

## Asst. Prof. GAZİ AKGÜN

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: AAD-1776-2021

ScopusID: 57203002040

Yoksis Researcher ID: 340771

### Education Information

Doctorate, Marmara University, Institute for Graduate Studies in Pure and Applied Sciences, Department of Mechatronics Engineering, Turkey 2015 - 2019

Postgraduate, Marmara University, Institute for Graduate Studies in Pure and Applied Sciences, Department of Mechatronics, Turkey 2012 - 2015

Undergraduate, Dicle University, Batman Faculty Of Technical Education, Elektrik Öğretmenliği, Turkey 2000 - 2004

### Dissertations

Doctorate, El rehabilitasyon dış iskelet robotunun veri güdümlü öngörülü kontrolü, Marmara University, Institute for Graduate Studies in Pure and Applied Sciences, Department of Mechatronics Engineering, 2019

Postgraduate, El rehabilitasyonu için EMG kontrollü giyilebilir iskelet destek sistemi tasarımı, Marmara University, Institute for Graduate Studies in Pure and Applied Sciences, 2019

### Research Areas

Control and System Engineering, Artificial Intelligence, Computer Learning and Pattern Recognition

### Academic Titles / Tasks

Assistant Professor, Marmara University, Faculty of Technology, Mechatronic Engineering, 2021 - Continues

### Advising Theses

Aküner M. C., Akgün G., Servo Sistemleri İçin Bir Akıllı Makine Durum İzleme Modeli Geliştirilmesi, Postgraduate, H.MUTLU(Student), 2022

Aküner M. C., Akgün G., Makine Öğrenmesi Temelli Fiziksel Aktivite Kestrim Sistemi Tasarım ve Uygulaması, Postgraduate, H.TAŞDEMİR(Student), 2022

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

- I. **Prediction surface roughness of 3D printed parts using genetic algorithm optimized hybrid learning model**  
AKGÜN G., Ulkir O.  
Journal of Thermoplastic Composite Materials, vol.37, no.7, pp.2225-2245, 2024 (SCI-Expanded)
- II. **Prediction of Flexural Strength with Fuzzy Logic Approach for Fused Deposition Modeling of Polyethylene Terephthalate Glycol Components**  
Ulkir O., AKGÜN G.  
Journal of Materials Engineering and Performance, vol.33, no.9, pp.4367-4376, 2024 (SCI-Expanded)
- III. **Effect of data size on tooth numbering performance via artificial intelligence using panoramic radiographs**  
Gülüm S., Kutal S., AYDIN K., AKGÜN G., Akdağ A.  
Oral Radiology, vol.39, no.4, pp.715-721, 2023 (SCI-Expanded)
- IV. **An Innovative Approach to Electrical Motor Geometry Generation using Machine Learning and Image Processing Techniques**  
DEMİR U., AKGÜN G., AKÜNER M. C., Pourkarimi M., AKGÜN Ö., Akıncı T. Ç.  
IEEE Access, vol.11, pp.48651-48666, 2023 (SCI-Expanded)
- V. **Comparative Design Improvement of the Growing Rod for the Scoliosis Treatment Considering the Mechanical Complications**  
Demir U., Akgün G., Kocaoğlu S., Okay E., Heydar A., Akdoğan E., Yıldırım A., Yazı S., Demirci B., Kaplanoglu E.  
IEEE Access, vol.11, pp.40107-40120, 2023 (SCI-Expanded)
- VI. **Feature Extraction and NN-based Enhanced Test Maneuver Deployment for 2 DoF Vehicle Simulator**  
DEMİR U., AKGÜN G., AKÜNER M. C., Demirci B., AKGÜN Ö., Akıncı T. Ç.  
IEEE Access, vol.11, pp.36218-36232, 2023 (SCI-Expanded)
- VII. **Predicting and optimising the surface roughness of additive manufactured parts using an artificial neural network model and genetic algorithm**  
Ulkir O., AKGÜN G.  
Science and Technology of Welding and Joining, vol.28, no.7, pp.548-557, 2023 (SCI-Expanded)
- VIII. **Data-Driven Predictive Control of Exoskeleton for Hand Rehabilitation with Subspace Identification**  
Kaplanoglu E., AKGÜN G.  
SENSORS, vol.22, no.19, 2022 (SCI-Expanded)
- IX. **Data-Driven Predictive Control of a Pneumatic Ankle Foot Orthosis**  
Ulkir O., Akgun G., Nasab A., Kaplanoglu E.  
ADVANCES IN ELECTRICAL AND COMPUTER ENGINEERING, vol.21, no.1, pp.65-74, 2021 (SCI-Expanded)
- X. **Exoskeleton design and adaptive compliance control for hand rehabilitation**  
Akgun G., Cetin A. E., Kaplanoglu E.  
TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.42, no.3, pp.493-502, 2020 (SCI-Expanded)
- XI. **Real-Time Implementation of Data-Driven Predictive Controller for an Artificial Muscle**  
Ulkir O., Akgun G., KAPLANOĞLU E.  
STUDIES IN INFORMATICS AND CONTROL, vol.28, no.2, pp.189-200, 2019 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Developing a wearable device for upper extremity tremors**  
Yildiz S. D., AKGÜN G., GÜNAL D., Kaplanoglu E., AKÜNER M. C., ŞEHİRLİ Ü. S.  
Marmara Medical Journal, vol.37, no.2, pp.157-165, 2024 (ESCI)
- II. **An EMG-based Prosthetic Hand Design and Control Through Dynamic Time Warping**  
KADILAR M. C., TOPTAŞ E., AKGÜN G.  
International Journal of Advanced Natural Sciences and Engineering Researches, vol.8, no.2, pp.339-349, 2024

(Peer-Reviewed Journal)

- III. **Multi System Level Driving Scenarios Based Topology Optimization of Bracket Design for 2 DoF Vehicle Simulator**  
Demirci B., Demir U., AKGÜN G., YILDIRIM A., Aküner C.  
International Journal of Automotive Science and Technology, vol.7, no.3, pp.248-258, 2023 (Scopus)
- IV. **EEG İşaretlerinin Hilbert Huang Dönüşümü ve Sınıflandırılması**  
AKGÜN G., AKGÜN Ö.  
Afyon Kocatepe Üniversitesi Fen ve Mühendislik Bilimleri Dergisi, vol.22, no.6, pp.1323-1333, 2022 (Peer-Reviewed Journal)
- V. **FFT Analysis and Motion Classification of EMG Signals**  
AKGÜN G., DEMİR U., YILDIRIM A.  
Computer Science, pp.130-136, 2022 (Peer-Reviewed Journal)
- VI. **Custom Finger Orthosis Production and User Satisfaction for Swan Neck Deformity with Three-Dimensional Printer**  
TİMURTAŞ E., AKGÜN G., AVCI E. E., KARABACAK N., KARTAL G., POLAT M. G., DEMİRBÜKEN İ.  
Online Türk Sağlık Bilimleri Dergisi, vol.7, pp.340-345, 2022 (Peer-Reviewed Journal)
- VII. **Talus Osteokondral Lezyon Cerrahisi Sonrası Uygulanan Kısmi Ağırlık Aktarma Protokolünün Anlık Geri Bildirim ile Takibinin Erken Dönem Ağrı, Kinezyofobi ve Fonksiyon Üzerine Etkisi**  
AVCI E. E., AKGÜN G., TİMURTAŞ E., UYGUR M. E., POLAT M. G., DEMİRBÜKEN İ.  
Journal of Health Sciences and Management, vol.2, no.3, pp.60-67, 2022 (Peer-Reviewed Journal)
- VIII. **An Intelligent Machine Condition Monitoring Model for Servo Systems**  
MUTLU H., AKÜNER M. C., AKGÜN G.  
Balkan Journal of Electrical and Computer Engineering, vol.10, no.1, pp.23-29, 2022 (Peer-Reviewed Journal)
- IX. **DESIGN AND MYOELECTRIC CONTROL OF AN ACTIVE ORTHOSIS DEVICE USING FINITE STATE MACHINE ALGORITHM**  
ÜLKİR O., AKGÜN G., TOPTAŞ E., KAPLANOĞLU E.  
Technium: Romanian Journal of Applied Sciences and Technology, vol.2, 2020 (Peer-Reviewed Journal)
- X. **Mechanical Design of Exoskeleton for Hand Therapeutic Rehabilitation**  
AKGÜN G., KAPLANOĞLU E., Çetin A. E., ÜLKİR O.  
Journal of Research in Mechanical Engineering, vol.4, no.1, pp.9-17, 2018 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **BİYOMEKATRONİK SİSTEMLERE GİRİŞ**  
KAPLANOĞLU E., ÜLKİR O., AKGÜN G.  
Papatya Bilim, İstanbul, 2017

## Refereed Congress / Symposium Publications in Proceedings

- I. **Design and PID Control of Tendon-Driven Continuum Robot for Finger Rehabilitation**  
KAPLANOĞLU E., AKGÜN G., ERDEMİR G., Platt T.  
SoutheastCon 2024, ATLANTA, United States Of America, 15 March 2024, pp.681-685
- II. **Enhancing Prosthetic Hand Control: A Study on IMU Sensor-Based Machine Learning for Precise Hand Orientation Classification**  
Nia N. G., KAPLANOĞLU E., Nasap A., AKGÜN G.  
SoutheastCon 2024, ATLANTA, United States Of America, 15 March 2024, pp.668-674
- III. **An EMG-based Prosthetic Hand Design and Control Through Dynamic Time Warping**  
KADILAR M. C., TOPTAŞ E., AKGÜN G.  
4th International Conference on Innovative Academic Studies ICIAS 2024, Konya, Turkey, 12 March 2024

- IV. **Intelligent Adaptive Control of Magnetically Growing Rod-Like System**  
Cokatar S., YILDIRIM A., AKGÜN G., AKDOĞAN E., DEMİR U.  
3rd International Conference on Power, Control and Computing Technologies, ICPC2T 2024, Raipur, India, 18 - 20 January 2024, pp.135-138
- V. **Parameter Estimation of Magnetic Growing Rod with Output Error Method**  
Yildirim A., Akgün G., Çokatar S., Demir U.  
2023 Innovations in Intelligent Systems and Applications Conference (ASYU), Sivas, Turkey, 11 - 13 October 2023, pp.1-6
- VI. **Neural Network and IoT-based Test Maneuver Deployment for 2 DoF Vehicle Simulator**  
DEMİRCİ B., DEMİR U., AKGÜN G., YILDIRIM A., AKÜNER M. C., ÖZKAN M.  
2022 International Conference on Artificial Intelligence of Things (ICAIoT), 29 December 2022, vol.11
- VII. **Investigation of UWB-IMU Sensor Fusion for Indoor Navigation with DoE**  
Durmus S., DEMİR U., AKGÜN G., YILDIRIM A.  
2023 Innovations in Intelligent Systems and Applications Conference, ASYU 2023, Sivas, Turkey, 11 - 13 October 2023
- VIII. **Motion Classification of EMG Signals with Deep Learning**  
Akgün G., Yıldırım A., Demir U., Kaplanoğlu E.  
TOK2022 Otomatik Kontrol Ulusal Toplantısı, Elazığ, Türkiye, 15 - 18 Eylül 2022, Elazığ, Turkey, 15 - 18 September 2022
- IX. **Newly Developed Smart Insole System with Mobile Application for Monitoring Remotely the Weight Bearing Compliance of Post-Operative Orthopedic Patients: Validity and Reliability**  
AVCI E. E., AKGÜN G., UYGUR M. E., POLAT M. G., DEMİRBÜKEN İ.  
7. International Health Sciences and Management Conference, İstanbul, Turkey, 16 - 19 June 2022
- X. **Real Time Robotic Arm Control Using Wearable GestureArmband**  
Ülker O., Akgün G., Kaplanoğlu E.  
2nd International Mediterranean Science and Engineering Congress (IMSEC 2017), Adana, Turkey, 25 - 27 October 2017, pp.81-87
- XI. **Mechanical design and analysis of a pneumatic ankle foot orthosis**  
Ulker O., Akgun G., KAPLANOĞLU E.  
4th Electric Electronics, Computer Science, Biomedical Engineerings' Meeting, EBBT 2018, İstanbul, Turkey, 18 - 19 April 2018, pp.1-4
- XII. **THE DEVELOPMENT OF DIGITAL GONIOMETER AND INVESTIGATION OF CLINICALLY USABILITY**  
Timurtaş E., Akgün G., Özen Berkol T., Tonga E., Kaplanoğlu E., Polat M. G.  
1ST INTERNATIONAL CONGRESS ON PHYSIOTECHNOTHERAPY(ICPTT), Sarajevo, Bosnia And Herzegovina, 9 - 13 May 2018, vol.5, pp.85
- XIII. **ASSESSING THE USABILITY OF A 'NOVEL EXOSKELETON FOR HAND REHABILITATION' DEVICE FROM THE PERSPECTIVE OF PHYSIOTHERAPIST: A QUALITATIVE ANALYSIS RESEARCH WITH IN-DEPT INTERVIEW**  
Tonga E., Kaplanoğlu E., Akgün G., Timurtaş E., Özen Berkol T., Polat M. G.  
1ST INTERNATIONAL CONGRESS ON PHYSIOTECHNOTHERAPY(ICPTT), Sarajevo, Bosnia And Herzegovina, 9 - 13 May 2018, vol.5, pp.80
- XIV. **Real Time Robotic Arm Control Using Wearable GestureArmband**  
ÜLKİR O., AKGÜN G., KAPLANOĞLU E.  
2nd International Mediterranean Science and Engineering Congress (IMSEC 2017), Adana, Turkey, 25 October 2017
- XV. **Wavelet Transform Based Feature Extraction and Classification of EMG Signals**  
AKGÜN G., ÜLKİR O., KAPLANOĞLU E.  
2nd International Mediterranean Science and Engineering Congress (IMSEC 2017), Adana, Turkey, 25 - 27 October 2017, pp.72-78
- XVI. **EMG Sinyallerinin Öznitelik Çıkarımı ve Geri Yayılımlı Yapay Sinir Ağı, Algoritması İle Sınıflandırılması**

AKGÜN G., DEMETGÜL M., KAPLANOĞLU E.

Otomatik Kontrol Ulusal Toplantısı, TOK2013, Malatya, Turkey, 26 September 2013, pp.26-28

XVII. **Sonlu Durum Makine Yöntemi ile Profitez El Kontrolü**

AKGÜN G., ALVEROĞLU A., ÖZKAYA G., KAPLANOĞLU E.

Otomatik Kontrol Ulusal Toplantısı, TOK2013, Malatya, Turkey, 26 September 2013, pp.158-162

## Supported Projects

Demirbüken İ., Ucuzoğlu M. E., Avcı E. E., Akgün G., Emergency R&D Project of Group A, Dijital Tabanlı Simülasyon Eğitiminin Fizyoterapi ve Rehabilitasyon Öğrencilerinde Özyeterlik ve Klinik Akıl Yürütme Becerileri Üzerine Etkisi, 2024 - 2025

Demir U., Akdoğan E., Okay E., Heydar A. M., Kocaoğlu S., Akgün G., TUBITAK Project, Tübitak Proje Numarası : 121E492, Skolyoz Tedavisi için Manyetik Aktüatör ve Kontrol Ünitesinin Geliştirilmesi, 2022 - 2024

Akgün G., Kocaoğlu S., Okumuş A., Demir U., TUBITAK Project, TÜBİTAK Proje Numarası :2210861, ERKEN BAŞLANGIÇLI SKOLYOZDA TEDAVİ ÖNCESİ TEŞHİS - SÜREÇ PLANLAMA ASİSTANI VE SİMÜLATÖRÜ GELİŞTİRME (SMARTACT), 2022 - 2023

## Patent

Demir U., Aküner M. C., Akgün G., Yapay Sinir Ağı Kullanılarak Elektrik Motoru Tasarımında Rotor ve Stator Geometrileri Kestirme ve Analiz Etme Yöntemi, Patent, CHAPTER H Electricity, The Invention Registration Number: 2022 007738 , Standard Registration, 2023

## Metrics

Publication: 39

Citation (WoS): 26

Citation (Scopus): 45

H-Index (WoS): 4

H-Index (Scopus): 4

## Non Academic Experience

MİLLİ EĞİTİM BAKANLIĞI