

# ALPHANUMERIC JOURNAL

Volume 6, Issue 1, 2018

---

*The Journal of Operations Research, Statistics, Econometrics and  
Management Information Systems*

---

## Editors

Bahadir Fatih YILDIRIM

bahadiryildirim@alphanumericjournal.com

Sultan Kuzu

sultankuzu@alphanumericjournal.com

## Production Editor

Hüseyin BURGAZOĞLU

h.burgazoglu@alphanumericjournal.com

Sümeyra UZUN

sumeyrauzun@alphanumericjournal.com

ISSN 2148-2225

<http://www.alphanumericjournal.com/>

<http://dergipark.gov.tr/alphanumeric>



**Alphanumeric Journal is a “Peer-Reviewed  
International Journal”.**

**The journal is semiannually published**

**in June and December.**

## Index



[TR Dizin](#)

TÜBITAK ULAKBİM TR Directory



[EconLit](#)

Economics Literature



[Index Copernicus](#)

International



[SOBIAD](#)

Social Science Citation Index



[CiteFactor](#)

Academic Scientific Journals



[ResearchBib](#)

Academic Resource Index



[Akademik Dizin](#)

Turkish Academic Journals Index



[Erih Plus](#)

The European Reference Index for the Humanities and the Social Sciences



[ArastirmaX](#)

Scientific Publication Index



[ASOS Index](#)

Academia Social Science Index



[AcarIndex](#)

Academic Researches Index



[DRJI](#)

Directory of Research Journals Indexing

## Database



[EBSCOhost](#)

Research Databases



[EKUAL](#)

National Academic License for Electronic Sources



[DOAJ](#)

Directory of Open Access Journals



[RePEc](#)

Research Papers in Economics



[EconPapers](#)

Economics at your fingertips



[Scilit](#)

Scientific Literature



[IDEAS](#)

Internet Documents in Economics Access Service

## Repository



[OpenAIRE](#)



[Turkey Academic Archive](#)



[JournalPark](#)

Academic

## Search Engine



[Google Scholar](#)



[Microsoft Academic](#)

# ALPHANUMERIC JOURNAL

Volume 6, Issue 1, 2018

## EDITORIAL BOARD

### Honorary Editors

---

- [David F. McAllister](#), NC State University, USA
- [Lyn Thomas](#), University of Southampton, UK
- [Myron Hlynka](#), University of Windsor, Ontario, Canada

### Advisory Editors

---

- [Ignacio Castillo](#), Wilfrid Laurier University, Ontario, Canada
- [Jaya Bishwal](#), University of North Carolina at Charlotte, Charlotte, USA
- [Jose Luis Alfaro Navarro](#), University of Castilla-La Mancha, Real, Spain
- [Konrad Kulakowski](#), AGH University of Science and Technology, Kraków, Poland
- [Miguel Ángel Goberna Torrent](#), University of Alicante, Spain
- [Mohd Lazim Abdullah](#), Universiti Malaysia Terengganu, Malaysia
- [Lapo Governi](#), Università degli Studi di Firenze, Italy
- [Qinan Wang](#), Nanyang Technological University, Singapore
- [Rajmund Mirdala](#), Technical University of Kosice, Kosice, Slovak Republic
- [Rocco Furferi](#), University of Florence, Firenze, Italy
- [S. Senthil](#), Kamaraj College of Engineering and Technology, Virudhunagar, India
- [Tadashi Dohi](#), Hiroshima University, Japan
- [Zeshui Xu](#), Sichuan University, Chengdu, P. R. China

### Area Editors

---

- [A. Neyran ORHUNBİLGE](#), Istanbul University, Istanbul, Turkey
- [Bilge ACAR BOLAT](#), Istanbul University, Istanbul, Turkey
- [Burak GÜRİŞ](#), Istanbul University, Istanbul, Turkey
- [Burcu ADIGÜZEL MERCANGÖZ](#), Istanbul University, Istanbul, Turkey
- [Burcu KIRAN](#), Istanbul University, Istanbul, Turkey
- [Cavit YEŞİLYURT](#), Ataturk University, Kars, Turkey
- [Cengiz KAHRAMAN](#), Istanbul Technical University, Istanbul, Turkey
- [Coşkun HAMZAÇEBİ](#), Karadeniz Technical University, Trabzon, Turkey
- [Çiğdem ARICİGİL ÇILAN](#), Istanbul University, Istanbul, Turkey
- [Dilek ALTAŞ](#), Marmara University, Istanbul, Turkey
- [Emine Ebru AKSOY](#), Gazi University, Ankara, Turkey
- [Emrah ÖNDER](#), Istanbul University, Istanbul, Turkey
- [Erdoğan ÖZTÜRK](#), Suleyman Demirel University, Isparta, Turkey

- Ergün EROĞLU, *Istanbul University, Istanbul, Turkey*
- Erhan ÖZDEMİR, *Istanbul University, Istanbul, Turkey*
- Esma Nur ÇİNİCİOĞLU, *Istanbul University, Istanbul, Turkey*
- Fatih ÇEMREK, *Eskişehir Osmangazi University, Eskisehir, Turkey*
- Fatih ECER, *Afyon Kocatepe University, Afyon, Turkey*
- H. Öner ESEN, *Istanbul University, Istanbul, Turkey*
- H. Zafer YÜKSEL, *University of Massachusetts Boston, USA*
- Hakan DEMİRGİL, *Suleyman Demirel University, Isparta, Turkey*
- Halim KAZAN, *Istanbul University, Istanbul, Turkey*
- Hamdi EMEÇ, *Dokuz Eylul University, Izmir, Turkey*
- İlker Murat AR, *Karadeniz Technical University, Trabzon, Turkey*
- İrfan ERTUĞRUL, *Pamukkale University, Denizli, Turkey*
- Koorosh Gharehbaghi, *RMIT University, Australia*
- L. Sinem SARUL, *Istanbul University, Istanbul, Turkey*
- M. Erdal BALABAN, *Istanbul University, Istanbul, Turkey*
- M. Vedat PAZARLIOĞLU, *Dokuz Eylul University, Izmir, Turkey*
- Mahmut ERDOĞAN, *Gumushane University, Gumushane, Turkey*
- Mahmut ZORTUK, *Dumlupınar University, Kutahya, Turkey*
- Mehpore TİMOR, *Istanbul University, Istanbul, Turkey*
- Miguel Angel Bautista Martin, *University of Barcelona, Spain*
- Mustafa CAN, *Istanbul University, Istanbul, Turkey*
- Nazif ÇALIŞ, *Adiyaman University, Adiyaman, Turkey*
- Necmi GÜRSAKAL, *Uludağ University, Bursa, Turkey*
- Neslihan FİDAN, *Istanbul University, Istanbul, Turkey*
- Nezih Metin ÖZMUTAF, *Izmir Katip Celebi University, Izmir, Turkey*
- Nihat TAŞ, *Istanbul University, Istanbul, Turkey*
- Nilgün ÇİL, *Istanbul University, Istanbul, Turkey*
- Oğuz AKBİLGİÇ, *University of Tennessee, Canada*
- Ötüken SENGER, *Kafkas University, Kars, Turkey*
- Özgür ÇAKIR, *Marmara University, Istanbul, Turkey*
- Özlem KUVAT, *Balikesir University, Balikesir, Turkey*
- Rauf NİŞEL, *Marmara University, Istanbul, Turkey*
- Reşat KASAP, *Gazi University, Ankara, Turkey*
- Sadi Evren ŞEKER, *Istanbul Medeniyet University, Istanbul, Turkey*
- Seda TOLUN, *Istanbul University, Istanbul, Turkey*
- Selahattin GÜRİŞ, *Marmara University, Istanbul, Turkey*
- Selim BAŞAR, *Ataturk University, Erzurum, Turkey*
- Seung Hyun BAEK, *Hanyang University, South Korea*
- Seyhan NİŞEL, *Istanbul University, Istanbul, Turkey*
- Sinan SARAÇLI, *Afyon Kocatepe University, Afyon, Turkey*
- Sona MARDİKYAN, *Bogazici University, Istanbul, Turkey*
- Şakir ESNAF, *Istanbul University, Istanbul, Turkey*
- Şebnem AKAL, *Marmara University, Istanbul, Turkey*
- Şebnem ER, *University of Cape Town, South Africa*
- Tunçhan CURA, *Istanbul University, Istanbul, Turkey*
- U. Tuğba ŞİMŞEK GÜRSOY, *Istanbul University, Istanbul, Turkey*
- Ulaş AKKÜÇÜK, *Bogazici University, Istanbul, Turkey*
- Vincent F. YU, *National Taiwan University of Science and Technology, Taiwan*
- Yeliz YALÇIN, *Gazi University, Ankara, Turkey*

# ALPHANUMERIC JOURNAL

Volume 6, Issue 1, 2017

## CONTENTS

### A Hybrid Multi-Criteria Decision Making Approach for New Destination Selection in Aviation Industry

**1-12**

Havacılık Endüstrisinde Yeni Destinasyon Seçimi İçin Hibrit Bir Çok Kriterli Karar Verme Yaklaşımı

*Tuncay Özcan*

---

### Route Optimization of Malatya Metropolitan Municipality Pesticide Vehicles

**13-24**

Malatya Büyükşehir Belediyesi İlaçlama Araçlarının Güzergahlarının Optimizasyonu

*Hasan Söyler, Eda Fendoğlu*

---

### Risk-Based DEA Efficiency and SSD Efficiency of OECD Members Stock Indices

**25-36**

Risk-Tabanlı VZA ve Stokastik Baskınlik Kriteri ile OECD Üyelerinin Hisse Senedi Endekslerinin Etkinliği

*Neslihan Fidan Keçeci, Yonca Erdem Demirtaş*

---

### An Ant Colony Optimization Algorithm Approach for Solving Multi-objective Capacitated Vehicle Routing Problem

**37-48**

Çok Amaçlı Kapasite Kısıtlı Araç Rotalama Problemi Çözümünde Bir Karınca Kolonisi Optimizasyon Algoritması Yaklaşımı

*Osman Pala, Mehmet Aksaraylı*

---

### Sustainable and Renewable Energy Power Plants Evaluation by Fuzzy TODIM Technique

**49-68**

Sürdürülebilir ve Yenilenebilir Enerji Santrallerinin Bulanık TODIM Yöntemiyle Değerlendirilmesi

*A. Çağrı Tolga, Zeynep K. Turgut*

---

### Using an Integrated Grey AHP-MOORA Approach for Personnel Selection: An Application on Manager Selection in the Health Industry

**69-82**

Personel Seçimi için Bütünleşik Gri AHP-MOORA Yaklaşımının Kullanılması: Sağlık Sektöründe Yönetici Seçimi Üzerine Bir Uygulama

*Yakup Çelikbilek*

---

### Analysis of Parameters Affecting The Smart Phone Design By Using Fuzzy Kano Model

**83-92**

Akıllı Telefon Tasarımına Etki Eden Parametrelerin Bulanık Kano Modeli ile Analizi

*Selçuk Çebi, Esra İlbahar*

---

### Economic Freedom Index Calculation Using FCM

**93-116**

FCM Kullananak Ekonomik Özgürlük Endeks Hesaplaması

*Necati Alp Erilli*

# ALPHANUMERIC JOURNAL

Volume 6, Issue 1, 2017

## CONTENTS

- 117-132** **The Econometric Analysis of the Relationship Between Perceived Corruption, Foreign Trade and Foreign Direct Investment in the Context of International Indices**  
Algılanan Yolsuzluk ile Dış Ticaret ve Doğrudan Yabancı Yatırım Arasındaki İlişkinin Uluslararası Endeksler Bağlamında Ekonometrik Analizi  
*Büşra Gezikol, Hakan Tunahan*
- 
- 133-150** **Attitudes of University Students on Nuclear Power Plants: A Proposal of the Structural Equation Model**  
Üniversite Öğrencilerinin Nükleer Santraller Hakkındaki Tutumları: Bir Yapısal Eşitlik Model Önerisi  
*Veysel Yılmaz, Yusuf Bilge*
- 
- 151-176** **Implementation Six Sigma of Service Industry: A Case of Tourism Industry**  
Hizmet Sektöründe Altı Sigma Kalite Felsefesinin Uygulanması: Bir Turizm İşletmesi Örneği  
*Ötüken Senger, Ömer Cengiz*
- 
- 177-192** **Fuzzy Goal Programming Problem Based on Minmax Approach for Optimal System Design**  
Optimal Sistem Tasarımı İçin Minmaks Tabanlı Bulanık Hedef Programlama Kullanımı  
*Nurullah Umarusman*
- 
- 193-210** **Compositional Data: A Different Perspective to Registered Motor Land Vehicles**  
Bütünleşik Veri: Kayıtlı Motorlu Kara Taşıtlarına Farklı Bir Bakış  
*Levent Terlemez, Cenk İçöz*