

Prof. MELİK DÖLEN

Personal Information

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Education Information

Doctorate, University Of Wisconsin-Madison, Makina Mühendisliği, United States Of America 1995 - 2000

Post Graduate, University Of New Hampshire, Makina Mühendisliği, United States Of America 1993 - 1994

Under Graduate, İstanbul Teknik Üniversitesi, Makine Fakültesi, Turkey 1986 - 1990

Dissertations

Doctorate, Modeling and Estimation for CNC Machine Tools by Structured Neural Networks, University Of Wisconsin-Madison, Makina Mühendisliği, 2000

Post Graduate, Cutting Force Estimation for CNC Machine Tools by Feed Drive Current Monitoring, University Of New Hampshire, Makina Mühendisliği, 1994

Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2014 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2002 - 2014

Lecturer, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2001 - 2002

Research Assistant, İstanbul Teknik Üniversitesi, Makine Fakültesi, Makine Mühendisliği Bölümü, 1991 - 1993

Advising Theses

DÖLEN M., AN ADVANCED EVOLUTIONARY PROGRAMMING METHOD FOR MECHANICAL SYSTEM DESIGN: FEASIBILITY ENHANCED PARTICLE SWARM OPTIMIZATION, Doctorate, M.SİNAN(Student), 2019

DÖLEN M., MODULAR FIXTURE DESIGN FOR CNC MACHINING CENTERS, Post Graduate, Y.KILIÇARSLAN(Student), 2019

DÖLEN M., YAMAN U., A novel design and fabrication paradigm for 3D printers: Lipro, Post Graduate, V.HASELTALAB(Student), 2018

DÖLEN M., Camera trajectory estimation for indoor robot odometry using stereo images and inertial measurements, Post Graduate, A.HORASAN(Student), 2016

DÖLEN M., Advanced command generation paradigms for CNC systems, Doctorate, U.YAMAN(Student), 2014

DÖLEN M., A STUDY ON MATCHED-PIECE LAPPING PROCESS FOR PRODUCTION OF PRECISION MACHINE ELEMENTS, Post Graduate, S.VAYGHANNEZHAD(Student), 2014

DÖLEN M., An automated calibration setup for laser beam positioning systems in visual inspection applications, Post Graduate, E.KİRAZ(Student), 2013

DÖLEN M., Structured neural networks for modeling and identification of nonlinear mechanical systems, Doctorate, E.KILIÇ(Student), 2012

DÖLEN M., An advanced machining process simulator for industrial applications, Post Graduate, E.YEĞİN(Student), 2010

DÖLEN M., Real-time motion control using field programmable gate arrays, Post Graduate, B.RAGIP(Student), 2010

DÖLEN M., KOKU A. B. , Design of an integrated hardware-in-the-loop simulation system, Post Graduate,

S.ÜŞENMEZ(Student), 2010
DÖLEN M., Design of advanced motion command generators utilizing FPGA, Post Graduate, U.YAMAN(Student), 2010
DÖLEN M., KOKU A. B. , Global urban localization of an outdoor mobiler robot using satellite images, Doctorate, C.ULAŞ(Student), 2009
DÖLEN M., An electronic control unit design for a miniature jet engine, Post Graduate, C.POLAT(Student), 2009
DÖLEN M., Universal command generator for robotics and CNC machinery, Post Graduate, A.AKINCI(Student), 2009
DÖLEN M., Distributed control system for CNC machine tools, Post Graduate, F.A.(Student), 2009
DÖLEN M., Novel position measurement and estimation methods for CNC machine systems, Post Graduate, E.KILIÇ(Student), 2007
DÖLEN M., Design of a touch trigger probe for a coordinate measuring machine, Post Graduate, E.KARUÇ(Student), 2007
DÖLEN M., Uncertainty analysis of coordinate measuring machine (CMM) measurements, Post Graduate, A.SÖZAK(Student), 2007
DÖLEN M., KOKU A. B. , Modular embedded system design/implementation for mechatronics education and research, Post Graduate, A.ÖZGÜ(Student), 2007
DÖLEN M., Design of smart controllers for hybrid electric vehicles, Post Graduate, E.ÖZEN(Student), 2005
DÖLEN M., Development of a Micro-fabrication process simulator for Micro-Electro-Mechanical Systems (MEMS), Post Graduate, A.YILDIRIM(Student), 2005
DÖLEN M., High precesion CNC motion control, Post Graduate, G.MEHMET(Student), 2004

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- **Comparison of multi-objective and single-objective approaches in feasibility enhanced particle swarm optimization**
Hasanoglu M. S. , Dolen M.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.35, pp.887-900, 2020 (Journal Indexed in SCI)
- **Generation of patterned indentations for additive manufacturing technologies**
Yaman U., Dölen M., Hoffmann C.
IISE Transactions, vol.51, pp.209-217, 2019 (Journal Indexed in SCI Expanded)
- **Multi-objective feasibility enhanced particle swarm optimization**
Hasanoglu M. S. , DÖLEN M.
ENGINEERING OPTIMIZATION, vol.50, pp.2013-2037, 2018 (Journal Indexed in SCI)
- **A novel command generation paradigm for production machine systems**
Yaman U., Dölen M.
ROBOTICS AND COMPUTER-INTEGRATED MANUFACTURING, vol.51, pp.25-36, 2018 (Journal Indexed in SCI)
- **Feasibility enhanced particle swarm optimization for constrained mechanical design problems**
Hasanoglu M. S. , DÖLEN M.
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- **A gradient-based morphological method to produce planar curve offsets**
Yaman U., Dölen M.
INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY, vol.80, pp.255-274, 2015 (Journal Indexed in SCI)
- **Pressure prediction on a variable-speed pump controlled hydraulic system using structured recurrent neural networks**
KILIÇ E., DÖLEN M., ÇALIŞKAN H., KOKU A. B. , Balkan T.
CONTROL ENGINEERING PRACTICE, vol.26, pp.51-71, 2014 (Journal Indexed in SCI)
- **New morphological methods to generate two-dimensional curve offsets**
DÖLEN M., YAMAN U.
INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY, vol.71, pp.1687-1700, 2014 (Journal

- Indexed in SCI)
- **Prediction of slip in cable-drum systems using structured neural networks**
KILIÇ E., DÖLEN M.
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART C-JOURNAL OF MECHANICAL ENGINEERING SCIENCE, vol.228, pp.441-456, 2014 (Journal Indexed in SCI)
- **Direct command generation for CNC machinery based on data compression techniques**
YAMAN U., DÖLEN M.
ROBOTICS AND COMPUTER-INTEGRATED MANUFACTURING, vol.29, pp.344-356, 2013 (Journal Indexed in SCI)
- **Accurate pressure prediction of a servo-valve controlled hydraulic system**
KILIÇ E., DÖLEN M., KOKU A. B. , ÇALIŞKAN H., Balkan T.
MECHATRONICS, vol.22, pp.997-1014, 2012 (Journal Indexed in SCI)
- **Position estimation for timing belt drives of precision machinery using structured neural networks**
KILIÇ E., DOĞRUER C. U. , DÖLEN M., KOKU A. B.
MECHANICAL SYSTEMS AND SIGNAL PROCESSING, vol.29, pp.343-361, 2012 (Journal Indexed in SCI)
- **Novel solutions for Global Urban Localization**
DOĞRUER C. U. , KOKU A. B. , DÖLEN M.
ROBOTICS AND AUTONOMOUS SYSTEMS, vol.58, pp.634-647, 2010 (Journal Indexed in SCI)
- **Analysis and estimation of motion transmission errors of a timing belt drive**
KILIÇ E., DÖLEN M., KOKU A. B.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.18, pp.883-897, 2010 (Journal Indexed in SCI)
- **A cutting force estimator for CNC machining centers**
Dolen M., Kaftanoglu B., Lorenz R.
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- **Cross reference models for estimating unknown principal force components in end-milling process**
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- **Optimum design and operation of 'a pump-piping-storage system'**
Kaplan H., Seireg A., Dolen M.
INTERNATIONAL JOURNAL OF COMPUTER APPLICATIONS IN TECHNOLOGY, vol.14, pp.180-189, 2001 (Journal Indexed in SCI)

Articles Published in Other Journals

- **A New Method for Generating Image Projections in DLP-type 3D Printer Systems**
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- **The Role of Additive Manufacturing in the Era of Industry 4.0**
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- **Yapay Sinir Ağ Modellerinin Valf Denetimli Hidrolik Bir Sistemin Uzun Süreli Basınç Tahmininde Kullanılması**
KILIÇ E., ÇALIŞKAN H., DÖLEN M., KOKU A. B. , BALKAN R. T.
Mühendis ve Makina, vol.53, pp.50-61, 2012 (Other Refereed National Journals)
- **Global urban localization of an outdoor mobile robot with genetic algorithms**
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- **Novel position estimators for timing belt drivers**
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- Institutions)
Nonlinear Position Estimators based on Artificial Neural Networks for Low Cost Manufacturing Systems
 KILIÇ E., DÖLEN M., KOKU A. B.
 Journal of Automation, Mobile Robotics, and Intelligent Systems, vol.1, pp.40-44, 2007 (Refereed Journals of Other Institutions)
- **A Test Setup for Evaluating Long-term Measurement Characteristics of Optical Mouse Sensors**
 KANBUROGLU F. A. , DÖLEN M., KOKU A. B.
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Books & Book Chapters

- **Global Urban Localization of Outdoor Mobile Robots using Genetic Algorithms**
 DOĞRUER C. U. , KOKU A. B. , DÖLEN M.
 in: Springer Tracts in Advanced Robotics, Bruno Siciliano, Oussama Khatib, Frans Groen, Editor, Springer, pp.103-112, 2008

Refereed Congress / Symposium Publications in Proceedings

- **Simulator of an additive and subtractive type of hybrid manufacturing system**
 Dilberoğlu M. U. , Haseltalab V., Yaman U., Dölen M.
 29th International Conference on Flexible Automation and Intelligent Manufacturing, FAIM 2019, Limerick, Ireland, 24 - 28 June 2019, vol.38, pp.792-799
- **Investigation of variable bead widths in FFF process**
 Gharehpapagh B., Dölen M., Yaman U.
 29th International Conference on Flexible Automation and Intelligent Manufacturing, FAIM 2019, Limerick, Ireland, 24 - 28 June 2019, vol.38, pp.52-59
- **Utilization of Curve Offsets in Additive Manufacturing**
 HASELTALAB V., YAMAN U., DÖLEN M.
 21st International ESAFORM Conference on Material Forming (ESAFORM), Palermo, Italy, 23 - 25 April 2018, vol.1960
- **Formation of Patterned Indentations for Additive Manufacturing Applications**
 YAMAN U., DÖLEN M., Hoffmann C.
 EUSIPCO 2017 - W4 Creative Design and Advanced Manufacturing: An emerging application area for Signals and Systems, Kos, Greece, 02 September 2017
- **A Command Generation Approach for Desktop Fused Filament Fabrication 3D Printers**
 YAMAN U., DÖLEN M.
 42nd Annual Conference of the IEEE-Industrial-Electronics-Society (IECON), Florence, Italy, 24 - 27 October 2016, pp.4582-4587
- **A New Hardware-in-the-Loop Simulator for Control Engineering Education**
 USENMEZ S., YAMAN U., DÖLEN M., KOKU A. B.
 IEEE Global Engineering Education Conference, İstanbul, Turkey, 3 - 05 April 2014, pp.1-8
- **Hareket Denetimi Uygulamalarında Kullanılan Sayısal Filtrelerin FPGA ile Gerçekleştirilmesi**
 YAMAN U., MUTLU B. R. , DÖLEN M., KOKU A. B.
 Türk Otomatik Kontrol Ulusal Toplantısı (TOK13), Malatya, Turkey, 26 - 28 September 2013, pp.388-393
- **Servo Motor Sürücü Sistemleri İçin Geliştirilen Hareket Komut Üreticinin FPGA ile Gerçekleştirilmesi**
 YAMAN U., DÖLEN M.
 Otomatik Kontrol Ulusal Toplantısı, TOK2013, Malatya, Turkey, 26 - 28 September 2013, pp.420-425

- **A New Hardware-in-the-Loop Simulator for CNC Machine Applications**
USENMEZ S., MUTLU B. R. , Yaman U., KILIÇ E., Dolen M., Koku A. B.
IEEE International Conference on Mechatronics (ICM), Vicenza, Italy, 27 February - 01 March 2013
- **A Measurement Probe for Coordinate Measuring Machines Based on GMR Technology**
Karuc E., Kilic E., DÖLEN M.
IEEE International Conference on Mechatronics (ICM), Vicenza, Italy, 27 February - 01 March 2013
- **Long-term prediction of hydraulic system dynamics via structured recurrent neural networks**
KILIÇ E., DÖLEN M., KOKU A. B.
2011 IEEE International Conference on Mechatronics, ICM 2011, İstanbul, Turkey, 13 - 15 April 2011, pp.330-335
- **Experimental evaluation of cable drum systems as linear motion sensors**
KILIÇ E., DÖLEN M., KOKU A. B.
IEEE International Conference on Mechatronics (ICM 2011), 13 - 15 April 2011, pp.666-671
- **Evaluation of compression algorithms for motion command generation**
YAMAN U., DÖLEN M.
2011 IEEE International Conference on Mechatronics, ICM 2011, İstanbul, Turkey, 13 - 15 April 2011, pp.45-50
- **An Enhanced Adaptive Windowing Technique for Velocity and Acceleration Estimation using Incremental Position Encoders**
Kilic E., Baser O., DÖLEN M., KONUKSEVEN E. İ.
International Conference on Signals and Electronic Systems (ICSSES), Gliwice, Poland, 7 - 10 September 2010, pp.61-64
- **A Hybrid Method to Estimate Velocity and Acceleration using Low-Resolution Optical Incremental Encoders**
Baser O., Kilic E., KONUKSEVEN E. İ. , DÖLEN M.
International Conference on Signals and Electronic Systems (ICSSES), Gliwice, Poland, 7 - 10 September 2010, pp.57-60
- **Novel Touch-Trigger Probe for Coordinate Measuring Machines**
Karuc E., DÖLEN M.
3rd International Conference on Advanced Design and Manufacture, Nottingham, United Kingdom, 8 - 10 September 2010, vol.450, pp.19-20
- **A novel command generation method with variable feedrate utilizing FPGA for motor drives**
Yarnan U., DÖLEN M., KOKU A. B.
2010 8th IEEE Workshop on Intelligent Solutions in Embedded Systems, WISES 2010, Heraklion, Greece, 8 - 09 July 2010, pp.67-72
- **Performance Evaluation of Different Real-Time Motion Controller Topologies Implemented on a FPGA**
MUTLU B. R. , YAMAN U., DÖLEN M., KOKU A. B.
12th International Conference on Electrical Machines and Systems, Tokyo, Japan, 15 - 18 November 2009, pp.902-907
- **Direct Command Generation Methods for Servo-Motor Drives**
YAMAN U., MUTLU B. R. , DÖLEN M., KOKU A. B.
12th International Conference on Electrical Machines and Systems, Tokyo, Japan, 15 - 18 November 2009, pp.1354-1359
- **Real-time hardware-in-the-loop simulation of electrical machine systems using FPGAs**
ÜŞENMEZ S., Dilan R., DÖLEN M., KOKU A. B.
12th International Conference on Electrical Machines and Systems, ICEMS 2009, Tokyo, Japan, 15 - 18 November 2009
- **Kayan Kipli DC Motor Konum Denetiminin FPGA ile Gerçekleştirilmesi**
MUTLU B. R. , YAMAN U., DÖLEN M., KOKU A. B.
Türk Otomatik Kontrol Ulusal Toplantısı (TOK09), İstanbul, Turkey, 13 - 16 October 2009
- **Bir Doğru Akım Motorunun FPGA Üzerinde Gerçek Zamanlı Benzetiminin Gerçekleştirilmesi**
ÜŞENMEZ s., DİLAN R. A. , DÖLEN M., KOKU A. B.

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Endüstriyel Kontrol Uygulamaları için Komut Üretim Yöntemleri
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- Türk Otomatik Kontrol Ulusal Toplantısı (TOK09), Turkey, 13 - 16 October 2009
Bilgisayar Denetimli Takım Tezgahları için Dağıtık bir Hareket Denetim Sistemi
KANBUROGLU F. A. , KILIÇ E., DÖLEN M., KOKU A. B.
- Türk Otomatik Kontrol Ulusal Toplantısı (TOK09), İstanbul, Turkey, 13 - 16 October 2009
Endüstriyel Kontrol Uygulamaları İçin Komut Üretim Yöntemleri
YAMAN U., DÖLEN M., KOKU A. B.
- Otomatik Kontrol Ulusal Toplantısı, TOK2009, İstanbul, Turkey, 13 - 16 October 2009
Dişli Kayış Mekanizmalarında İletim Hatalarının İncelenmesi
KILIÇ E., DÖLEN M., KOKU A. B.
- Türk Otomatik Kontrol Ulusal Toplantısı (TOK08), İstanbul, Turkey, 13 - 15 November 2008
Çevrimiçi Donanım Benzetimi için Yeni bir Yazılım Paketi: Cadmus
ÜŞENMEZ s., DİLAN R. A. , YAMAN U., MUTLU B. R. , DÖLEN M., KOKU A. B.
- Türk Otomatik Kontrol Ulusal Toplantısı (TOK08), İstanbul, Turkey, 13 - 15 November 2008
Sayısal Kontrol Mühendisliği Eğitiminde Yeni Araçlar ve Yaklaşımlar
MUTLU B. R. , YAMAN U., ÜŞENMEZ s., DİLAN R. A. , DÖLEN M., KOKU A. B.
- Türk Otomatik Kontrol Ulusal Toplantısı (TOK08), İstanbul, Turkey, 13 - 15 November 2008
Çevrimiçi Donanım Benzetimi İçin Yeni bir Yazılım Paketi Cadmus
ÜŞENMEZ S., DİLAN R. A. , YAMAN U., MUTLU B. R. , DÖLEN M., KOKU A. B.
- Otomatik Kontrol Ulusal Toplantısı, TOK2008, İstanbul, Turkey, 13 - 15 November 2008, vol.1, pp.685-691
Global Urban Localization of Outdoor Mobile Robots Using Satellite Images
DOĞRUER C. U. , Koku B., DÖLEN M.
IEEE/RSJ International Conference on Intelligent Robots and Systems, Nice, France, 22 - 26 September 2008, pp.3927-3928
- **Graduate Student Education in Discrete-time Control**
YAMAN U., ÜŞENMEZ s., MUTLU B. R. , DÖLEN M., KOKU A. B.
Proc. of the 13th International Conference on Machine Design and Production (UMTIK 2008), İstanbul, Turkey, 3 - 05 September 2008
- **A novel soft-computing technique to segment satellite images for mobile robot localization and navigation**
DOĞRUER C. U. , Koku B., DÖLEN M.
2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2007, San Diego, CA, United States Of America, 29 October - 02 November 2007, pp.2077-2082

Supported Projects

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Patent

DÖLEN M., Wireless enabled fatigue sensor for structural health monitoring, Patent, CHAPTER F Mechanical engineering; Lighting; Heating; Weaponry; Destroyed Materials, Initial Registration, 2014

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Citations

Total Citations (WOS):198

h-index (WOS):7