

## Asst. Prof. HAKAN ÇALIŞKAN

### Personal Information

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### International Researcher IDs

ScholarID: K9JnXbYAAAAJ

ORCID: 0000-0001-9170-3745

Publons / Web Of Science ResearcherID: AAZ-9227-2020

ScopusID: 57200249968

Yoksis Researcher ID: 164690

### Education Information

Doctorate, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey 2009 - 2015

Postgraduate, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, Turkey 2006 - 2009

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, Turkey 2001 - 2006

### Dissertations

Doctorate, Development and Control of a Single Rod Electro Hydrostatic Actuator, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2015

Postgraduate, Modeling and experimental evaluation of variable speed pump and valve controlled hydraulic servo drives, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2009

### Research Areas

System Dynamics and Control, Mechatronics, Modeling and Simulation of Dynamic Systems

### Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2019 - Continues

Researcher, The University of British Columbia, Engineering, Mechanical, 2017 - 2018

Lecturer, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2013 - 2017

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2006 - 2013

## Courses

Control system design, Undergraduate, 2022 - 2023  
Numerical Methods, Undergraduate, 2022 - 2023, 2021 - 2022  
INDUSTRIAL FLUID POWER, Undergraduate, 2022 - 2023  
Control Systems, Undergraduate, 2021 - 2022, 2020 - 2021  
Applied Math. for Mechanical Engineers, Undergraduate, 2021 - 2022, 2019 - 2020  
System Dynamics, Undergraduate, 2021 - 2022, 2020 - 2021  
Machine Elements, Undergraduate, 2020 - 2021, 2019 - 2020  
Machine Elements, Undergraduate, 2020 - 2021, 2019 - 2020

## Advising Theses

Çalışkan H., DESIGN OF CONTROL SYSTEMS FOR GUIDED MISSILES, Postgraduate, B.Can(Student), Continues  
Çalışkan H., MODELLING & ANALYSIS OF A LANDING GEAR SYSTEM, Postgraduate, B.Canitez(Student), Continues  
Özşahin O., Çalışkan H., YÜKSEK HIZLI ROTOR-RULMAN SİSTEMLERİNİN DİNAMİK MODELLENMESİ, Postgraduate, S.Can(Student), Continues  
Çalışkan H., NONLINEAR FLIGHT CONTROL DEVELOPMENT FOR AN UNMANNED HELICOPTER, Doctorate, S.Pakkan(Student), Continues  
Özşahin O., Çalışkan H., PREDICTIVE MAINTENANCE IN CNC SPINDLES USING MACHINE LEARNING ALGORITHM, Postgraduate, A.BAHADIR(Student), Continues  
Çalışkan H., TRAJECTORY TRACKING SYSTEM DESIGN AND CONTROL FOR A HIGH SPEED ARTILLERY MUNITION, Postgraduate, B.Altinel(Student), Continues  
Özşahin O., Çalışkan H., PNÖMATİK TAHRİKLİ KANARD SİSTEMİNİN MODELLENMESİ VE KONTROLÜ, Postgraduate, M.Can(Student), Continues  
Çalışkan H., DEVELOPMENT OF PUMP CONTROLLED DOUBLE ROD ELECTRO-HYDROSTATIC ACTUATOR, Postgraduate, C.Özbaş(Student), Continues  
Çalışkan H., MODELING AND CONTROL OF A HELICOPTER SLUNG LOAD SYSTEM, Postgraduate, Ö.Oğuzhan(Student), Continues  
Çalışkan H., Ertekin Bolelli Ş., PREDICTIVE MAINTENANCE OF ELECTROHYDROSTATIC ACTUATOR (EHA), Postgraduate, F.Bahçeli(Student), Continues  
Çalışkan H., Balkan R. T., SPEED (MACH) AND FUEL FLOW CONTROL IN THROTTLEABLE DUCTED ROCKETS, Postgraduate, E.Akyol(Student), Continues  
Çalışkan H., STUDY OF MACHINE-TOOL CHARACTERISTICS DURING MILLING OPERATION, Doctorate, B.ALTUN(Student), Continues  
Çalışkan H., DEVELOPMENT OF ELECTRO-HYDROSTATIC ACTUATOR SYSTEMS, Postgraduate, Ö.Faruk(Student), Continues  
Çalışkan H., Balkan R. T., DESIGN AND EVALUATION OF A HELICOPTER MAIN ROTOR ELECTROHYDRAULIC CONTROL SYSTEM, Postgraduate, H.ALİ(Student), 2022  
Özşahin O., Çalışkan H., Identification of Position-Dependent Workpiece Dynamics in Milling Process, Postgraduate, B.ALTUN(Student), 2022  
Çalışkan H., Balkan R. T., Controller design and implementation for a guidance kit used at spinning rockets and projectiles, Postgraduate, G.GÜNAY(Student), 2022  
Turgut A. E., Çalışkan H., A functional design methodology with genetic algorithm optimization to a door actuation mechanism, Postgraduate, H.AKMAN(Student), 2019  
Turgut A. E., Çalışkan H., Observer based condition monitoring of an electrohydraulic actuation system, Postgraduate, E.MURAT(Student), 2019

## Jury Memberships

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2022

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, August, 2022

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, August, 2022

Doctoral Examination, Doctoral Examination, Orta Doğu Teknik Üniversitesi, May, 2022

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Development of a dynamic simulation model for CNC table vibration estimation in milling operations**  
**Frezeleme işleminde CNC tabla titreşimlerinin kestirimi için dinamik simülasyon modeli geliştirilmesi**  
ALTUN B., ÇALIŞKAN H., ÖZŞAHİN O.  
Journal of the Faculty of Engineering and Architecture of Gazi University, vol.39, no.3, pp.1703-1718, 2024 (SCI-Expanded)
- II. **Position-dependent FRF identification without force measurement in milling process**  
Altun B., Çalışkan H., Özşahin O.  
International Journal of Advanced Manufacturing Technology, vol.128, no.11-12, pp.4981-4996, 2023 (SCI-Expanded)
- III. **Sensorless control of a three-degree-of-freedom ultrasonic vibration tool holder**  
Gao J., Caliskan H., Altintas Y.  
Precision Engineering, vol.58, pp.47-56, 2019 (SCI-Expanded)
- IV. **On-Line Energy-Based Milling Chatter Detection**  
ÇALIŞKAN H., Kilic Z. M., Altintas Y.  
JOURNAL OF MANUFACTURING SCIENCE AND ENGINEERING-TRANSACTIONS OF THE ASME, vol.140, no.11, 2018 (SCI-Expanded)
- V. **A Complete Analysis and a Novel Solution for Instability in Pump Controlled Asymmetric Actuators**  
ÇALIŞKAN H., BALKAN R. T., PLATİN B. E.  
JOURNAL OF DYNAMIC SYSTEMS MEASUREMENT AND CONTROL-TRANSACTIONS OF THE ASME, vol.137, no.9, 2015 (SCI-Expanded)
- VI. **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 (SCI-Expanded)
- VII. **Accurate pressure prediction of a servo-valve controlled hydraulic system**  
KILIÇ E., DÖLEN M., KOKU A. B., ÇALIŞKAN H., Balkan T.  
MECHATRONICS, vol.22, no.7, pp.997-1014, 2012 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Real-Time Milling Chatter Detection and Control with Axis Encoder Feedback and Spindle Speed Manipulation**  
ÇALIŞKAN H.  
Journal of Manufacturing and Materials Processing, vol.8, no.4, 2024 (ESCI)
- II. **Optimal Design of an In-flight Refueling Door Mechanism**  
AKMAN H., TURGUT A. E., ÇALIŞKAN H.  
Hittite Journal of Science and Engineering, pp.27-36, 2022 (Peer-Reviewed Journal)
- III. **A Model - Based Jamming Detection Method for Electro-Hydrostatic Actuators**  
Poyraz E. M., TURGUT A. E., ÇALIŞKAN H.  
Hittite Journal of Science Engineering, vol.7, no.3, pp.189-198, 2020 (Peer-Reviewed Journal)

- IV. **A control system for hydraulic single axis durability test rig**  
ÇALIŞKAN H., Balkan T., Platin B. E., Konukseven I. E.  
ASME 2012 5th Annual Dynamic Systems and Control Conference Joint with the JSME 2012 11th Motion and Vibration Conference, DSCC 2012-MOVIC 2012, vol.1, pp.723-732, 2012 (Scopus)
- V. **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 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Elektro-Hidrostatik Eyleyicilerde Dinamik Direngenliğin İyileştirilmesi**  
Özbaş C., Afatsun A. C., ÇALIŞKAN H.  
TOK'2023 24. Otomatik Kontrol Ulusal Toplantısı, İstanbul, Turkey, 14 September 2023, pp.897-904
- II. **Performance Evaluation of a Helicopter Main Rotor Hydraulic Control System Using Rotor Equivalent Dynamic Parameters**  
Düzağaç H. A., ÇALIŞKAN H., BALKAN R. T.  
International Mechanical Engineering Congress and Exposition IMECE2022, Columbus, Ohio, United States Of America, 30 October 2022
- III. **RECURSIVE DEFINING OF FORCE COEFFICIENTS IN MILLING PROCESS WITH ACCELEROMETER**  
Altun B., Çalışkan H., Özşahin O.  
UMTIK 2022, Nevşehir, Turkey, 31 August - 03 September 2022, pp.259-273
- IV. **HAVA ARAÇLARI İÇİN KAPAK MEKANİZMASI ÖN TASARIMI VE GENETİK ALGORİTMA YÖNTEMİ KULLANILARAK OPTİMİZASYONU**  
ÇALIŞKAN H., TURGUT A. E., AKMAN H.  
19. ULUSAL MAKİNA TEORİSİ SEMPOZYUMU. UMTS 2019, İskenderun, Turkey, 4 - 06 September 2019
- V. **Real-time Energy-based Detection of Milling Chatter**  
ÇALIŞKAN H., KILIÇ Z. M., altintas y.  
The 7th International Conference on Virtual Machining Process Technology (VMPT 2018), 7 - 10 May 2018
- VI. **A Complete Analysis for Pump Controlled Single Rod Actuator**  
ÇALIŞKAN H., BALKAN R. T., Platin B. E.  
10th International Fluid Power Conference (10. IFK), 8 - 10 March 2016, vol.2, pp.119-132
- VII. **A Complete Analysis for Pump Controlled Single Rod Actuators**  
ÇALIŞKAN H., BALKAN R. T., PLATİN B.  
10th International FluidPower Conference, Dresden, Germany, 8 - 10 March 2016
- VIII. **A CONTROL SYSTEM FOR HYDRAULIC SINGLE AXIS DURABILITY TEST RIG**  
ÇALIŞKAN H., BALKAN R. T., PLATİN B. E., KONUKSEVEN E. İ.  
5th Annual Dynamic Systems and Control Division Conference / 11th JSME Motion and Vibration Conference, Florida, United States Of America, 17 - 19 October 2012, pp.723-732
- IX. **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.  
VI. Ulusal Hidrolik Pnömatik Kongresi, İzmir, Turkey, 12 - 15 October 2011
- X. **3 Serbestlik Derecesine Sahip Bir Hareket Taklitçisinin Mafsalsal Uzun Süreli Basınç Tahmininde Kullanılması ve Çözüm Analizi**  
DİLAN R. A., YAMAN U., ÇALIŞKAN H., DEMİRER S., BALKAN R. T.  
VI. Ulusal Hidrolik Pnömatik Kongresi, İzmir, Turkey, 12 - 15 October 2011, pp.539-552
- XI. **HYDRAULIC POSITION CONTROL SYSTEM WITH VARIABLE SPEED PUMP**  
ÇALIŞKAN H., BALKAN R. T., PLATİN B. E.  
2nd Annual Dynamic Systems and Control Conference (DSCC 2009)/Bath/ASME Symposium on Fluid Power and Motion Control, California, United States Of America, 12 - 14 October 2009, pp.275-282

## Supported Projects

YAMAN U., SÜRER E., DÖLEN M., ÇALIŞKAN H., ÖZŞAHİN O., Project Supported by Higher Education Institutions, Geleneksel İmalat Teknolojileri İçin Gelişmiş Yaklaşımlar, 2022 - Continues

ÇALIŞKAN H., ÖZŞAHİN O., ALTUN B., Project Supported by Higher Education Institutions, CNC freze tezgahı tablasının ivme ölçer verileri kullanılarak kesme süreci içerisinde modal tanımlanması, 2022 - 2024

Özşahin O., Çalışkan H., Project Supported by Other Private Institutions, Eş Zamanlı Tornalama Operasyonlarında Stabilitate ve Adaptif Tırlama Kontrolü Sistemi Geliştirilmesi, 2020 - 2021

ÇALIŞKAN H., TUBITAK Project, Akıllı CNC: Tırlamanın Gerçek Zamanlı Tanımlanması, Algılanması ve Kontrolü, 2019 - 2021

ÇALIŞKAN H., Project Supported by Other Private Institutions, Traktörde Ön Yükleyici Uygulaması İçin Hidrolik Sisteminin ve Mekanizmasının Modellemesi Simülasyonu Optimizasyonu ve Geliştirme Projesi, 2015 - 2015

## Scientific Refereeing

TUBITAK Project, 1501 - Industry R & D Projects Support Program, YUKON MAKİNE MÜHENDİSLİK MİMARLIK VE İNŞAAT SANAYİ DIŞ TİCARET LİMİTED ŞİRKETİ, Turkey, November 2022

TUBITAK Project, 1501 - Industry R & D Projects Support Program, ERBEND MAKİNA SANAYİ VE TİCARET ANONİM ŞİRKETİ , Turkey, November 2022

TUBITAK Project, 1501 - Industry R & D Projects Support Program, VESTEL ELEKTRONİK SAN. VE TİC. A.Ş. , Turkey, July 2022

TUBITAK Project, 1501 - Industry R & D Projects Support Program, NG LOJİSTİK PAZARLAMA YATIRIM VE GAYRİMENKUL A.Ş , Turkey, April 2022

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, CERVOS UZAY HAVACILIK VE SAVUNMA LTD. ŞTİ. , Turkey, November 2021

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, ATEK MAKİNA SANAYİ VE TİCARET A.Ş., Turkey, November 2021

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, STA KALIP MAKİNA SANAYİ VE TİCARET AŞ, Turkey, November 2021

CIRP JOURNAL OF MANUFACTURING SCIENCE AND TECHNOLOGY, SCI Journal, May 2021

TUBITAK Project, 1501 - Industry R & D Projects Support Program, ŞAFAK MAKİNE YEDEK PARÇA SAN. A.Ş., Turkey, May 2021

TUBITAK Project, 1501 - Industry R & D Projects Support Program, HELİKOPTERLER İÇİN ASİST SİSTEMİ TASARIM VE İMALATI, Turkey, May 2021

TUBITAK Project, 1501 - Industry R & D Projects Support Program, TANPERA TEKNOLOJİ VE ENDÜSTRİYEL ÜRÜNLER SANAYİ VE TİCARET A.Ş., Turkey, April 2021

INTERNATIONAL JOURNAL OF MACHINE TOOLS & MANUFACTURING, SCI Journal, February 2021

MECHANICAL SYSTEMS AND SIGNAL PROCESSING, SCI Journal, December 2020

TUBITAK Project, 1501 - Industry R & D Projects Support Program, EAE MAKİNA SAN. VE TİC. A.Ş., Turkey, November 2020

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, HTS MÜHENDİSLİK İMALAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ, Turkey, September 2020

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, SÜREKLİ BESLEMELİ SİSTEM KARTON KÖŞEBENT ÜRETİM HATTI, Turkey, April 2020

TUBITAK Project, 1501 - Industry R & D Projects Support Program, ERYİĞİT ENDÜSTRİYEL MAK. VE TIBBİ CİH. İML. İTH. İHR. İNŞ. TİC. A.Ş., Turkey, March 2020

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, PULSAR ROBOTİK SANAYİ VE TİCARET ANONİM ŞİRKETİ , Turkey, March 2020

TUBITAK Project, 1501 - Industry R & D Projects Support Program, TURMACH MAKİNE İMALAT SANAYİ VE DIŞ TİCARET A.Ş., Turkey, February 2020

TUBITAK Project, 1501 - Industry R & D Projects Support Program, HİDROMEK-HİDROLİK VE MEKANİK MAKİNA İMALAT SAN. VE TİC.A.Ş., Turkey, November 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, PRUVA KALIP TEKNOLOJİLERİ SANAYİ TİCARET ANONİM ŞİRKETİ, Turkey, August 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, PRUVA KALIP TEKNOLOJİLERİ SANAYİ TİCARET ANONİM ŞİRKETİ, Turkey, August 2019

TUBITAK Project, 1501 - Industry R & D Projects Support Program, ÇAĞ ÇELİK DEMİR VE ÇELİK ENDÜSTRİ A.Ş., Turkey, July 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, İNVENTRA MÜHENDİSLİK ANONİM ŞİRKET, Turkey, March 2019

JOURNAL OF MATERIALS PROCESSING TECHNOLOGY, SCI Journal, February 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, HİDROPAR BURSA OTOMASYON HİDROLİK PNÖMATİK MAKİNA SANAYİ VE TİCARET ANONİM ŞİRKETİ, Turkey, August 2018

TUBITAK Project, 1511 - TUBITAK Priority Fields Research Technology Development and Innovation PDP, NAİM GÖNCÜ MAKİNE SANAYİ VE TİC. LTD.ŞTİ., Turkey, June 2017

## Scientific Consultations

REPKON MAKİNE VE KALIP SANAYİ, Project Consultancy, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, Turkey, 2021 - 2022

HİDROFIL, Project Consultancy, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, Turkey, 2020 - 2022

AKIM METAL, Project Consultancy, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, Turkey, 2020 - 2021

## Tasks In Event Organizations

Çalışkan H., TOK2022 Otomatik Kontrol Ulusal Kongresi, Scientific Congress, Elazığ, Turkey, Ekim 2022

## Metrics

Publication: 23

Citation (WoS): 126

Citation (Scopus): 207

H-Index (WoS): 6

H-Index (Scopus): 6

## Congress and Symposium Activities

HPKON 2022, Attendee, İzmir, Turkey, 2022

## Non Academic Experience

the university of british columbia