: 978-625-7813-05-1
- **Demir, E.** & Çalışkan, B., “An audit on application of traffic calming devices in Korkuteli-Tefenni road district,” *Proceedings Book of the 3rd International Congress of Academic Research - ICAR 2020*, 610-621, Bolu, Türkiye, 2020. ISBN: 978-625-7813-05-1
- **Demir, E.**, & Aydoğdu, İ. (2020, April). Transportation path assignment within the airports in Turkey. In *International Conference on Harmony Search Algorithm* (pp. 207-217). Singapore: Springer Singapore. ISBN: 978-981-15-8602-6, DOI: 10.1007/978-981-15-8603-3_19 (**Scopus**)
- Kale, B. N., Aydoğdu, İ., & **Demir, E.** (2020, April). Performance of the whale optimization algorithm in space steel frame optimization problems. In *International Conference on Harmony Search Algorithm* (pp. 139-154). Singapore: Springer Singapore. ISBN: 978-981-15-8602-6, DOI: 10.1007/978-981-15-8603-3_13 (**Scopus**)
- **Demir, E.**, “Recurrent process on appointing an aid site: a case for airports,” *Proceedings Book of the 2nd Mediterranean International Conference of Pure and Applied Mathematics and Related Areas - MICOPAM 2019*, 108-111, Paris, France, 2019. ISBN: 978-2-491766-00-9
- **Demir, E.** & Kockal, N.U., “Relationship between traffic density and pavement deflections,” *Proceedings Book of the 2nd Mediterranean International Conference of Pure and Applied Mathematics and Related Areas - MICOPAM 2019*, 112-115, Paris, France, 2019. ISBN: 978-2-491766-00-9

- **Demir, E.** (2018). Approach for siting a support facility for transporting supplies in emergency cases in the Republic of Bulgaria. In *MATEC Web of Conferences* (Vol. 234, p. 06001). EDP Sciences. DOI: 10.1051/mateconf/201823406001 (**Web of Science & Scopus**)
- **Demir, E.**, “Assigning convenient paths by an approach of dynamic programming,” *Proceedings Book of the 1st Mediterranean International Conference of Pure and Applied Mathematics and Related Areas - MICOPAM 2018*, 196-199, Antalya, Türkiye, 2018. ISBN: 978-86-6016-036-4
- **Demir, E.** & Kockal, N.U., “Facility location determined by an iterative technique,” *Proceedings Book of the 1st Mediterranean International Conference of Pure and Applied Mathematics and Related Areas - MICOPAM 2018*, 192-195, Antalya, Türkiye, 2018. ISBN: 978-86-6016-036-4

Abstracts Presented at International Scientific Meetings and Published in Proceedings

- **Demir, E.** & Ozgun, K., “A Multi-Criteria Decision Approach to Measure Rail Transit Station Efficiency in Urban Areas,” *Proceeding of International Conference 2024 Hybrid Event Book*, p.24, Research Plus, 2024.
- **Demir E.** “Metaheuristic algorithms and multi-criteria decision-making for urban public transportation systems in developing tourism environment,” *4th International Conference on Innovative Academic Studies, ICIAS 2024 Abstract Book*, p.278, Konya, Türkiye, 2024. ISBN: 978-625-6530-92-8
- Farooq N. & **Demir E.** “Exploring barriers to accurate traffic data collection through roadside intelligent transportation system devices in Türkiye,” *9th International Aegean Congress on Innovation Technologies and Engineering Proceedings Book*, p.50, İzmir, Türkiye, 2024. ISBN: 978-625-367-656-8
- **Demir E.** “Development of physical parameters within transportation systems and their implications on traffic assignment,” *3rd International Congress on Multidisciplinary Natural Sciences and Engineering Abstracts Booklet*, p.72, Ankara, Türkiye, 2023. ISBN: 978-625-6488-59-5
- **Demir E.** “Transportation analysis of interconnectedness and incident accessibility of highway transportation tunnels in mountainous regions: a case study in Antalya,” *3rd International Conference on Innovative Academic Studies, ICIAS 2023 Abstract Book*, p.129, Konya, Türkiye, 2023. ISBN: 978-625-6530-64-5
- **Demir E.**, Ulu, A. A. & Ak, M. F., “Transportation based assessment of self-healing material choice,” *III. International Urban Research Congress, UKASS 2022 Proceedings Book*, p.472, Aksaray, Türkiye, 2022. ISBN: 978-625-8254-03-7
- **Demir, E.**, “Establishment siting for equipment transportation against forest fires,” *Black Sea Summit 8th International Applied Sciences Congress Book*, p.9, Ordu, Türkiye, 2022. ISBN: 978-625-7341-93-6
- Akar, C. & **Demir, E.**, “Optimization techniques and their performances to determine marine facility location for emergency,” *8th International Congress on Fundamental and Applied Sciences - Proceeding Book*, id:1140, Antalya, Türkiye, 2021. ISBN: 978-605-67052-6-7

Presentations and Posters

- **Demir, E.**, 2015. “Travel behavior and modal choice of the university students in Antalya”, Annual Meeting of TRANSIST, *Invited Speaker*, Istanbul, Türkiye, December 2015.
- **Demir, E.**, 2014. “Transportation systems in urban areas”, Annual Meeting of the Bank of Provinces, *Invited Speaker*, Antalya, Türkiye, November 2014.
- **Demir, E.**, Matisziw, T.C., Nilon, C.H., Wilhelm-Stanis, S., McElroy, J., Sayers, S., LeMaster, J., “Transportation infrastructure effects on the journey to school”, Traffic and Safety Conference sponsored by the Institute of Transportation Engineers, Columbia, MO, USA, May 2013.
- **Demir, E.**, Matisziw, T.C., 2013. “Evaluating spatial similarity of network paths”, EURO Working Group on Locational Analysis (EWGLA) Conference, Ankara, Türkiye, April 2013.

- **Demir, E.**, Matisziw, T.C., 2012. “Evaluating path similarity”, North American Regional Science Association International (RSAI) Conference, Ottawa, ON, Canada, November 2012.
- Matisziw, T.C., **Demir, E.**, Nilon, C.H., Wilhelm-Stanis, S., McElroy, J., Sayers, S., and LeMaster, J., “Measuring opportunity for recreation: The exposure to urban landuse during the journey to school”, Active Living Research (ALR) Annual Conference, San Diego, CA, USA, March 2012.
- **Demir, E.**, Matisziw, T.C., 2011. “Measuring opportunity for recreation: The journey to school”, North American Regional Science Association International (RSAI) Conference, Miami, FL, USA, November 2011.

PEER REVIEWING

Academic Journals

- Scientific Reports, SCI-e, Nature (2024, 2025)
- Discover Sustainability, ESCI, Springer (2025)
- IET Intelligent Transport Systems, SCI-e, Wiley (2023, 2024)
- Cluster Computing, SCI-e, Springer (2024)
- Journal of Infrastructure, Policy and Development, Scopus (2024)
- Granular Computing, ESCI, Springer (2024)
- Journal of Urban Planning and Development, SCI-e & SSCI (2024)
- International Journal of Fuzzy Systems, SCI-e, Springer (2024)
- Journal of Transportation and Logistics, DergiPark (2024)
- Networks and Spatial Economics, SCI-e, Springer (2016, 2023)
- Spatial Information Research, ESCI, Springer (2023)
- Journal of Intelligent Transportation Systems and Applications, DergiPark (2020, 2022, 2023, 2024, 2025)
- Turkish Journal of Civil Engineers, SCI-e, Turkish Chamber Civil Engineers (2021)
- Journal of Innovative Transportation, DergiPark (2020, 2023)
- Journal of Advanced Engineering Studies and Technologies, DergiPark (2020)
- Disaster Medicine and Public Health Preparedness, SCI-e & SSCI, Cambridge Uni. Press (2020)
- Afyon Kocatepe University Journal of Science and Engineering, TR-Dizin, DergiPark (2020)
- International Journal of Transportation Engineering and Technology, Science Publishing Grp. (2019)
- TRANSIST Proceedings, Istanbul Metropolitan Municipality (2017)

International scientific meetings

- Transportation Research Board (TRB) Annual Meeting committee reviewer (2024)
- 3rd International European Conference on Interdisciplinary Scientific Researches, scientific committee member (2021)
- 4th International Conference of Contemporary Affairs in Architecture and Urbanism (ICCAUA 2021), scientific committee member (2021)
- International Symposium on Water, Ecology and Environment (ISWEE 2020), IOP Conference Series: Earth and Environmental Science (EES) (2020)
- 59th North American Regional Science Council (NARSC) Conference, Ottawa, ON, Canada, 2012
- 58th North American Regional Science Council (NARSC) Conference, Miami, FL, USA, 2011

FELLOWSHIPS AND AWARDS

- Received a plaque in recognition, Vocational School, Antalya Bilim University, Türkiye (Dec 2022)
- Received a plaque in recognition, College of Engineering and Natural Sciences, Antalya Bilim University, Türkiye (Oct 2021)
- Appreciation citations and rewards, the Ministry of Turkish National Defense, Türkiye (Jul 2013 - Jul 2014)
- The Robert Wood Johnson Foundation Fellowship, USA (Dec 2009 - May 2013)
- Professional Presentation Travel Fellowship from the Graduate School at the University of Missouri, USA (Mar 2013)
- Academic Travel Scholarship from the Graduate Professional Council at the University of Missouri, USA (Oct 2011)
- Full scholarship for Ph.D. education in USA, the Turkish Ministry of National Education, Türkiye (Aug 2009 - May 2011)
- Full scholarship for undergraduate education, the Turkish Prime Ministry, Türkiye (Sep 2002 - Jun 2007)

PROFESSIONAL AFFILIATIONS

- Journal of Intelligent Transportation Systems and Applications, Editorial and advisory board member, (2024)
- Earthquake Engineering Research Institute (EERI), Oakland, CA, USA, e-affiliate membership, (2014)
- North American Regional Science Council (NARSC) Regional Science Association International (RSAI), USA, member (2011-2013)
- Institute of Transportation Engineers (ITE), Washington, DC, USA, member (2009)

LANGUAGE SKILLS

English fluent/advanced, German and Russian basic, Turkish native.

COMPUTER SKILLS

GIS software: ESRI's ArcGIS, TransCAD

Programming languages: Python, C/C++

Optimization: LINGO, Gurobi

Transportation software: VISSIM, AutoCAD, 12d Model 7

Environments: Windows, Macintosh

Computational products: MATLAB, AMPL

Statistical software: SPSS

Word processing and presentation: Microsoft Office, LaTeX, MathType, Mendeley

PROFESSIONAL DEVELOPMENT

Attended to;

- The course titled “Project design and management for EU projects and international programs,” Education certificate, (Feb 2023).
- The classes about “strategic planning, process management, quality documentation, ISO 9001:2015 quality management system standard, root cause analysis and corrective action

management, higher education institution quality regulation,” Participation certificate, (Apr - Jul 2018).

- The classes about “Data and Time Management Skills,” (Aug 2014).
- The courses titled “Preparing Engineering Faculty and Professionals I-II,” (Jan - Dec 2011).
- Introduction to Business Life Seminars, Participation certificate, (Apr 2007).
- Project Management Basis Seminars, Participation certificate, (Oct 2006).
- The conference on “Edward de Bono Six Hats Consideration Techniques,” Participation certificate, (Oct 2005).

LEISURE ACTIVITIES AND INTERESTS

- Swimming, Free-diving
- Sight-seeing
- Coin and stamp collecting
- Prehistoric time studies