

Assoc. Prof. GÜLŞAH KARAKAYA

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: ABB-7047-2020

ScopusID: 36668792600

Yoksis Researcher ID: 165112

Education Information

Post Doctorate, Singapore University of Technology and Design, Pillar of Engineering Systems and Design, Singapore
2014 - 2014

Doctorate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Endüstri Mühendisliği
(Dr), Turkey 2009 - 2013

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Endüstri Mühendisliği
(YI) (Tezli), Turkey 2007 - 2009

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Industrial Engineering, Turkey
2003 - 2007

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Decision support for multi-attribute auctions, Middle East Technical University, Graduate School of Natural
and Applied Sciences, Endüstri Mühendisliği (Dr), 2013

Postgraduate, Approaches for multi-attribute auctions, Middle East Technical University, Graduate School of Natural and
Applied Sciences, Endüstri Mühendisliği (YI) (Tezli), 2009

Research Areas

Operational Research, Quantitative Methods, Multiobjective Optimization, Multi Criteria Decision Making

Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Economic and Administrative Sciences, Department of Business Administration, 2022 - Continues
Assistant Professor, Middle East Technical University, Faculty of Economic and Administrative Sciences, Department of Business Administration, 2018 - 2022
Assistant Professor, Middle East Technical University, Faculty of Economic and Administrative Sciences, Department of Business Administration, 2016 - 2018
Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Industrial Engineering, 2007 - 2013

Academic and Administrative Experience

Deputy Head of Department, Middle East Technical University, Faculty of Economic and Administrative Sciences, Department of Business Administration, 2022 - Continues
Middle East Technical University, Faculty of Economic and Administrative Sciences, Department of Business Administration, 2016 - 2016

Courses

DECISION ANALYSIS: TOOLS AND METHODS, Undergraduate, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018
MANAGEMENT SCIENCE, Undergraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018
MANAGEMENT SCIENCE, Postgraduate, 2022 - 2023, 2021 - 2022, 2019 - 2020, 2018 - 2019, 2017 - 2018
SIMULATION & QUANTITATIVE MODELS IN BUSINESS , Undergraduate, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2016 - 2017
OPTIMIZATION METHODS FOR MANAGEMENT, Postgraduate, 2020 - 2021, 2017 - 2018, 2015 - 2016

Advising Theses

Azizoğlu M., Karakaya G., Discrete time/cost trade-off project scheduling problem - an application to the Ministry of Health projects, Postgraduate, Ö.AKBUDAK(Student), 2022
Karakaya G., WIDE-BODY AIRCRAFT SELECTION USING MULTI-CRITERIA DECISION MAKING METHODS, Postgraduate, H.GÖKALP(Student), 2022
Karakaya G., Information theoretic measure based interactive approaches to multi-criteria sorting problems, Doctorate, A.ÖZARSLAN(Student), 2021
Karakaya G., DEVELOPMENT OF A DECISION SUPPORT SYSTEM FOR EMPLOYEE SCHEDULING PROBLEM IN HOSPITALITY SECTOR: A CASE STUDY IN A TURKISH FIRM, Postgraduate, E.BERK(Student), 2019
Karakaya G., Akın Ateş M., Development of an ahp based supplier evaluation system: A case study in a Turkish defense firm, Postgraduate, B.KARTAL(Student), 2019
Karakaya G., Gönül M. S., A new pairwise comparison scale for analytic hierarchy process, Postgraduate, B.CAN(Student), 2019
Karakaya G., Automatic license plate recognition system location selection, Postgraduate, B.Gör(Student), 2018
KARAKAYA G., Interactive evolutionary approaches to multi-objective feature selection, Postgraduate, M.Özmen(Student), 2016

Designed Lessons

Karakaya G., Simulation & Quantitative Models in Business, Undergraduate, 2016 - 2017
Karakaya G., Optimization Methods for Management, Postgraduate, 2015 - 2016

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Finding preferred solutions under weighted Tchebycheff preference functions for multi-objective integer programs**
KARAKAYA G., Köksalan M.
European Journal of Operational Research, vol.308, no.1, pp.215-228, 2023 (SCI-Expanded)
- II. **Interactive Approaches to Multiple Criteria Sorting Problems: Entropy-Based Question Selection Methods**
Ozarslan A., KARAKAYA G.
INTERNATIONAL JOURNAL OF INFORMATION TECHNOLOGY & DECISION MAKING, vol.22, no.01, pp.279-312, 2023 (SCI-Expanded)
- III. **Evaluating solutions and solution sets under multiple objectives**
KARAKAYA G., Köksalan M.
European Journal of Operational Research, vol.294, no.1, pp.16-28, 2021 (SCI-Expanded)
- IV. **Fibonacci Series-Based Pairwise Comparison Scale for Analytic Hierarchy Process**
Can Yildirim B., KARAKAYA G., Gönül M. S.
International Journal of Information Technology and Decision Making, vol.20, no.3, pp.959-986, 2021 (SCI-Expanded)
- V. **A New Interactive Algorithm for Continuous Multiple Criteria Problems: A Portfolio Optimization Example**
KARAKAYA G., Sakar C. T.
International Journal of Information Technology and Decision Making, vol.20, no.1, pp.371-398, 2021 (SCI-Expanded)
- VI. **A new interactive approach to multiple criteria sorting problems: An application in energy sector**
ÖZARSLAN A., KARAKAYA G.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.36, no.4, pp.2239-2254, 2021 (SCI-Expanded)
- VII. **Interactive approaches for biobjective problems with progressively changing solution sets**
KARAKAYA G., Koksalan M.
INTERNATIONAL TRANSACTIONS IN OPERATIONAL RESEARCH, vol.28, no.1, pp.356-375, 2021 (SCI-Expanded)
- VIII. **Estimating the form of a decision maker's preference function and converging towards preferred solutions**
KARAKAYA G., Koksalan M.
IIE TRANSACTIONS, vol.52, no.6, pp.651-664, 2020 (SCI-Expanded)
- IX. **An interactive approach with filtering to find a preferred solution of a decision maker**
TUNCER ŞAKAR C., KARAKAYA G.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.34, no.4, pp.1987-2005, 2019 (SCI-Expanded)
- X. **Interactive evolutionary approaches to multiobjective feature selection**
ÖZMEN m., KARAKAYA G., KÖKSALAN M. M.
INTERNATIONAL TRANSACTIONS IN OPERATIONAL RESEARCH, vol.25, no.3, pp.1027-1052, 2018 (SCI-Expanded)
- XI. **Interactive algorithms for a broad underlying family of preference functions**
KARAKAYA G., KÖKSALAN M. M., AHİPAŞAOĞLU S. D.
EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, vol.265, no.1, pp.248-262, 2018 (SCI-Expanded)
- XII. **An information theoretic approach to select alternate subsets of predictors for data-driven hydrological models**
TAORMINA R., GALELLI S., KARAKAYA G., Ahipasaoglu S. D.
JOURNAL OF HYDROLOGY, vol.542, pp.18-34, 2016 (SCI-Expanded)
- XIII. **An interactive approach for Bi-attribute multi-item auctions**
KARAKAYA G., Koksalan M.
ANNALS OF OPERATIONS RESEARCH, vol.245, pp.97-119, 2016 (SCI-Expanded)

- XIV. **Identifying (Quasi) Equally Informative Subsets in Feature Selection Problems for Classification: A Max-Relevance Min-Redundancy Approach**
Karakaya G., GALELLI S., AHİPAŞAOĞLU S. D., TAORMİNA R.
IEEE TRANSACTIONS ON CYBERNETICS, vol.46, no.6, pp.1424-1437, 2016 (SCI-Expanded)
- XV. **An Evolutionary Algorithm for Finding Efficient Solutions in Multi-Attribute Auctions**
Köksalan M., KARAKAYA G.
INTERNATIONAL JOURNAL OF INFORMATION TECHNOLOGY & DECISION MAKING, vol.13, no.3, pp.649-673, 2014 (SCI-Expanded)
- XVI. **An interactive approach for multi-attribute auctions**
Karakaya G., Köksalan M.
DECISION SUPPORT SYSTEMS, vol.51, no.2, pp.299-306, 2011 (SCI-Expanded)

Articles Published in Other Journals

- I. **Editorial for “Recent advances and applications of multi-objective optimization”**
KARAKAYA G., Lokman B.
EURO Journal on Decision Processes, vol.12, 2024 (ESCI)
- II. **Predicting the response to bDMARD treatment in RA: Then what?**
Tuncer Şakar C., Karakaya G., Bilgin E., Kiliç L., Kalyoncu U.
Ulusal Romatoloji Dergisi, vol.14, pp.87-93, 2022 (Scopus)
- III. **OPTIMIZATION OF PLATE RECOGNITION SENSOR LOCATIONS: A CASE STUDY IN TURKEY**
Gör B., Karakaya G.
JOURNAL OF INDUSTRIAL ENGINEERING, vol.32, no.1, pp.147-163, 2021 (Peer-Reviewed Journal)
- IV. **An interactive ranking-based multi-criteria choice algorithm with filtering: Applications to university selection**
KARAKAYA G., TUNCER ŞAKAR C.
METU Studies in Development, 2019 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Two multi-criteria decision making methods for selection of wide-body passenger aircraft**
GÜNEŞ H. G., KARAKAYA G.
XVIII. International Balkan and Near Eastern Congress Series on Economics, Business and Management, Ohrid, Macedonia, 26 - 27 November 2022
- II. **A new mathematical model based approach to multi-criteria stock selection problem**
KURT A., TÜRKÜN KAYA B., KARAKAYA G.
41. Yöneylem Araştırması ve Endüstri Mühendisliği Kongresi (YA/EM 2022), Denizli, Turkey, 26 October 2022
- III. **Interactive approaches to converge preferred solutions under distance-based value functions**
KÖKSALAN M. M., KARAKAYA G.
INFORMS 2022 Annual Meeting, Indiana, United States Of America, 16 - 19 October 2022
- IV. **A new interactive algorithm for multiple criteria sorting problems under a variety of preference functions**
Karakaya G., Köksalan M. M.
26th International Conference on MCDM, Portsmouth, England, 26 June - 01 July 2022, pp.30
- V. **Interactive Algorithms for Finding Preferred Solutions under Weighted Tchebycheff Preference Functions**
Karakaya G., Köksalan M. M.
22nd Conference of the International Federation of Operational Research Societies (IFORS 2021), Seoul, South Korea, 23 - 27 August 2021, pp.56

- VI. **Veri Zarflama Analizi İle Türkiye’de Taşkın Riskli Alanların Belirlenmesi**
YEĞİN M., KENTEL ERDOĞAN E., KARAKAYA G., DEMİR E.
40. Yöneylem Araştırması ve Endüstri Mühendisliği Kongresi (YA/EM 2021), İstanbul, Turkey, 5 - 07 July 2021, pp.32
- VII. **İki Amaçlı Sağlık Projelerinin Çizelgelenmesi İçin Yaklaşımlar**
AKBUDAK Ö., AZİZOĞLU M., KARAKAYA G.
40. Yöneylem Araştırması ve Endüstri Mühendisliği Kongresi (YA/EM 2021), İstanbul, Turkey, 5 - 07 July 2021, pp.31-32
- VIII. **A Decision Support System for Employee Scheduling Problem in Hospitality Sector: A Case Study in a Turkish Firm**
Ünsal E. B., KARAKAYA G.
XIII. International Balkan and Near Eastern Congress Series on Economics, Business and Management, 5 - 06 October 2019, pp.644-671
- IX. **Comparison of solutions under a weighted Thcebycheff function**
KARAKAYA G., KÖKSALAN M. M.
25th International Conference on MCDM, 16 - 21 June 2019
- X. **An interactive sorting approach based on information theoretic measure**
ÖZARSLAN A., KARAKAYA G.
25th International Conference on MCDM, 16 - 21 June 2019
- XI. **Alternatiflerin sınıflandırılması için yeni bir etkileşimli yaklaşım**
ÖZARSLAN A., KARAKAYA G.
39th YAEM National Conference, Turkey, 12 - 14 June 2019
- XII. **Estimating the form of a decision maker’xxs preferencefunction and converging to preferred solutions**
KÖKSALAN M. M., KARAKAYA G.
INFORMS Annual Meeting 2018 Phoenix, 4 - 07 November 2018
- XIII. **A filtering-enabled interactive algorithm to find preferred solutions of the decision maker**
KARAKAYA G., TUNCER ŞAKAR C.
INFORMS Annual Meeting 2018 Phoenix, 4 - 07 November 2018
- XIV. **Analitik hiyerarşi süreci için yeniikili karşılaştırma ölçeği**
YILDIRIM B. C., KARAKAYA G., GÖNÜL M. S.
38th YAEM National Conference, Turkey, 26 - 29 June 2018
- XV. **Karar vericinin tercih ettiği çözümü bulmak içinfiltreleme yardımcı interaktif bir yöntem**
TUNCER ŞAKAR C., KARAKAYA G.
38th YAEM National Conference, Turkey, 26 - 29 June 2018
- XVI. **Interactive Approaches to Multi-objective Feature Selection**
ÖZMEN M., KARAKAYA G., KÖKSALAN M. M.
INFORMS Houston, 22 - 25 October 2017
- XVII. **Sağlık turizmi ve destek mekanizmaları: dünya örnekleri ile türkiye uygulamalarının kıyaslanması**
AYDIN AKTAŞ A., KARAKAYA G., GÖNÜL M. S.
37th YAEM National Conference, Turkey, 5 - 07 July 2017
- XVIII. **Interactive algorithms for a wide variety of preference functions**
KARAKAYA G., KÖKSALAN M. M., AHİPAŞAOĞLU S. D.
INFORMS Annual Meeting 2016 Nashville, 13 - 16 November 2016
- XIX. **Identifying quasi equally informative subsets in multi objective feature selection problems for classification**
KARAKAYA G., GALELLİ S., AHİPAŞAOĞLU S. D., TAORMİNA R.
28th European Conference on Operational Research, 3 - 06 July 2016
- XX. **An interactive evolutionary approach to multi objective feature selection**
KÖKSALAN M. M., Özmen M., KARAKAYA G.
28th European Conference on Operational Research, 3 - 06 July 2016

- XXI. **A preference based approach to multi objective feature selection**
ÖZMEN M., KARAKAYA G., KÖKSALAN M. M.
INFORMS Annual Meeting 2015 Philadelphia, 1 - 04 November 2015
- XXII. **İki amaçlı çok ürünlü açık arttırmalar için etkileşimli bir yaklaşım**
KARAKAYA G., KÖKSALAN M. M.
35th YAEM National Conference, Turkey, 9 - 11 September 2015
- XXIII. **An interactive approach for bi attribute multi item auctions under quasiconvex preference functions**
KARAKAYA G., KÖKSALAN M. M.
23rd International Conference on MCDM, 3 - 07 August 2015
- XXIV. **A minimum redundancy maximum relevance input variable selection approach to identify equally informative subsets for hydrological models**
KARAKAYA G., GALELLİ S., AHİPAŞAOĞLU S. D.
World Environmental and Water Resources Congress, 17 - 21 May 2015
- XXV. **An entropy based input variable selection approach to identify equally informative subsets for data driven hydrological models**
KARAKAYA G., TAORMİNA R., GALELLİ S., AHİPAŞAOĞLU S. D.
European Geosciences Union (EGU) General Assembly 2015, 12 - 15 April 2015
- XXVI. **An Approach for Multi attribute Multi item Reverse Auctions**
Karakaya G., Köksalan M. M.
33rd YAEM National Conference, İstanbul, Turkey, 26 - 28 June 2013
- XXVII. **Decision Support for Multi attribute Multi item Reverse Auctions**
KARAKAYA G., KÖKSALAN M. M.
22nd International Conference on MCDM, 17 - 21 June 2013
- XXVIII. **Decision Support for Multi attribute Multi item Reverse Auctions**
KARAKAYA G., KÖKSALAN M. M.
21st International Symposium on Mathematical Programming (ISMP), 19 - 24 August 2012
- XXIX. **An Interactive Approach for Multi attribute Multi item Reverse Auctions**
KARAKAYA G., KÖKSALAN M. M.
21st International Conference on MCDM, 13 - 17 June 2011
- XXX. **An Approach for Multi attribute Reverse Auctions**
KARAKAYA G., KÖKSALAN M. M.
20th International Conference on MCDM, 21 - 26 June 2009

Supported Projects

KARAKAYA G., KÖKSALAN M., Project Supported by Higher Education Institutions, Çok Kriterli Problemlerde Karar Vericinin Tercih Fonksiyonunun Tahmin Edilmesi İçin Yaklaşımlar, 2018 - 2019
KARAKAYA G., KÖKSALAN M. M., Project Supported by Higher Education Institutions, Çok Kriterli Tam Sayılı Optimizasyon Problemlerinde Etkin Çözümlerin Bulunması İçin Yaklaşımlar, 2016 - 2016

Memberships / Tasks in Scientific Organizations

INFORMS Section on Multiple Criteria Decision Making (MCDM), Board Member, 2019 - 2021, United States Of America

Metrics

Publication: 52

Citation (WoS): 127

Citation (Scopus): 142

H-Index (WoS): 5

H-Index (Scopus): 6

Awards

KARAKAYA G., Genç Arařtırmacı Başarı Ödülleri, ODTÜ Geliřtirme Vakfı, December 2017