

Assoc. Prof. FATİH GÜL

Personal Information

Office Phone: [+90 464 223 7518](tel:+904642237518) Extension: 1150-1586

Email: fatih.gul@erdogan.edu.tr

Web: https://www.researchgate.net/profile/Fatih_Guel2

International Researcher IDs

ScholarID: Fv0m_PsAAAAJ

ORCID: 0000-0001-5072-2122

Publons / Web Of Science ResearcherID: AAE-8130-2019

ScopusID: 57192644209

Yoksis Researcher ID: 134305

Education Information

Doctorate, Ataturk University, Fen Bilimleri Enstitüsü, Elektrik Elektronik Mühendisliği, Turkey 2009 - 2017

Postgraduate, Ataturk University, Fen Bilimleri Enstitüsü, Elektrik Elektronik Mühendisliği, Turkey 2005 - 2008

Undergraduate, Inonu University, Mühendislik Fakültesi, Elektrik Elektronik Mühendisliği, Turkey 1997 - 2004

Foreign Languages

English, B2 Upper Intermediate

Certificates, Courses and Trainings

IT, CyberOps Associate , Cisco Networking Academy, 2021

IT, CCNA: Enterprise Networking, Security, and Automation, Cisco Networking Academy, 2021

IT, CCNA: Switching, Routing, and Wireless Essentials- <https://www.credly.com/users/fatih-gul.ddf2ea5c/badges>, Cisco Networking Academy, 2021

IT, CCNA: Introduction to Networks -<https://www.credly.com/users/fatih-gul.ddf2ea5c/badges>, Cisco Networking Academy, 2021

Project Management, 2237-B, Mühendislik Bilimleri Alanında Araştırma Projesi Hazırlama Eğitimi, TÜBİTAK, 2018

Vocational Training, Hassas Lehimleme ve Genel Ölçüm Belirsizliği, Elektro-Optik Sistemler Bakım Merkezi Müdürlüğü, 2005

IT, Bilgi Teknolojileri, ODTÜ-Bilgisayar Mühendisliği, 2002

Vocational Training, Sinyal Kaynakları, TÜBİTAK- Ulusal Metroloji Enstitüsü, 2001

Quality Management, TSE-EN-ISO 9000, TÜRK STANDARTLARI ENSTİTÜSÜ, 2000

Vocational Training, Kalibratör Kalibrasyonu, TÜBİTAK- Ulusal Metroloji Enstitüsü, 2000

Vocational Training, M60/M48 Tank Thermal Sight/ Fire Control Systems, NAMSA-NATO MAINTENANCE and SUPPLY CENTER, 1994

Dissertations

Doctorate, Metal ZnO ve ZnO_{1-x} metal yapısının memristiv davranışının elektriksel ve optik karakterizasyonu, Ataturk

University, Fen Bilimleri Enstitüsü, Elektrik Elektronik Mühendisliği Anabilim Dalı, 2017

Postgraduate, Bilgisayar destekli fotoluminesans ölçüm sisteminde monokromatörün mikrodenetleyici ve adım motor ile kontrolü, Ataturk University, Fen Bilimleri Enstitüsü, Elektrik Elektronik Mühendisliği Anabilim Dalı, 2008

Research Areas

Artificial Intelligence, Computer Learning and Pattern Recognition, Electrical and Electronics Engineering, Electronic, Printed Circuits, Thin Film, Thick Film and Hybrid ICs, Electronic Circuits, Nanotechnology, Optics and Photonics, Optoelectronic Materials and Devices, Semiconducting Materials and Devices, Engineering and Technology

Academic Titles / Tasks

Associate Professor, Recep Tayyip Erdogan University, Mühendislik Fakültesi, Elektrik ve Elektronik Mühendisliği Bölümü, 2020 - Continues

Assistant Professor, Recep Tayyip Erdogan University, Mühendislik Fakültesi, Elektrik ve Elektronik Mühendisliği Bölümü, 2019 - 2020

Assistant Professor, Gumushane University, Mühendislik Ve Doğa Bilimleri Fakültesi-Yazılım Mühendisliği, Yazılım Mühendisliği, 2017 - 2019

Instructor, Gumushane University, Rektörlük-Enformatik, Enformatik, 2009 - 2011

Courses

Labview Ile Biyomedikal Enstrümantasyon Uygulamaları , Postgraduate, 2023 - 2024

Gömülü Sistemlere Giriş , Undergraduate, 2023 - 2024

Elektrik-Elektronik Mühendisliğinde Güncel Konular , Postgraduate, 2023 - 2024

Analog Elektronik, Undergraduate, 2023 - 2024

Labview Programlama , Postgraduate, 2023 - 2024

Elektronik Tasarım Ve Uygulamaları , Undergraduate, 2023 - 2024

MİKRODENETLEYİCİLER, Undergraduate, 2019 - 2020

ELEKTRONİK-II, Undergraduate, 2019 - 2020

TEMEL BİLGİ TEKNOLOJİLERİ, Undergraduate, 2019 - 2020

ELEKTRONİK-I, Undergraduate, 2019 - 2020

PROGRAMLAMAYA GİRİŞ, Undergraduate, 2019 - 2020

TEMEL ELEKTRİK LABORATUVARI-I, Undergraduate, 2017 - 2018

NANOTEKNOLOJİYE GİRİŞ, Postgraduate, 2018 - 2019

NÖROMORFİK SİSTEMLER, Doctorate, 2018 - 2019

ELEKTRİK MÜHENDİLİĞİNİN TEMELLERİ-I, Undergraduate, 2018 - 2019

ELEKTRİK MÜHENDİSLİĞİNDE MALZEME, Undergraduate, 2018 - 2019

BİYO-ESİNLİ YAPAY ÖĞRENME, Doctorate, 2017 - 2018

ALGORİTMA TASARIMI VE PROGRAMLAMA DİLLERİ, Undergraduate, 2017 - 2018

BİYOBİLİM VE BİYOTEKNOLOJİDE MATLAB, Postgraduate, 2017 - 2018

Jury Memberships

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Ataturk University, January, 2024

Doctorate, Doctorate, Ataturk University, January, 2023

Doctorate, Doctorate, Ataturk University, January, 2021

Post Graduate, Post Graduate, Karadeniz Teknik Üniversitesi, August, 2020

Doctoral Examination, Doktora Yeterlik Komitesi Üyesi, Gümüşhane Üniversitesi-Biyoteknoloji Anabilim Dalı, January, 2019

Doctoral Examination, Doktora Yeterlik Sınav Jürü, Karadeniz Teknik Üniversitesi, January, 2018

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Optimizing Memristor-Based Synaptic Devices for Enhanced Energy Efficiency and Accuracy in Neuromorphic Machine Learning**
Gökgöz B., Aydın T., Gül F.
IEEE ACCESS, vol.1, no.1, pp.1-17, 2024 (SCI-Expanded)
- II. **Design and Optimisations of Metal-Oxide Artificial Synaptic Device Based Machine Learning Model**
Yılmaz Y., Gul F.
IEEE TRANSACTIONS ON EMERGING TOPICS IN COMPUTATIONAL INTELLIGENCE, 2024 (SCI-Expanded)
- III. **Neuro-inspired hardware solutions for high-performance computing: A TiO₂-based nano-synaptic device approach with backpropagation**
Yılmaz Y., Gül F.
Integration, vol.97, 2024 (SCI-Expanded)
- IV. **An overview memristor based hardware accelerators for deep neural network**
Gökgöz B., GÜL F., Aydın T.
Concurrency and Computation: Practice and Experience, vol.36, no.9, 2024 (SCI-Expanded)
- V. **Electronically Controllable Fully Floating Memcapacitor Circuit**
Gur M., AKAR F., ORMAN K., BABACAN Y., Yesil A., GÜL F.
Circuits, Systems, and Signal Processing, vol.42, no.11, pp.6481-6493, 2023 (SCI-Expanded)
- VI. **Harmonic problems in renewable and sustainable energy systems: A comprehensive review**
EROĞLU H., CÜCE E., MERT CÜCE A. P., GÜL F., İSKENDEROĞLU A.
SUSTAINABLE ENERGY TECHNOLOGIES AND ASSESSMENTS, vol.48, 2021 (SCI-Expanded)
- VII. **Nano-scale single layer TiO₂-based artificial synaptic device**
Gul F.
APPLIED NANOSCIENCE, vol.10, no.2, pp.611-616, 2020 (SCI-Expanded)
- VIII. **Circuit Implementation of Nano-Scale TiO₂ Memristor Using Only Metal-Oxide-Semiconductor Transistors**
Gul F.
IEEE ELECTRON DEVICE LETTERS, vol.40, no.4, pp.643-646, 2019 (SCI-Expanded)
- IX. **Addressing the sneak-path problem in crossbar RRAM devices using memristor-based one Schottky diode-one resistor array**
Gul F.
RESULTS IN PHYSICS, vol.12, pp.1091-1096, 2019 (SCI-Expanded)
- X. **A novel OTA-based circuit model corroborated by an experimental semiconductor memristor**
Gul F., BABACAN Y.
MICROELECTRONIC ENGINEERING, vol.194, pp.56-60, 2018 (SCI-Expanded)
- XI. **Carrier transport mechanism and bipolar resistive switching behavior of a nano-scale thin film TiO₂ memristor**
Gul F.
CERAMICS INTERNATIONAL, vol.44, no.10, pp.11417-11423, 2018 (SCI-Expanded)
- XII. **The Fabrication and MOSFET-Only Circuit Implementation of Semiconductor Memristor**
BABACAN Y., Yesil A., Gul F.
IEEE TRANSACTIONS ON ELECTRON DEVICES, vol.65, no.4, pp.1625-1632, 2018 (SCI-Expanded)
- XIII. **ZnO and ZnO_{1-x} based thin film memristors: The effects of oxygen deficiency and thickness in resistive switching behavior**

Gül F., EFEOĞLU H.

CERAMICS INTERNATIONAL, vol.43, no.14, pp.10770-10775, 2017 (SCI-Expanded)

XIV. **Bipolar resistive switching and conduction mechanism of an Al/ZnO/Al-based memristor**

Gül F., EFEOĞLU H.

SUPERLATTICES AND MICROSTRUCTURES, vol.101, pp.172-179, 2017 (SCI-Expanded)

Articles Published in Other Journals

I. **Enhancing Mammography Images with Artificial Intelligence to Improve Radiological Diagnosis in Breast Cancer**

Gül F., Uçar M., Hürsoy N.

Black Sea Journal of Engineering and Science, vol.1, no.1, pp.1, 2024 (Peer-Reviewed Journal)

II. **YOLO V8 Algoritması ile Otomatik Plaka Tanıma ve Görşelleştirme Sistemi**

Gül F., Serttaş E.

INTERNATIONAL JOURNAL OF INFORMATICS TECHNOLOGIES, vol.1, no.1, pp.1-11, 2024 (Peer-Reviewed Journal)

III. **A Generic Circuit Model for Memristor Based One Diode-One Resistor Devices**

GÜL F.

Balkan Journal of Electrical and Computer Engineering, vol.7, no.1, pp.15-19, 2019 (Peer-Reviewed Journal)

Books & Book Chapters

I. **Emulator circuits and resistive switching parameters of memristor**

YEŞİL A., GÜL F., BABACAN Y.

in: Memristor and Memristive Neural Networks, Alex Pappachen James, Editor, INTECH, Zagreb, pp.41-61, 2018

Refereed Congress / Symposium Publications in Proceedings

I. **Low-Cost IoT Mesh Network for RealTime Indoor Air Quality Monitoring**

Gül F., Erođlu H.

IEEE 9th International Conference on Communication and Electronics Systems ICCES 2024 , Tamil Nadu, India, 16 - 18 December 2024, pp.1

II. **Sensor Classification for CO2 Detection in IoT-Enabled Indoor Air Quality Monitoring Systems**

Gül F., Erođlu H.

IEEE Asia-Pacific Conference on Geoscience, Electronics and Remote Sensing Technology (AGERS-2024), Manado, Indonesia, 13 - 14 December 2024, pp.1

III. **Memristive Synapses as Building Blocks of Neuromorphic Artificial Intelligence (AI) Hardware**

Gül F.

IEEE-8th International Artificial Intelligence and Data Processing Symposium, Malatya, Turkey, 21 - 22 September 2024, pp.1-5

IV. **The Effect of Coenzyme Q10 Against Possible Auditory System Damage of 5G Electromagnetic Field Exposure**

Yilmaz H., Gül F., Yaman S.

6th International and 35th National Biophysics Congress, Kayseri, Turkey, 05 September 2024

V. **A simplified method to determine carrier transport mechanisms of metal-oxide resistive random access memory (RRAM) devices**

GÜL F.

2nd International Congress on Semiconductor Materials and Devices, ICSMD 2018, Ardahan, Turkey, 28 - 30 August 2018, vol.46, pp.6976-6978

- VI. **Non-Linear Drift Modeling with Controllable pi-Shaped Window Function for TiO₂ Memristor**
OĞUZ Y., GÜL F.
5th International Conference on Materials Science and Nanotechnology For Next Generation (MSNG2018),
KAPADOKYA/NEVŞEHİR, Turkey, 4 - 06 October 2018
- VII. **Metal-Oxide Based Nano-Electronic Synaptic Devices for Brain-Like Computing**
GÜL F.
5th International Conference on Materials Science and Nanotechnology For Next Generation (MSNG2018),
KAPADOKYA/NEVŞEHİR, Turkey, 4 - 06 October 2018
- VIII. **A simplified method to determine carrier transport mechanisms of metal-oxide resistive random access memory (RRAM) devices**
GÜL F.
2nd International Congress on Semiconductor Materials and Devices" (ICSMD-2018), Ardahan, Turkey, 28 - 30 August 2018
- IX. **A Validated Mathematical Model for Semiconductor Memristor Devices**
OĞUZ Y., GÜL F.
2nd International Congress on Semiconductor Materials and Devices" (ICSMD-2018), Ardahan, Turkey, 28 - 30 August 2018, pp.253-258
- X. **Increasing the Electrical Vehicle Efficiency with Genetic Algorithm**
EROĞLU H., OĞUZ Y., KAPLAN E., GÜL F., ŞİMŞEK C.
8th International Advanced Technologies Symposium (IATS17), 19 - 21 October 2017
- XI. **Microcontroller Based Circuit and Software Design to Automate Czerny-Turner Type Monochromator in a Computer Aided Photoluminescence Measurement System**
GÜL F., EFEOĞLU H.
8th International Advanced Technologies Symposium (IATS17), 19 - 21 October 2017
- XII. **A New Window Function for Memristor Modeling**
OĞUZ Y., GÜL F., EROĞLU H.
8th International Advanced Technologies Symposium (IATS17), 19 - 21 October 2017
- XIII. **The Effect of Post-Annealing on XRD Pattern of DC Sputtered ZnO/SiO₂ Structure**
GÜL F., EFEOĞLU H.
8th International Advanced Technologies Symposium (IATS17), 19 - 21 October 2017
- XIV. **Reusable Micro-Mixers**
KAPLAN E., OĞUZ Y., GÜL F., EROĞLU H.
IMESET 2017, Bitlis, Turkey, 27 - 29 October 2017
- XV. **Highly Efficient Acoustic Micro-Actuators**
KAPLAN E., OĞUZ Y., GÜL F., EROĞLU H.
IMESET 2017, Bitlis, Turkey, 27 - 29 October 2017
- XVI. **A Circuit Model for Single Cell 1 Diode-1 Memristor (1D1M) Semiconductor Device**
GÜL F., BABACAN Y.
II. INES International Academic Research Congress, 18 - 21 October 2017
- XVII. **Reusable Micro-Mixers**
KAPLAN E., OĞUZ Y., GÜL F., EROĞLU H.
IMESET 2017, Bosnia And Herzegovina, 27 - 29 October 2017
- XVIII. **Highly Efficient Acoustic Micro-Actuators**
KAPLAN E., OĞUZ Y., EROĞLU H., GÜL F.
IMEST 2017, Turkey, 27 - 29 October 2017
- XIX. **ZnO and ZnO_{1-x} Based Thin Film Memristor**
GÜL F., EFEOĞLU H.
11th Nanoscience and Nanotechnology Conference (NanoTR-11), Turkey, 22 - 23 July 2015

Supported Projects

Gül F., Erođlu H., TUBITAK Project, Gıda Güvenliğinde Sevkiyat Ve Soguk Zincir Uygulamaları İçin, Nesnelerin İnterneti (IoT) Tabanlı, Çok Amaçlı Takip Cihazı Gelistirilmesi, 2022 - 2024

Patent

Gül F., Erođlu H., Yıldız Y., Yılmaz Y., Atesli havaleyi önlemek için vücut sıcaklığı ve oksijen satürasyonu takip cihazı, Utility Model, CHAPTER A Human Needs, The Invention Registration Number: 2022/04/21 , Standard Registration, 2024

Student Project

- R & D Project, Nesnenin internet tabanlı Mesh ađlı taşkın erken uyarı sistemi-TEKNOFEST, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİđİ, Turkey, 2023 - 2023
- R & D Project, Otonom İlaçlama Yapabilen insansız kara aracı-TÜBİTAK, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİđİ, Turkey, 2022 - 2023
- R & D Project, Güneş Enerjisi İle Çalışan Sabit Kanat İnsansız Hava Aracı (Solarıha)-TÜBİTAK, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİđİ, Turkey, 2022 - 2023
- R & D Project, Afad Erken Uyarı Sistemleri İçin Kablosuz Meteoroloji İstasyonu Tasarımı-TÜBİTAK, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİđİ, Turkey, 2022 - 2023
- R & D Project, Yangının İlk Anını Algılayarak İlgili Birimlere Konumunu İleten Var Olan Sistemlere Entegre Edilebilir Cihaz-TÜBİTAK, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİđİ, Turkey, 2022 - 2023
- R & D Project, Görüntü İşleme Sağlayan Arabalı Drone (Öncü)-TÜBİTAK, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİđİ, Turkey, 2022 - 2023

Memberships / Tasks in Scientific Organizations

- IEEE Member, Member, 2019 - Continues
- IEEE Electron Devices Society, Member, 2019 - Continues
- IEEE Nanotechnology Council, Member, 2019 - Continues

Scientific Refereeing

- International Journal of Electronics, SCI Journal, February 2020
- Journal of Physics D: Applied Physics, SCI Journal, January 2020
- Journal of Materials Science: Materials in Electronics, SCI Journal, January 2020
- Semiconductor Science and Technology, SCI Journal, December 2019
- Journal of Physics and Chemistry of Solids, SCI Journal, November 2019
- Journal of Materials Science: Materials in Electronics, SCI Journal, August 2019
- IOP-Nanotechnology, SCI Journal, June 2019
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, SCI Journal, January 2019
- IEEE Access, SCI Journal, January 2019
- Ionics, SCI Journal, January 2019
- January 2019
- IEEE Transactions on Electron Devices, SCI Journal, January 2018
- IEEE Electron Device Letters, SCI Journal, January 2018

January 2018

Journal of Alloys and Compounds-, SCI Journal, January 2017

Materials Science in Semiconductor Processing, SCI Journal, January 2017

Physics Letters A, SCI Journal, January 2017

Mobility Activity

Erasmus Programme, Faculty Exchange, Opolski Üniversitesi, Poland, 2015 - 2020

Metrics

Publication: 37

Citation (WoS): 407

Citation (Scopus): 457

H-Index (WoS): 9

H-Index (Scopus): 9

Awards

Gül F., Dünyanın En Etkili Bilim İnsanları Listesi (2021), Stanford University, Elsevier Bv., November 2022

Gül F., Dünyanın En Etkili Bilim İnsanları Listesi (2020), Stanford University, Elsevier Bv., October 2021

GÜL F., UBYT-Yayın Teşvik, TÜBİTAK, November 2019

GÜL F., Golden List of Reviewers, IEEE, January 2019

GÜL F., UBYT-Yayın Teşvik, TÜBİTAK, December 2018

GÜL F., Outstanding Contribution in Reviewing, ELSEVIER, June 2017