

Assoc. Prof. FERHAT AKGÜL

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: G-4152-2019

ScopusID: 6602100017

Yoksis Researcher ID: 163325

Education Information

Doctorate, University of Colorado at Boulder, Faculty of Engineering, Department Of Civil, Environmental And Architectural Engineering, United States Of America 1997 - 2002

Postgraduate, University of New Mexico, Faculty of Engineering, Department Of Civil Engineering , United States Of America 1987 - 1989

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, Turkey 1982 - 1987

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Lifetime System Reliability Prediction of Multiple Structure Types in a Bridge Network, (Volumes I, II, III)

Total of 1,150 pages, University of Colorado at Boulder, Faculty of Engineering, Department of Civil, Environmental and Architectural Engineering, 2002

Postgraduate, Computer Aided Structural Design of a Lunar Radio Telescope, University of New Mexico, Faculty of Engineering, Department Of Civil Engineering , 1989

Research Areas

Structure, Structural Engineering, Steel Structures, Performance of Constructed Facilities, Concrete Structures, Repair and Strengthening in Buildings

Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Engineering Sciences, 2014 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Engineering Sciences, 2004 - 2014

Research Assistant, University of Colorado at Boulder, Faculty of Engineering, Department of Civil, Environmental and Architectural Engineering, 1997 - 2002

Research Assistant, The University of New Mexico, Faculty of Engineering, Department of Civil Engineering , 1987 - 1989

Courses

ES224 - STRENGTH OF MATERIALS, Undergraduate, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2008 - 2009, 2007 - 2008, 2006 - 2007

ES223 - STATICS AND STRENGTH OF MATERIALS, Undergraduate, 2014 - 2015, 2012 - 2013, 2011 - 2012, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007

ES221 - ENGINEERING MECHANICS, Undergraduate, 2014 - 2015, 2013 - 2014, 2010 - 2011, 2007 - 2008, 2004 - 2005

ES506 - RELIABILITY, Postgraduate, 2005 - 2006, 2004 - 2005

CVEN 3227 - Probability, Statistics, and Decision for Civil Engineers, Undergraduate, 1999 - 2000

CVEN 5555 - Structural Reliability, Undergraduate, 1999 - 2000

CVEN 3161 - Mechanics of Materials, Undergraduate, 1997 - 1998

Advising Theses

AKGÜL F., Classification of bridge damages and costs for optimal maintenance planing based on markov decision process, Postgraduate, R.ASLZAD(Student), 2016

AKGÜL F., Time variant component and system reliability analysis of bridges, Postgraduate, V.GHASEMNEJAD(Student), 2015

AKGÜL F., Development of the bridge management system for Turkey by introducing a condition rating model based on damage types, Doctorate, F.MASOUMI(Student), 2014

AKGÜL F., Lifetime condition prediction for bridges, Doctorate, H.BAYRAK(Student), 2011

Research Infrastructure Information

Akgül F., Establishment of a computational infrastructure within the department, January 2010

Akgül F., Bridge Management System Development Laboratory, January 2010

Akgül F., Damage Detection and Inspection Laboratory, January 2010

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Development of Aerodynamic and Propulsion Models Using the Iterative Equation Error Method**
Millidere M., AKGÜL F., LEBLEBİCİOĞLU M. K., Whidborne J. F.
Aerospace, vol.11, no.1, 2024 (SCI-Expanded)
- II. **Inspection and evaluation of a network of concrete bridges based on multiple NDT techniques**
AKGÜL F.
STRUCTURE AND INFRASTRUCTURE ENGINEERING, vol.17, pp.1076-1095, 2020 (SCI-Expanded)
- III. **Bridge management in Turkey: a BMS design with customised functionalities**
AKGÜL F.
STRUCTURE AND INFRASTRUCTURE ENGINEERING, vol.12, no.5, pp.647-666, 2016 (SCI-Expanded)
- IV. **Development of a bridge management system incorporating a newly developed model for element condition evaluation based on damage effects**
AKGÜL F.

STRUCTURE AND INFRASTRUCTURE ENGINEERING, vol.9, no.12, pp.1206-1224, 2013 (SCI-Expanded)

- V. **Lifetime Performance Analysis of Existing Reinforced Concrete Bridges. I: Theory**
Akguel F., Frangopol D. M.
JOURNAL OF INFRASTRUCTURE SYSTEMS, vol.11, no.2, pp.122-128, 2005 (SCI-Expanded)
- VI. **Lifetime Performance Analysis of Existing Reinforced Concrete Bridges. II: Application**
Akguel F., Frangopol D. M.
JOURNAL OF INFRASTRUCTURE SYSTEMS, vol.11, no.2, pp.129-141, 2005 (SCI-Expanded)
- VII. **Lifetime performance analysis of existing steel girder bridge superstructures**
Akguel F., Frangopol D.
JOURNAL OF STRUCTURAL ENGINEERING-ASCE, vol.130, no.12, pp.1875-1888, 2004 (SCI-Expanded)
- VIII. **Lifetime performance analysis of existing prestressed concrete bridge superstructures**
Akguel F., Frangopol D.
JOURNAL OF STRUCTURAL ENGINEERING-ASCE, vol.130, no.12, pp.1889-1903, 2004 (SCI-Expanded)
- IX. **Time-dependent interaction between load rating and reliability of deteriorating bridges**
Akguel F., Frangopol D.
ENGINEERING STRUCTURES, vol.26, no.12, pp.1751-1765, 2004 (SCI-Expanded)
- X. **Bridge rating and reliability correlation: Comprehensive study for different bridge types**
AKGÜL F., Frangopol D.
Journal Of Structural Engineering-Asce, vol.130, pp.1063-1074, 2004 (SCI-Expanded)
- XI. **Computational platform for predicting lifetime system reliability profiles for different structure types in a network**
AKGÜL F., Frangopol D.
Journal Of Computing In Civil Engineering, vol.18, pp.92-104, 2004 (SCI-Expanded)
- XII. **Rating and reliability of existing bridges in a network**
AKGÜL F., Frangopol D. M.
Journal Of Bridge Engineering, vol.8, pp.383-392, 2003 (SCI-Expanded)
- XIII. **Structural design of a lunar radio telescope using interactive CAD**
AKGÜL F., Gerstle W. H., Johnson S.
Journal Of Aerospace Engineering, vol.5, 1992 (SCI-Expanded)

Articles Published in Other Journals

- I. **A Damage-based Maintenance and Repair Optimization Method Using Linear Programming for Deteriorating Systems**
AKGÜL F., Masoumi F.
IACSIT International Journal of Engineering and Technology, 2012 (Peer-Reviewed Journal)
- II. **Yielding and Elastoplastic Deformation of Annular Disks of a Parabolic Section Subject to External Compression**
AKGÜL F., ERASLAN A. N.
Turkish Journal of Engineering and Environmental Sciences, vol.29, no.1, pp.51-60, 2005 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **Multi-Fidelity Aerodynamic Dataset Generation of a Fighter Aircraft with a Deep Neural-Genetic Network**
Millidere M., Gomec F. S., Kurt H. B., AKGÜL F.
AIAA Aviation and Aeronautics Forum and Exposition, AIAA AVIATION Forum 2021, Virtual, Online, 2 - 06 August 2021
- II. **Evaluation of inspection data based on multiple NDT techniques for a bridge network**

Akgül F.

LCM 2019 - Workshop on Life-Cycle Management, Rotterdam, Netherlands, 27 - 29 October 2019, pp.1

- III. **Time-variant reliability analysis incorporating multiple deterioration and live load models**
Berenji V. G., AKGÜL F.
5th International Symposium on Life-Cycle Civil Engineering (IALCCE), Delft, Netherlands, 16 - 20 October 2016, pp.1033-1037
- IV. **A Correlation Study for Concrete Resistance vs. Ultrasonic Pulse Velocity for a Group of Reinforced Concrete Bridges**
AKGÜL F.
Proceedings of the 19th Congress of IABSE Stockholm, Challenges in Design and Construction of an Innovative and Sustainable Built Environment, pp. 1834., Stockholm, Sweden, 21 - 23 September 2016
- V. **Condition Assessment Based on Visual Inspection and Nondestructive Evaluation of Highway Bridges in Turkey**
AKGÜL F., Masoumi F.
NDE/NDT for Structural Materials Technology for Highways and Bridges, ASNT, The American Society for Nondestructive Testing, Grand Hyatt Washington, Washington, D.C., USA, 25 - 27 August 2014
- VI. **Inspection, testing and evaluation of reinforced concrete bridges in Turkey**
AKGÜL F., Masoumi F.
SMAR2013, Second Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures, 9-11 September 2013, Istanbul Technical University, ITU, Istanbul, Turkey., 9 - 11 September 2013
- VII. **A pilot study for inspection, damage assessment and management of bridges in Turkey**
AKGÜL F., Masoumi F.
SMAR2013, Second Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures, 9-11 September 2013, Istanbul Technical University, ITU, Istanbul, Turkey., 9 - 11 September 2013
- VIII. **Evaluation of Condition States of Bridge Elements Based on the Intensity of Different Damage Types**
AKGÜL F., Masoumi F.
10th International Congress on Advances in Civil Engineering, 17-19 October 2012, Middle East Technical University, Ankara, Turkey, p. 293., 17 - 19 October 2012
- IX. **Optimization of Maintenance, Repair and Rehabilitation Actions in a Novel Bridge Management System**
AKGÜL F., Masoumi F.
10th International Congress on Advances in Civil Engineering, 17-19 October 2012, Middle East Technical University, Ankara, Turkey, p. 261., 17 - 19 October 2012
- X. **A BMS development project with an integrated inspection program**
Akgul F.
6th International Conference on Bridge Maintenance, Safety and Management (IABMAS), Stresa, Italy, 8 - 12 July 2012, pp.2659-2665
- XI. **Development of a Computational Tool for Performance Prediction Models for Bridges**
Akgül F., Bayrak H.
9th International Congress on Advances in Civil Engineering, Trabzon, Turkey, 27 - 30 September 2010
- XII. **Development of a Bridge Inspection and Management Project**
AKGÜL F.
34th IABSE Symposium, Large Structures and Infrastructures for Environmentally Constrained and Urbanized Areas, Venice, Italy, 22 - 24 September 2010
- XIII. **Probabilistic performance prediction modeling for bridges considering maintenance effects within a combined computation, visualization and programming environment**
Akgul F.
5th International Conference on Bridge Maintenance, Safety and Management (IABMAS), Pennsylvania, United States Of America, 11 - 15 July 2010, pp.1361-1366
- XIV. **Yapıların yaşamboyu yıpranma eğrilerinin simülasyon ile modellenmesi**
AKGÜL F.

Proceedings of the XVI. UMK-Ulusal Mekanik Kongresi Bildiriler (National Mechanics Congress), Kayseri, Turkey, Turkey, 22 - 26 June 2009

XV. Development strategies for a web-based bridge maintenance management system

AKGÜL F.

Proceedings of the IABSE (International Association for Bridge and Structural Engineering) Symposium, Improving Infrastructure Worldwide, Weimar, Germany, 19 - 21 September 2007

XVI. Güvenilirlik analiz metodunun köprülere uygulanması (Applicaton of the reliability methods to bridges)

AKGÜL F., BAYRAK H.

Proceedings of the XV. UMK-Ulusal Mekanik Kongresi Bildiriler (National Mechanics Congress), Isparta, Turkey. Teorik ve Uygulamalı Türk Milli Komitesi. Süleyman Demirel Üniversitesi Basımevi, Turkey, 5 - 09 September 2007

XVII. Criteria for a bridge management system based on inspection, monitoring and maintenance practices
Akgul F.

5th International Workshop on Life-Cycle Cost Analysis and Design of Civil Infrastructure Systems, Seoul, South Korea, 16 - 18 October 2006, pp.79-84

XVIII. Probabilistic bridge performance assessment, maintenance, monitoring and management

AKGÜL F., Frangopol D.

Proceedings of ICOSAR'05 (9th International Conference on Structural Safety and Reliability), Rome, Italy, 19 - 22 June 2005

XIX. Reliability deterioration prediction of an existing bridge using a probability-based analysis tool

AKGÜL F., Frangopol D.

Bridge Maintenance, Safety, Management and Cost, Ed. By Watanabe, Frangopol Utsunomiya, Taylor Francis Group, London, Proceedings of IABMAS'04 (International Association for Bridge Maintenance and Safety), Kyoto, Japan, 18 - 22 October 2004

XX. State of the art versus state of the practice in bridge evaluation

AKGÜL F., Frangopol D.

Proceedings of the 11th IFIP (International Federation for Information Processing) Working Group 7.5, Working Conference on Reliability and Optimization of Structural Systems, Banff, Calgary, Canada, 1 - 07 November 2003

XXI. An integrated computational platform for system reliability-based analysis of mixed-type highway bridge networks

AKGÜL F., Frangopol D.

Proceedings of the 2nd International Structural and Construction Conference ISEC-02, Rome, Italy, 23 - 26 September 2003

XXII. Probabilistic analysis of bridge networks based on system reliability and Monte Carlo simulation

AKGÜL F., Frangopol D.

9th International Conference on Applications of Statistics and Probability in Civil Engineering ICASP9, San Francisco, California, USA, 6 - 09 July 2003

XXIII. Forecasting the Lifetime Safety and Serviceability for the Management of a Network of Highway Bridges in Colorado

AKGÜL F., Frangopol D.

9th International Bridge Management Conference IBMC03, Orlando, Florida, USA, 28 - 30 April 2003

XXIV. Probabilistic Models for Predicting the Failure Time of Deteriorating Systems

AKGÜL F., Kong J. S., Frangopol D., Xi Y.

Proceedings of the First M.I.T. Conference in Computational Fluid and Solid Mechanics, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA, Cambridge, Massachusetts, United States Of America, 12 - 14 June 2001

XXV. Maintaining Reliability of Steel Bridges Based on Minimum Expected Cost

AKGÜL F., Kong J. S., Gharaibeh E. S., Frangopol D.

IFIP WG 7.5 on Reliability and Optimization of Structural Systems, Ann Arbor, Michigan, United States Of America, 25 - 27 September 2000

XXVI. Computer Aided Analysis of a Lunar Radio Telescope Antenna

AKGÜL F., Gerstle W., Johnson S. W.

Proceedings of SPACE 90 Conference: Engineering, Construction and Operations in Space, Albuquerque, New Mexico, Sponsored by the Aerospace Division of the American Society of Civil Engineers, pp. 697-706, 7 - 14 April 1990

XXVII. A Lunar steerable parabolic dish design

AKGÜL F., Gerstle W., Johnson S. W.

Proceedings of SPACE 88 Conference: Engineering, construction, and operations in space, Albuquerque, New Mexico, Sponsored by the Aerospace Division of the American Society of Civil Engineers, Ed. Stewart W. Johnson and John P. Wetzel, 29 - 31 August 1988

Other Publications

I. RELNET (2002) User's Manual, Reliability of System Networks

Akgül F.

Technical Report, 2002

II. REHAB (2000) A Program to Predict the Probability and Cost of Maintenance/Repair for a Deteriorating System of Group of Systems

Akgül F.

Technical Report, 2000

III. MONTE (2000) User's Manual, Monte Carlo Simulation Program

Akgül F.

Technical Report, 2000

IV. FMAINT (2000) User's Manual, A Program to Predict the Probability Distribution of First Time to Downcross a Target Performance Level for a Deteriorating System

Akgül F.

Technical Report, 2000

Supported Projects

AKGÜL F., TUBITAK Project, Karayolları Köprü Yönetim Sisteminin Geliştirilmesi, 2009 - 2012

Akgül F., Project Supported by Higher Education Institutions, Lifetime Condition Prediction for Bridges, 2005 - 2008

Akgül F., Project Supported by Higher Education Institutions, Reliability of Reinforced Concrete Structures Against Seismic Loading, 2004 - 2007

Akgül F., Project Supported by Higher Education Institutions, Determination of the Reliability Index of Structural Systems having Time-Variant Load and Resistance Properties, 2005 - 2006

Akgül F., Project Supported by Higher Education Institutions, Determination of the Reliability Index of Structural Systems having Time-Variant Load and Resistance Properties, 2005 - 2006

Akgül F., Frangopol D., Other International Funding Programs, Life-Cycle Cost Model Simulator for Decision Making in Bridge Network Management, NSF, CMMI Division of Civil, Mechanical, and Manufacturing Innovation, Award Number: CMS- 0217290, University of Colorado at Boulder, Colorado, USA, October 1, 2002 - August 31, 2006, (Prof. Dan M. Frangopol, project director), researcher., 2002 - 2006

Akgül F., Frangopol D., Other International Funding Programs, Optimum Life-Cycle Bridge Maintenance Planning Based on System Reliability, NSF, CMMI Division of Civil, Mechanical, and Manufacturing Innovation, Award Number: CMS- 9912525, University of Colorado at Boulder, Colorado, USA, April 19, 2000 - April 19, 2004, (Prof. Dan M. Frangopol, project director), researcher., 2000 - 2004

Akgül F., Gerstle W., Other International Funding Programs, Finite Element and Boundary Element Modeling of Crack Propagation in Three-Dimensional Structures, NSF, CMMI Division of Civil, Mechanical, and Manufacturing Innovation, Award Number: CMS- 8706409, University of New Mexico, Albuquerque, New Mexico, USA, August 1, 1987- January 31, 1990, (Prof. Walter H. Gerstle, project director), researcher., 1987 - 1990

Akgül F., Burns J., Other International Funding Programs, NSF Project, Physics and Astronomy Department, University of New Mexico, Albuquerque, New Mexico, USA, September 1987- December 1989, (Prof. Jack O. Burns, project director), researcher., 1987 - 1989

Memberships / Tasks in Scientific Organizations

IALCEE, International Association for Life-Cycle Civil Engineering, Member, 2006 - Continues

IABMAS, Member, International Association for Bridge Maintenance and Safety, Member, 1997 - Continues

IABSE, International Association of Bridge and Structural Engineering, Member, 2007 - 2010

ASCE, American Society of Civil Engineers, Member, 2004 - 2007

Scientific Refereeing

JOURNAL OF BRIDGE ENGINEERING, SCI Journal, May 2011

JOURNAL OF BRIDGE ENGINEERING, SCI Journal, April 2011

STRUCTURE AND INFRASTRUCTURE ENGINEERING, SCI Journal, February 2011

Korean Journal of Civil Engineering, Other journals, February 2011

Korean Journal of Civil Engineering, Other Journals, January 2011

STRUCTURE AND INFRASTRUCTURE ENGINEERING, SCI Journal, January 2011

JOURNAL OF BRIDGE ENGINEERING, SCI Journal, March 2010

JOURNAL OF BRIDGE ENGINEERING, SCI Journal, February 2010

JOURNAL OF BRIDGE ENGINEERING, SCI Journal, January 2010

JOURNAL OF COMPUTING IN CIVIL ENGINEERING, SCI Journal, January 2008

JOURNAL OF COMPUTING IN CIVIL ENGINEERING, SCI Journal, February 2007

ENGINEERING STRUCTURES, SCI Journal, January 2007

JOURNAL OF COMPUTING IN CIVIL ENGINEERING, National Scientific Refreed Journal, January 2007

Scientific Research / Working Group Memberships

Task Group 2 (Reliability-Based Structural System Performance Indicators) Of The Asce Technical Council On Life-Cycle Performance, Safety, Reliability, And Risk Of Structural Systems. Chair: Prof. Michel Ghosn., Lehigh University, United States Of America, Task Group 2 (Reliability-Based Structural System Performance Indicators) of the ASCE Technical Council on Life-Cycle Performance, Safety, Reliability, and Risk of Structural Systems., 2010 - 2013

Metrics

Publication: 46

Citation (WoS): 301

Citation (Scopus): 351

H-Index (WoS): 9

H-Index (Scopus): 9

Congress and Symposium Activities

Tahribatsız Betonarme Muayene Cihazları Semineri, ODTÜ Kültür ve Kongre Merkezi, C Salonu, Ankara, in collaboration with James Instruments, Inc. (USA), Fore Test Cihazları A.Ş., 4-7 Mayıs 2010., Working Group, Ankara, Turkey, 2010

Non Academic Experience

Company, Boulder, Colorado

Company, GAMA Industrial Plants Manufacturing and Erection Corporation, Turkey

Company, Flintco Builders, Inc, USA

Company, Bradbury & Stamm Construction Inc, USA

Company, Sargent & Lundy Engineers, USA

Company, Albuquerque, New Mexico,