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International Researcher IDs

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Publons / Web Of Science ResearcherID: C-1516-2008

ScopusID: 6507100086

Yoksis Researcher ID: 51984

Education Information

Doctorate, Gazi University, Fen Bilimleri Enstitüsü, Turkey 2003 - 2006

Postgraduate, Gazi University, Fen Bilimleri Enstitüsü, Turkey 2001 - 2003

Undergraduate, Gazi University, Mühendislik Fakültesi, Endüstri Mühendisliği, Turkey 1997 - 2001

Research Areas

Fuzzy Sets and Systems, Decision Support Systems

Academic Titles / Tasks

Professor, Hacettepe University, Mühendislik Fakültesi, Endüstri Mühendisliği Bölümü, 2022 - Continues

Professor, Gazi University, Mühendislik Fakültesi, Endüstri Mühendisliği, 2021 - 2022

Associate Professor, Gazi University, Mühendislik Fakültesi, Endüstri Mühendisliği, 2013 - 2021

Associate Professor, Martin-Luther-Universitaet Halle-Wittenberg, 2018 - 2019

Assistant Professor, Gazi University, Mühendislik Fakültesi, Endüstri Mühendisliği, 2009 - 2013

Assistant Professor, Georgia Institute of Technology, School of Mechanical Engineering, 2010 - 2010

Researcher, University of Leeds, School of Mechanical Engineering, 2007 - 2009

Research Assistant, Gazi University, Mühendislik Fakültesi, Endüstri Mühendisliği, 2001 - 2009

Advising Theses

Akay D., Data fusion in different uncertain environment, Doctorate, F.ATEŞ(Student), 2021

Akay D., Linguistic summarization on heterogeneous information networks, Doctorate, S.AYDOĞAN(Student), 2021

Akay D., Developing labeled affective magnitude scale and fuzzy scale for tactile feeling, Postgraduate, B.UZGUR(Student), 2019

Akay D., Application of bpm systematics by using process mining in enterprises with a software-assisted industrial application example–Construction company, Postgraduate, B.GEREK(Student), 2017

Akay D., Linguistic summarization of structured patent data, Postgraduate, E.YILDIZ(Student), 2017

Akay D., Grey relational analysis between Turkey's macroeconomic indicators and domestic savings, Postgraduate, E.DURAN(Student), 2016

Akay D., Linguistic summarization in information network, Doctorate, S.GENÇ(Student), 2016

Akay D., An extension of fuzzy linguistic summarization considering probabilistic uncertainty, Postgraduate, S.AYDOĞAN(Student), 2015

Akay D., Second generation collaborative planning, forecasting and replenishment methodology with business analytics support, Doctorate, A.DEMİRAY(Student), 2015

Akay D., Linguistic summarization of Europe Brent spot price time series along with the interpretations from the perspective of Turkey, Postgraduate, H.HATİPOĞLU(Student), 2014

Akay D., Linguistic summarization with interval type-2 fuzzy sets, Doctorate, F.EMRE(Student), 2013

Akay D., Classification of risks of low back disorders with support vector machines, Postgraduate, M.ERDEM(Student), 2012

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Flood susceptibility mapping with ensemble machine learning: a case of Eastern Mediterranean basin, Türkiye**
Özdemir H., BADUNA KOÇYİĞİT M., AKAY D.
Stochastic Environmental Research and Risk Assessment, vol.37, no.11, pp.4273-4290, 2023 (SCI-Expanded)
- II. **Linguistic summarization to support supply network decisions**
AYDOĞAN S., Okudan Kremer G. E., AKAY D.
JOURNAL OF INTELLIGENT MANUFACTURING, vol.32, no.6, pp.1573-1586, 2021 (SCI-Expanded)
- III. **A possibilistic approach for interval type-2 fuzzy linguistic summarization of time series**
Ozdogan I., BORAN F. E., AKAY D.
ARTIFICIAL INTELLIGENCE REVIEW, vol.54, no.5, pp.3991-4018, 2021 (SCI-Expanded)
- IV. **Developing a Labeled Affective Magnitude scale and Fuzzy Linguistic scale for tactile feeling**
AKAY D., Duran B. U., Duran E., Henson B., BORAN F. E.
HUMAN FACTORS AND ERGONOMICS IN MANUFACTURING & SERVICE INDUSTRIES, vol.31, no.1, pp.13-26, 2021 (SCI-Expanded)
- V. **Concept design evaluation by using Z-axiomatic design**
AYDOĞAN S., Gunay E. E., AKAY D., Kremer G. E. O.
COMPUTERS IN INDUSTRY, vol.122, 2020 (SCI-Expanded)
- VI. **Some picture fuzzy Bonferroni mean operators with their application to multicriteria decision making**
Ates F., AKAY D.
INTERNATIONAL JOURNAL OF INTELLIGENT SYSTEMS, vol.35, no.4, pp.625-649, 2020 (SCI-Expanded)
- VII. **ANFIS and Deep Learning based missing sensor data prediction in IoT**
GÜZEL M., Kok I., AKAY D., Ozdemir S.
CONCURRENCY AND COMPUTATION-PRACTICE & EXPERIENCE, vol.32, no.2, 2020 (SCI-Expanded)
- VIII. **Linguistic summarization of fuzzy social and economic networks: an application on the international trade network**
Genc S., AKAY D., BORAN F. E., Yager R. R.
SOFT COMPUTING, vol.24, no.2, pp.1511-1527, 2020 (SCI-Expanded)
- IX. **Fuzzy Quantification and Opinion Mining on Qualitative Data using Feature Reduction**
Dundar B., AKAY D., BORAN F. E., Ozdemir S.
INTERNATIONAL JOURNAL OF INTELLIGENT SYSTEMS, vol.33, no.9, pp.1840-1857, 2018 (SCI-Expanded)
- X. **An Extension of Fuzzy Linguistic Summarization Considering Probabilistic Uncertainty**
AYDOĞAN S., AKAY D., BORAN F. E., Yager R. R.
INTERNATIONAL JOURNAL OF UNCERTAINTY FUZZINESS AND KNOWLEDGE-BASED SYSTEMS, vol.26, no.2, pp.195-215, 2018 (SCI-Expanded)

- XI. **Fuzzy Linguistic Summarization with Genetic Algorithm: An Application with Operational and Financial Healthcare Data**
Altıntop T., Yager R. R., AKAY D., BORAN F. E., ÜNAL M.
INTERNATIONAL JOURNAL OF UNCERTAINTY FUZZINESS AND KNOWLEDGE-BASED SYSTEMS, vol.25, no.4, pp.599-620, 2017 (SCI-Expanded)
- XII. **A holistic and structured CPFR roadmap with an application between automotive supplier and its aftermarket customer**
Demiray A., AKAY D., Tekin S., BORAN F. E.
INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY, vol.91, no.5-8, pp.1567-1586, 2017 (SCI-Expanded)
- XIII. **Grey relational analysis between Turkey's macroeconomic indicators and domestic savings**
Duran E., Duran B. U., AKAY D., BORAN F. E.
GREY SYSTEMS-THEORY AND APPLICATION, vol.7, no.1, pp.45-59, 2017 (SCI-Expanded)
- XIV. **An overview of methods for linguistic summarization with fuzzy sets**
BORAN F. E., AKAY D., Yager R. R.
EXPERT SYSTEMS WITH APPLICATIONS, vol.61, pp.356-377, 2016 (SCI-Expanded)
- XV. **Classification of Risks of Occupational Low Back Disorders with Support Vector Machines**
ERDEM M., BORAN F. E., AKAY D.
HUMAN FACTORS AND ERGONOMICS IN MANUFACTURING & SERVICE INDUSTRIES, vol.26, no.5, pp.550-558, 2016 (SCI-Expanded)
- XVI. **MOORA-BASED TAGUCHI OPTIMIZATION FOR SELECTION OF MURATA VORTEX SPINNER MACHINE PARAMETERS**
AKGÜL E., KIZILKAYA AYDOĞAN E., AKAY D., TÜRKSOY H. G.
TEKSTİL VE KONFEKSİYON, vol.26, no.3, pp.249-255, 2016 (SCI-Expanded)
- XVII. **A Probabilistic Framework for Interval Type-2 Fuzzy Linguistic Summarization**
BORAN F. E., AKAY D., Yager R. R.
IEEE TRANSACTIONS ON FUZZY SYSTEMS, vol.22, no.6, pp.1640-1653, 2014 (SCI-Expanded)
- XVIII. **Linguistic Summarization of Europe Brent Spot Price Time Series Along with the Interpretations from the Perspective of Turkey**
Hatipoğlu H., BORAN F. E., Avci M., AKAY D.
INTERNATIONAL JOURNAL OF INTELLIGENT SYSTEMS, vol.29, no.10, pp.946-970, 2014 (SCI-Expanded)
- XIX. **A Generic Method for the Evaluation of Interval Type-2 Fuzzy Linguistic Summaries**
BORAN F. E., AKAY D.
IEEE TRANSACTIONS ON CYBERNETICS, vol.44, no.9, pp.1632-1645, 2014 (SCI-Expanded)
- XX. **Making Tactile Textures with Predefined Affective Properties**
Elkharraz G., Thumfart S., AKAY D., Eitzinger C., Henson B.
IEEE TRANSACTIONS ON AFFECTIVE COMPUTING, vol.5, no.1, pp.57-70, 2014 (SCI-Expanded)
- XXI. **A biparametric similarity measure on intuitionistic fuzzy sets with applications to pattern recognition**
BORAN F. E., AKAY D.
INFORMATION SCIENCES, vol.255, pp.45-57, 2014 (SCI-Expanded)
- XXII. **The Evaluation of Power Plants Investment Alternatives with Grey Relational Analysis Approach for Turkey**
AKAY D., Boran F. E., YILMAZ M., Atak M.
ENERGY SOURCES PART B-ECONOMICS PLANNING AND POLICY, vol.8, no.1, pp.35-43, 2013 (SCI-Expanded)
- XXIII. **ANFIS modeling for predicting affective responses to tactile textures**
AKAY D., Chen X., Barnes C., Henson B.
HUMAN FACTORS AND ERGONOMICS IN MANUFACTURING & SERVICE INDUSTRIES, vol.22, no.3, pp.269-281, 2012 (SCI-Expanded)
- XXIV. **Grey relational analysis based on instance based learning approach for classification of risks of occupational low back disorders**

- AKAY D.
SAFETY SCIENCE, vol.49, no.8-9, pp.1277-1282, 2011 (SCI-Expanded)
- XXV. **Personnel Selection Based on Intuitionistic Fuzzy Sets**
BORAN F. E., Genc S., AKAY D.
HUMAN FACTORS AND ERGONOMICS IN MANUFACTURING & SERVICE INDUSTRIES, vol.21, no.5, pp.493-503, 2011 (SCI-Expanded)
- XXVI. **Conceptual design evaluation using interval type-2 fuzzy information axiom**
AKAY D., Kulak O., Henson B.
COMPUTERS IN INDUSTRY, vol.62, no.2, pp.138-146, 2011 (SCI-Expanded)
- XXVII. **Interval multiplicative transitivity for consistency, missing values and priority weights of interval fuzzy preference relations**
Genc S., BORAN F. E., AKAY D., Xu Z.
INFORMATION SCIENCES, vol.180, no.24, pp.4877-4891, 2010 (SCI-Expanded)
- XXVIII. **Modeling of an Intermediate Temperature Solid Oxide Fuel Cell Using the Adaptive Neuro-Fuzzy Inference System (ANFIS)**
Vural Y., AKAY D., Pourkashanian M., Ingham D. B.
JOURNAL OF FUEL CELL SCIENCE AND TECHNOLOGY, vol.7, no.3, 2010 (SCI-Expanded)
- XXIX. **A multi-criteria intuitionistic fuzzy group decision making for supplier selection with TOPSIS method**
BORAN F. E., Genc S., Kurt M., AKAY D.
EXPERT SYSTEMS WITH APPLICATIONS, vol.36, no.8, pp.11363-11368, 2009 (SCI-Expanded)
- XXX. **Comparison of direct and iterative artificial neural network forecast approaches in multi-periodic time series forecasting**
Hamzacebi C., AKAY D., Kutay F.
EXPERT SYSTEMS WITH APPLICATIONS, vol.36, no.2, pp.3839-3844, 2009 (SCI-Expanded)
- XXXI. **A neuro-fuzzy based approach to affective design**
AKAY D., KURT M.
INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY, vol.40, no.5-6, pp.425-437, 2009 (SCI-Expanded)
- XXXII. **Ant Colony Optimization Approach for Classification of Occupational Low Back Disorder Risks**
AKAY D., TOKSARI M. D.
HUMAN FACTORS AND ERGONOMICS IN MANUFACTURING, vol.19, no.1, pp.1-14, 2009 (SCI-Expanded)
- XXXIII. **NEFCLASS based extraction of fuzzy rules and classification of risks of low back disorders**
AKAY D., AKCAYOL M. A., KURT M.
EXPERT SYSTEMS WITH APPLICATIONS, vol.35, no.4, pp.2107-2112, 2008 (SCI-Expanded)
- XXXIV. **A LITERATURE REVIEW ON USER CENTERED DESIGN AND PRODUCT USABILITY**
AKAY D., KURT M.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.23, no.2, pp.295-304, 2008 (SCI-Expanded)
- XXXV. **Collaborative tool for solving human factors problems in the manufacturing environment: the Theory of Inventive Problem Solving Technique (TRIZ) method**
AKAY D., Demiray A., KURT M.
INTERNATIONAL JOURNAL OF PRODUCTION RESEARCH, vol.46, no.11, pp.2913-2925, 2008 (SCI-Expanded)
- XXXVI. **Grey prediction with rolling mechanism for electricity demand forecasting of Turkey**
AKAY D., Atak M.
ENERGY, vol.32, no.9, pp.1670-1675, 2007 (SCI-Expanded)
- XXXVII. **Evaluation of product design concepts using grey-fuzzy information axiom**
AKAY D., Kulak O.
JOURNAL OF GREY SYSTEM, vol.19, no.3, pp.221-234, 2007 (SCI-Expanded)
- XXXVIII. **Usability ranking of intercity bus passenger seats using fuzzy axiomatic design theory**
ERASLAN E., AKAY D., Kurt M.
COOPERATIVE DESIGN, VISUALIZATION, AND ENGINEERING, PROCEEDINGS, vol.4101, pp.141-148, 2006 (SCI-

Expanded)

Articles Published in Other Journals

- I. **A Decision Support System for Skill-Based Nurse Scheduling in an Intensive Care Unit**
Parıldar O., AKYÜREK Ç. E., AKAY D.
Gazi University Journal of Science, vol.37, no.1, pp.284-308, 2024 (ESCI)
- II. **Urban Mobility Patterns with Linguistic Summarization: Insights from the Bicycle-Sharing System**
ŞENER FİDAN F., AYDOĞAN S., AKAY D.
Erciyes Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.39, no.3, pp.538-547, 2023 (Peer-Reviewed Journal)
- III. **Patent Mining**
Kayakoku A., AKAY D.
JOURNAL OF POLYTECHNIC-POLİTEKNİK DERGISİ, vol.24, no.2, pp.745-753, 2021 (ESCI)
- IV. **Linguistic Summarization of Structured Patent Data**
Esen Yıldız İ., AYDOĞAN S., BORAN F. E., AKAY D.
INTERNATIONAL JOURNAL OF COMPUTER AND INFORMATION TECHNOLOGY, vol.11, no.9, pp.1024-1027, 2017 (Peer-Reviewed Journal)
- V. **Trafik Kazalarının Birliktelik Kuralları ile Analizi**
Gürdoğan D., AKAY D., KURT M.
Gazi Mühendislik Bilimleri Dergisi, vol.1, no.2, pp.265-284, 2015 (Peer-Reviewed Journal)
- VI. **Usability testing of automobile safety belt Otomobil emniyet kemeri kullanılabilirlik testi**
AKAY D., KURT M.
Journal of the Faculty of Engineering and Architecture of Gazi University, vol.21, no.1, pp.183-191, 2006 (Scopus)
- VII. **Analytical hierarchy process for job evaluation and application İş değerlendirme sürecinde analitik hiyerarşi prosesi ve uygulaması**
Dağdeviren M., AKAY D., KURT M.
Journal of the Faculty of Engineering and Architecture of Gazi University, vol.19, no.2, pp.131-138, 2004 (Scopus)
- VIII. **Job evaluation, use of goal programming technique at determine factor degree points İş değerlendirme, faktör derece puanlarının belirlenmesinde hedef programlama yönteminin kullanılması**
Dağdeviren M., AKAY D., KURT M.
Journal of the Faculty of Engineering and Architecture of Gazi University, vol.19, no.1, pp.89-95, 2004 (Scopus)
- IX. **Ergonomic analysis of working postures Çalışma duruşlarının ergonomik analizi**
AKAY D., Dağdeviren M., KURT M.
Journal of the Faculty of Engineering and Architecture of Gazi University, vol.18, no.3, pp.73-84, 2003 (Scopus)
- X. **A DSS/GA approach for portfolio selection problem Portföy seçimi problemi için KDS/GA yaklaşımı**
AKAY D., ÇETİNYOKUŞ T., Dağdeviren M.
Journal of the Faculty of Engineering and Architecture of Gazi University, vol.17, no.4, pp.125-138, 2002 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **Generating Linguistic Advice for the Carbon Limit Adjustment Mechanism**
Fidan F. Ş., AYDOĞAN S., AKAY D.
12th International Symposium on Intelligent Manufacturing and Service Systems, IMSS 2023, İstanbul, Turkey, 26 - 28 May 2023, pp.188-199
- II. **Linguistic Comparison of Children with and without ASD through Eye-Tracking Data**
Ozturk D., AYDOĞAN S., Kok I., AKIN BÜLBÜL I., ÖZDEMİR S., ÖZDEMİR S., AKAY D.
9th International Conference on Computer Technology Applications, ICCTA 2023, Vienna, Austria, 10 - 12 May 2023, pp.241-246

- III. **Linguistic Descriptions of Airport Evaluation Data for Recommendation Strategies**
Dundar B., AKAY D., Ozdemir S.
2021 International Symposium on Networks, Computers and Communications, ISNCC 2021, Dubai, United Arab Emirates, 31 October - 02 November 2021
- IV. **Linguistic Summarization of Supply Network Interactions**
AYDOĞAN S., GÜNAY E. E., AKAY D., Kremer G.
10th International Symposium on Intelligent Manufacturing and Service Systems, Sakarya, Turkey, 9 - 11 September 2019
- V. **Decision-making with z-axiomatic design**
AYDOĞAN S., AKAY D., Kremer G. E., Gunay E. E., Park K., BORAN F. E.
2019 Institute of Industrial and Systems Engineers Annual Conference and Expo, IISE 2019, Florida, United States Of America, 18 - 21 May 2019
- VI. **Forecasting Electricity Consumption in Turkey with Bayesian Polynomial Regression Analysis**
ERDEM M., BULKAN S., AKAY D., BORAN F. E.
5. EUROPEAN CONFERENCE ON RENEWABLE ENERGY SYSTEMS, 27 - 30 August 2017
- VII. **Yapılandırılmış Patent Verilerinin Dilsel Özetlemesi**
İÇDE E. Y., AYDOĞAN S., BORAN F. E., AKAY D.
37. Yöneylem Araştırması ve Endüstri Mühendisliği Ulusal Kongresi, Turkey, 5 - 07 July 2017
- VIII. **Ergonomik Kabza Tasarımı ve Uygulaması**
AKGÜL E., KIZILKAYA AYDOĞAN E., AKAY D., SİNANOĞLU C.
3B Baskı Teknolojileri Uluslararası Sempozyumu, 5 - 07 May 2016, pp.51-56
- IX. **Opinion Mining and Fuzzy Quantification in Hotel Reviews**
Dundar B., Ozdemir S., AKAY D.
International Symposium on Networks, Computers and Communications (ISNCC), Hammamet, Tunisia, 11 - 13 May 2016
- X. **Linguistic summarization of restaurant evaluation data set**
Dündar B., AKAY D., ÖZDEMİR S.
4th International Fuzzy Systems Symposium, İstanbul, Turkey, 5 - 06 November 2015, pp.433-439
- XI. **Classification of patients at risk for CO poisoning in an emergency department with CHAID decision tree**
KELEŞ A., DEMİRCAN A., BİLDİK F., AYDOĞAN S., DÜZCE T., AKAY D.
15. Üretim Araştırmaları Sempozyumu, İzmir, Turkey, 14 - 16 October 2015, pp.1109-1113
- XII. **Rüzgar Enerjisi için Tahmin Algoritmaları ve Kombinasyon Modelleri**
Bestil A., AKAY D., Küçük D.
35. Ulusal Yöneylem Araştırması ve Endüstri Mühendisliği Kongresi, Ankara, Turkey, 9 - 11 September 2015, pp.31
- XIII. **TEXTURE FEATURES CORRESPONDING TO HUMAN TOUCH FEELING**
Elkharraz G., Thumfart S., AKAY D., Eitzinger C., Henson B.
16th IEEE International Conference on Image Processing, Cairo, Egypt, 7 - 10 November 2009, pp.1341-1342
- XIV. **The impact of automation and FMS in flight safety: Results of a survey and an experimental study**
AKAY D., ERASLAN E., Yoldas C.
7th International Conference on Engineering Psychology and Cognitive Ergonomics held at the HCI International 2007, Beijing, China, 22 - 27 July 2007, vol.4562, pp.631-632
- XV. **Evaluation of product design concepts using grey-fuzzy information axiom**
AKAY D., Kulak O.
IEEE International Conference on Grey Systems and Intelligent Services, Nanjing, China, 18 - 20 November 2007, pp.1040-1045
- XVI. **Usability ranking of intercity bus passenger seats using fuzzy axiomatic design theory**
ERASLAN E., AKAY D., KURT M.
Third International Conference on Cooperative Design, Visualization, and Engineering, CDVE 2006, Mallorca, Spain, 17 - 20 September 2006, vol.4101 LNCS, pp.141-148
- XVII. **Usable menu design using hierarchical clustering analysis: A case study on designing bank internet**

websites

ERASLAN E., AKAY D., Aydogmus Ç.

35th International Conference on Computers and Industrial Engineering, ICC and IE 2005, İstanbul, Turkey, 19 - 22 June 2005, pp.611-616

Supported Projects

Akay D., TUBITAK Project, DEVELOPMENT OF A FUZZY ARTIFICIAL SPIDER BASED SYSTEM WITH VISUAL, HAPTICS AND VISUAL - HAPTICS INTERACTION SPECIFIC TO THE SOFA PRODUCT, 2023 - 2024

Akay D., TUBITAK Project, Aralıklı Tip 2 Bulanık Kümelerle Dilsel Özetleme, 2013 - 2014

Akay D., Project Supported by Higher Education Institutions, Enerji Tüketimi Verilerine İlişkin Zaman Serilerinin Dilsel Özetlenmesi, 2012 - 2014

Akay D., Project Supported by Higher Education Institutions, Mesleki Bel Ağrısı Riskinin Destek Vektör Makineleriyle Sınıflandırılması, 2010 - 2011

Akay D., Eitzinger C., FP6 Project, SYNTEX Measuring the feelings and expectations associated with texture, 2006 - 2009

Activities in Scientific Journals

IEEE Access, Assistant Editor/Section Editor, 2018 - 2019

Memberships / Tasks in Scientific Organizations

IEEE - Senior Member, Member, 2018 - Continues, United States Of America

Metrics

Publication: 65

Citation (WoS): 2031

Citation (Scopus): 2841

H-Index (WoS): 15

H-Index (Scopus): 18

Scholarships

2219 - Yurt Dışı Doktora Sonrası Araştırma Burs Program, TUBITAK, 2007 - 2008