Prof. RİFAT SÖNMEZ

Personal Information

Office Phone: +90 312 210 2422
Email: rsonmez@metu.edu.tr
Web: https://avesis.metu.edu.tr/rsonmez

International Researcher IDs
ScholarID: yDNroQ8AAAAJ
ORCID: 0000-0001-6163-3264
Publons / Web Of Science ResearcherID: AAQ-4963-2020
ScopusID: 6602554238
Yoksis Researcher ID: 182806

Education Information

Doctorate, Iowa State University of Science and Technology, İnşaat Mühendisliği (Yapım Yönetimi), United States Of America 1992 - 1996
Postgraduate, Iowa State University of Science and Technology, İnşaat Mühendisliği (Yapım Yönetimi), United States Of America 1990 - 1992
Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, Turkey 1986 - 1990

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Construction labor productivity modeling with neural networks and regression analysis, Iowa State University Of Science And Technology, İnşaat Mühendisliği (Yapım Yönetimi), 1996
Postgraduate, A data-based activity duration forecast system for construction projects, Iowa State University Of Science And Technology, İnşaat Mühendisliği (Yapım Yönetimi), 1992

Research Areas

Computer Learning, Evolutionary Computing, Neural Networks, Informatics in Construction Management, Construction Management

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2017 - Continues
Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2009 - 2017

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2002 - 2009

Courses

CONSTRUCTION PROJECT MANAGEMENT, Postgraduate, 2018 - 2019
CONSTRUCTION ENGINEERING &MANAGEMENT, Undergraduate, 2017 - 2018
SPEC.STUD.IN CIVIL ENG.CONST.COST ESTIM.CONTROL, Undergraduate, 2018 - 2019

Advising Theses

SÖNMEZ R., A decentralized bim document management system with blockchain and IPFS integration for construction project delivery, Postgraduate, F.KOÇ(Student), 2022

SÖNMEZ R., A model for evaluating the potential of litigation due to contract ambiguity in international construction projects, Postgraduate, A.YENİŞEHİRLİOĞLU(Student), 2022

SÖNMEZ R., Smart contract systems for guaranteed and timely payment of construction projects, Postgraduate, S.Ahmadisheykhsarmast(Student), 2020

SÖNMEZ R., Integrated resource leveling and cash flow optimization for construction projects using symbiotic organisms search algorithm, Postgraduate, B.Seyisoğlu(Student), 2020

SÖNMEZ R., An Integrated regression-bootstrap sampling scheduling method for probabilistic duration range estimation of construction projects, Postgraduate, Ö.Barış(Student), 2019

SÖNMEZ R., A GAME THEORY BASED NEGOTIATION METHOD FOR DISPUTE RESOLUTION OF CONSTRUCTION PROJECTS, Postgraduate, C.BARIŞ(Student), 2019

SÖNMEZ R., A FTOPSIS based occupational health and safety risk management method for identifying optimal safety measures for building construction projects, Postgraduate, B.Kılınç(Student), 2019

SÖNMEZ R., Identification and modeling of critical success factors of portfolio management in construction sector, Postgraduate, A.Sercenk(Student), 2019

SÖNMEZ R., Heuristic and exact methods for the large-scale discrete time-cost trade-off problems, Doctorate, S.AMINBAKHSH(Student), 2018

SÖNMEZ R., A decision support system for value for money analysis of minimum revenue guaranteed road projects, Postgraduate, Z.EMRE(Student), 2018

SÖNMEZ R., A multi-criteria decision support system for optimal allocation of subcontractors in construction projects, Postgraduate, S.AKKERMAN(Student), 2016

SÖNMEZ R., A mixed integer programming method for integrated discrete time-cost trade-off and manpower resource leveling problem, Postgraduate, A.CAN(Student), 2016

SÖNMEZ R., A Multi-criteria decision support system for optimal allocation of subcontractors in construction projects, Postgraduate, S.Akkerman(Student), 2016

SÖNMEZ R., A hybrid genetic algorithm for multi mode resource constrained scheduling problem for large size projects, Postgraduate, M.GÜREL(Student), 2015

SÖNMEZ R., A Support vector regression method for conceptual cost estimate of construction projects, Postgraduate, İ.BERKİ(Student), 2015

SÖNMEZ R., A mixed integer programming method for Pareto front optimization of discrete time cost trade-off problem, Postgraduate, M.BİLİR(Student), 2015

SÖNMEZ R., Development of high performance heuristic and meta-heuristic methods for resource optimization of large scale construction projects, Doctorate, M.ABBASİ(Student), 2015

SÖNMEZ R., A decision support tool for contingency and profit analysis of international construction portfolios, Postgraduate, N.ÖZÇELİK(Student), 2015

SÖNMEZ R., A mixed linear integer model for military facility layout optimization problem, Postgraduate, H.BAHADIR(Student), 2015

SÖNMEZ R., A Decision support tool for contingency and profit analysis of international construction portfolios, Postgraduate, N.Özçelik(Student), 2015

SÖNMEZ R., Hybrid meta-heuristic algorithms for the resource constrained multi-project scheduling problem, Doctorate, F.UYSAL(Student), 2014

SÖNMEZ R., The resource allocation capabilities of commercial construction project management software for the resource leveling problem, Postgraduate, E.REZVAN(Student), 2014

SÖNMEZ R., The Resource allocation capabilities of commercial construction project management software for the resource leveling problem /, Postgraduate, E.Rezvan(Student), 2014

SÖNMEZ R., Hybrid particle swarm optimization algorithm for obtaining pareto front of discrete time cost trade-off problem, Postgraduate, S.Aminbakhsh(Student), 2013

SÖNMEZ R., An efficient branch and bound algorithm for the resource leveling problem, Postgraduate, H.YENİOCAK(Student), 2013

SÖNMEZ R., Conceptual quantity modeling of single span highway bridges by regression, neural networks and case based reasoning methods, Postgraduate, M.Aşıkgil(Student), 2012

SÖNMEZ R., A genetic algorithm for the resource constrained project scheduling problem, Postgraduate, E.Özleyen(Student), 2011

SÖNMEZ R., Cash flow analysis of construction projects using fuzzy set theory, Postgraduate, S.Melik(Student), 2010

SÖNMEZ R., A branch and bound algorithm for resource leveling problem, Postgraduate, M.Çağdaş(Student), 2010

SÖNMEZ R., A comparative study of regression analysis, neural networks and case-based reasoning for early range cost estimation of mass housing projects, Postgraduate, H.Karancı(Student), 2010

SÖNMEZ R., Prediction of litigation probability for international construction projects during bidding stage, Postgraduate, İ.Ayten(Student), 2010

SÖNMEZ R., Optimization of time-cost-resource trade-off problems in project scheduling using meta-heuristic algorithms, Doctorate, Ö.Halis(Student), 2009

SÖNMEZ R., The resource allocation capabilities of commercial project management software packages for resource constrained project scheduling problem, Postgraduate, K.Çekmece(Student), 2009

SÖNMEZ R., Neural network and regression models to decide whether or not to bid for a tender in offshore petroleum platform fabrication industry, Postgraduate, B.Sözgen(Student), 2009

SÖNMEZ R., Comparison of parametric models for conceptual duration estimation of building projects, Postgraduate, A.HELVACI(Student), 2008

SÖNMEZ R., Determining the thickness of concrete pavements using the impact-echo test method, Postgraduate, F.Uysal(Student), 2007

SÖNMEZ R., Building cost index forecasting with time series analysis, Postgraduate, M.Alptekin(Student), 2007

SÖNMEZ R., Perceptions of Turkish contractors toward ISO 9001 quality, ISO 14001 environmental and OHSAS 18001 occupational health and safety management systems, Postgraduate, E.İnce(Student), 2006

SÖNMEZ R., Determination of contingency for international construction project during bidding stage, Postgraduate, A.Arif(Student), 2005

SÖNMEZ R., Conceptual cost estimating of urban railway system projects, Postgraduate, M.BAHADIR(Student), 2005

SÖNMEZ R., Determination of a price index for escalation of building construction costs in Turkey, Postgraduate, S.Kahraman(Student), 2005

Published journal articles indexed by SCI, SSCI, and AHCI

I. **A Memetic Algorithm for the Solution of the Resource Leveling Problem**
    Iranagh M., SÖNMEZ R., Atan T., Uysal F., BETTEMİR Ö. H.
    Buildings, vol.13, no.11, 2023 (SCI-Expanded)

II. **A transformative solution for construction safety: Blockchain-based system for accident information management**
    Ahmadisheykhsarmast S., Aminbakhsh S., Sönmez R., Uysal F.
    Journal of Industrial Information Integration, vol.35, 2023 (SCI-Expanded)

III. **Decentralized tendering of construction projects using blockchain-based smart contracts and storage systems**
Ahmadisheykhsarmast S., Senji S. G., SÖNMEZ R.
Automation in Construction, vol.151, 2023 (SCI-Expanded)

IV. **Blockchain in project management: a systematic review of use cases and a design decision framework**
SÖNMEZ R., Sönmez F. Ö., Ahmadisheykhsarmast S.
Journal of Ambient Intelligence and Humanized Computing, vol.14, no.7, pp.8433-8447, 2023 (SCI-Expanded)

V. **Bootstrap Aggregated Case-Based Reasoning Method for Conceptual Cost Estimation**
Uysal F., SÖNMEZ R.
Buildings, vol.13, no.3, 2023 (SCI-Expanded)

VI. **BIM integrated smart contract for construction project progress payment administration**
Sönmez R., Ahmadisheykhsarmast S., Akçamete Güngör A.
AUTOMATION IN CONSTRUCTION, vol.139, 2022 (SCI-Expanded)

VII. **A graphical processing unit-based parallel hybrid genetic algorithm for resource-constrained multi-project scheduling problem**
Uysal F., SÖNMEZ R., İŞLEYEN S. K.
CONCURRENCY AND COMPUTATION-PRACTICE & EXPERIENCE, vol.33, no.16, 2021 (SCI-Expanded)

VIII. **Discussion of "Artificial Intelligence and Parametric Construction Cost Estimate Modeling: State-of-the-Art Review" by Haytham H. Elmousalami**
SÖNMEZ R., Uysal F.
JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT, vol.147, no.6, 2021 (SCI-Expanded)

IX. **A smart contract system for security of payment of construction contracts**
Ahmadisheykhsarmast S., SÖNMEZ R.
Automation in Construction, vol.120, 2020 (SCI-Expanded)

X. **Activity Uncrashing Heuristic with Noncritical Activity Rescheduling Method for the Discrete Time-Cost Trade-Off Problem**
SÖNMEZ R., Aminbakhsh S., Atan T.
JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT, vol.146, no.8, 2020 (SCI-Expanded)

XI. **A SUPPORT VECTOR MACHINE METHOD FOR BID/NO BID DECISION MAKING**
SÖNMEZ R., Soezgen B.
JOURNAL OF CIVIL ENGINEERING AND MANAGEMENT, vol.23, no.5, pp.641-649, 2017 (SCI-Expanded)

XII. **Pareto Front Particle Swarm Optimizer for Discrete Time-Cost Trade-Off Problem**
Aminbakhsh S., SÖNMEZ R.
JOURNAL OF COMPUTING IN CIVIL ENGINEERING, vol.31, no.1, 2017 (SCI-Expanded)

XIII. **Hybrid Optimization Method for Large-Scale Multimode Resource-Constrained Project Scheduling Problem**
SÖNMEZ R., Gurel M.
JOURNAL OF MANAGEMENT IN ENGINEERING, vol.32, no.6, 2016 (SCI-Expanded)

XIV. **Discrete particle swarm optimization method for the large-scale discrete time-cost trade-off problem**
Aminbakhsh S., SÖNMEZ R.
EXPERT SYSTEMS WITH APPLICATIONS, vol.51, pp.177-185, 2016 (SCI-Expanded)

XV. **Critical Sequence Crashing Heuristic for Resource-Constrained Discrete Time-Cost Trade-Off Problem**
SÖNMEZ R., Iranagh M. A., Uysal F.
JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT, vol.142, no.3, 2016 (SCI-Expanded)

XVI. **Hybrid Genetic Algorithm with Simulated Annealing for Resource-Constrained Project Scheduling**
BETTEMİR Ö. H., SÖNMEZ R.
JOURNAL OF MANAGEMENT IN ENGINEERING, vol.31, no.5, 2015 (SCI-Expanded)

XVII. **Backward-Forward Hybrid Genetic Algorithm for Resource-Constrained Multiproject Scheduling Problem**

SÖNMEZ R., Uysal F.

JOURNAL OF COMPUTING IN CIVIL ENGINEERING, vol.29, no.5, 2015 (SCI-Expanded)

XVIII. **Safety risk assessment using analytic hierarchy process (AHP) during planning and budgeting of construction projects**

Aminbakhsh S., Gunduz M., SÖNMEZ R.

JOURNAL OF SAFETY RESEARCH, vol.46, pp.99-105, 2013 (SSCI)

XIX. **A hybrid genetic algorithm for the discrete time-cost trade-off problem**

SÖNMEZ R., Bettemir O. H.

EXPERT SYSTEMS WITH APPLICATIONS, vol.39, no.13, pp.11428-11434, 2012 (SCI-Expanded)

XX. **Range estimation of construction costs using neural networks with bootstrap prediction intervals**

SÖNMEZ R.

EXPERT SYSTEMS WITH APPLICATIONS, vol.38, no.8, pp.9913-9917, 2011 (SCI-Expanded)

XXI. **PREDESIGN COST ESTIMATION OF URBAN RAILWAY PROJECTS WITH PARAMETRIC MODELING**

SÖNMEZ R., Ontepeli B.

JOURNAL OF CIVIL ENGINEERING AND MANAGEMENT, vol.15, no.4, pp.405-409, 2009 (SCI-Expanded)

XXII. **Parametric Range Estimating of Building Costs Using Regression Models and Bootstrap**

Sonmez R.

JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT-ASCE, vol.134, no.12, pp.1011-1016, 2008 (SCI-Expanded)

XXIII. **Geographic information system-based visualization system for planning and monitoring of repetitive construction projects**

SÖNMEZ R., Uysal F.

CANADIAN JOURNAL OF CIVIL ENGINEERING, vol.35, no.11, pp.1342-1346, 2008 (SCI-Expanded)

XXIV. **Impact of occasional overtime on construction labor productivity: quantitative analysis**

Sonmez R.

CANADIAN JOURNAL OF CIVIL ENGINEERING, vol.34, no.7, pp.803-808, 2007 (SCI-Expanded)

XXV. **Quantiative Methodology for Determination of Cost Contingency in International Projects**

SÖNMEZ R., ergin a., BİRGÖNÜL M. T.

Journal Of Management In Engineering, vol.23, pp.35-39, 2007 (SCI-Expanded)

XXVI. **Conceptual cost estimation of building projects with regression analysis and neural networks**

Sonmez R.

CANADIAN JOURNAL OF CIVIL ENGINEERING, vol.31, no.4, pp.677-683, 2004 (SCI-Expanded)

XXVII. **Construction labor productivity modeling with neural networks**

Sonmez R., Rowings J.

JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT-ASCE, vol.124, no.6, pp.498-504, 1998 (SCI-Expanded)

Articles Published in Other Journals

I. **A mixed integer programming method for multi-project resource leveling**

Altun M., Sönmez R., Akçamete Güngör A.

Journal of Construction Engineering, Management Innovation, vol.3, no.2, pp.131-140, 2020 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

I. **4D BIM Integrated Productivity Revision of ConstructionProjects**

Khataei S., AKÇAMETE GÜNGÖR A., SÖNMEZ R.

6th International Project and Construction Management Conference (e-IPCMC2020), İstanbul, Turkey, 12 - 14

November 2020, pp.572-580

II. **A Heuristic for Resource-Constrained Multi-ProjectDiscrete Time-Cost Trade-Off Problem**
SEYİSOĞLU O. B., AMINBAKHSH S., SÖNMEZ R.
International Project and Construction Management Conference, IPCMC 2018, Cyprus (Kktc), 16 - 18 November 2018

III. **Smart Contracts in Construction Industry**
Salar A., SÖNMEZ R.
IPCMC 2018, 16 - 18 November 2018, pp.767-774

IV. **Integrating a Meta-Heuristic Method into Microsoft Project for Time-Cost Trade-off Analyses**
AMINBAKHSH S., SÖNMEZ R., Aminbakhsh S., Atan T.
International Project and Construction Management Conference, IPCMC 2018, Cyprus (Kktc), 16 - 18 November 2018

V. **An Efficient Heuristic Method for Pareto Oriented Optimization of Time-Cost Trade-Off Problem for Construction Projects**
AMINBAKHSH S., SÖNMEZ R., Atan T.
Procs IO2017 The XVIII Congress of the Portuguese Association of Operational Research, Valencia, Spain, 28 - 30 June 2017

VI. **Project Portfolio Management Software Use in Construction Industry**
DEMİRÇEKEN O., KESKİN B., SÖNMEZ R.
Creative Construction Conference 2016, Budapest, Hungary, 25 - 28 June 2016, vol.1, pp.420-425

VII. **A Mixed Integer Model for Optimization of Discrete Time Cost Tradeoff Problem**
TATAR A. C., BİLİR M., SÖNMEZ R., ATAN S. T.
Creative Construction Conference 2016, Budapest, Hungary, 25 - 28 June 2016, vol.1, pp.478-485

VIII. **Pareto oriented optimization of discrete time cost trade off problem using particle swarm optimization**
Aminbakhsh S., SÖNMEZ R.
31st Annual ARCOM Conference, Lincoln, United Kingdom, 7 - 09 September 2015, pp.33-40

IX. **A genetic algorithm for resource leveling of construction projects**
Iranagh M. A., SÖNMEZ R.
28th Annual Conference of the Association of Researchers in Construction Management, ARCOM 2012, Edinburgh, United Kingdom, 3 - 05 September 2012, vol.2, pp.1047-1054

X. **Review of conceptual cost modeling techniques**
SÖNMEZ R.
2005 AACE International 49th Annual Meeting, New Orleans, LA, United States Of America, 26 - 29 June 2005, pp.1-4

XI. **Labor productivity modeling with neural networks**
Rowings Jr. J. E., Sonmez R.
Proceedings of the 1996 40th Annual Meeting of AACE International, Vancouver, Canada, 23 - 26 June 1996

Supported Projects

SÖNMEZ R., KHATAEI S., AKÇAMETE GÜNGÖR A., Project Supported by Higher Education Institutions, İnşaat Projelerinde Mobil Kaynaklar Arasındaki Zaman-Mekan Çatışmasını Tespit İçin Yapı Bilgi Modellemesi Ve Ajan Tabanlı Bir Simülasyon Yöntemi, 2021 - 2022

SÖNMEZ R., TUBITAK Project, İnşaat Yapım Projelerinde Kesikli Zaman Maliyet Ödünleşim Probleminin Çözümü İçin Etkin Bir Memetik Yöntem Geliştirilmesi, 2014 - 2016

SÖNMEZ R., TUBITAK Project, İnşaat Yapım Projelerinde Kaynak Dengeleme Problemi İçin Yüksek Performanslı Kesin Ve Üst-Sezgisel Yöntemler Geliştirilmesi, 2011 - 2014

SÖNMEZ R., Project Supported by Higher Education Institutions, Üst-Sezgisel Yöntemlerle Kısıtlı Kaynaklı Birden Fazla Proje İçin İş Programı Hazırlanması, 2010 - 2010

Metrics

Publication: 43
Citation (WoS): 1173
Citation (Scopus): 1422
H-Index (WoS): 17
H-Index (Scopus): 16

Non Academic Experience

METU
Company, AMEC-Attila Dogan Joint Venture, MgO Plant Project
METU
AGRA Monenco - Attila Dogan JV
Company, Attila Dogan Construction Company, EGO Ankara Gas Distribution Project Phase II
Attila Dogan Construction Co.
Iowa State University