

## Assoc. Prof. FURKAN NUR DENİZ

### Personal Information

**Email:** furkan.deniz@inonu.edu.tr

**Web:** <https://avesis.inonu.edu.tr/furkan.deniz>

### International Researcher IDs

ORCID: 0000-0002-2524-7152

Publons / Web Of Science ResearcherID: ABB-9604-2020

ScopusID: 56108025700

Yoksis Researcher ID: 120386

### Education Information

Doctorate, Inonu University, Fen Bilimler Enst., Elektrik-Elektronik Mühendisliği, Turkey 2011 - 2017

Postgraduate, Inonu University, Fen Bilimleri Enst., Elektrik-Elektronik Müh., Turkey 2008 - 2011

Undergraduate, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, Turkey 2004 - 2008

### Foreign Languages

English, B2 Upper Intermediate

### Dissertations

Doctorate, Kesir dereceli sistemlerde modelleme ve kontrol uygulamaları, Inonu University, Fen Bilimleri Enstitüsü, Elektrik-Elektronik Mühendisliği (Dr), 2017

Postgraduate, Bilgisayarlı tomografi ile elde edilen volumetrik verinin işlenerek üç boyutlu görüntüye dönüştürülmesi, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2011

### Research Areas

Electrical and Electronics Engineering, Engineering and Technology

### Academic Titles / Tasks

Associate Professor, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2023 - Continues

Assistant Professor, Inonu University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2017 - 2023

Research Assistant, Inonu University, Fen Bilimleri Enstitüsü, Elektrik-Elektronik Mühendisliği (Dr), 2009 - 2017

### Courses

Modern Kontrol Sistemlerinin Analizi Ve Tasarımı, Undergraduate Double Major, 2022-2023

Electronics Laboratory I (Normal+İkinci Öğretim), Undergraduate, 2022-2023

Elektrik Elektronik Tasarım I (Normal+İkinci Öğretim), Undergraduate, 2022-2023  
Control Laboratory I (Normal Öğretim), Undergraduate, 2022-2023  
Kompleks Fonksiyonlar ve Dönüşüm Teknikleri (Normal+İkinci Öğretim), Undergraduate, 2022-2023  
Elektrik-Elektronik Tasarım II (Normal+İkinci Öğretim), Undergraduate, 2021-2022  
Electronics Laboratory II (Normal+İkinci Öğretim), Undergraduate, 2021-2022  
Kompleks Fonksiyonlar ve Dönüşüm Teknikleri (Normal+İkinci Öğretim), Undergraduate, 2021-2022  
Control Laboratory II (Normal Öğretim), Undergraduate, 2021-2022  
Modern Kontrol Sistemlerinin Analizi Ve Tasarımı, Undergraduate Double Major, 2021-2022  
Electronics Laboratory I (Normal+İkinci Öğretim), Undergraduate, 2021-2022  
Probability and Statistics for Engineers (Normal+İkinci Öğretim), Undergraduate, 2021-2022  
Elektrik Elektronik Tasarım I (Normal+İkinci Öğretim), Undergraduate, 2021-2022  
Control Laboratory I (Normal Öğretim), Undergraduate, 2021-2022  
Electronics Laboratory I (Normal+İkinci Öğretim), Undergraduate, 2020-2021  
Control Laboratory II (Normal Öğretim), Undergraduate, 2020-2021  
Control Laboratory I (Normal Öğretim), Undergraduate, 2020-2021  
Probability and Statistics for Engineers (Normal+İkinci Öğretim), Undergraduate, 2020-2021  
Kompleks Fonksiyonlar ve Dönüşüm Teknikleri (Normal+İkinci Öğretim), Undergraduate, 2020-2021  
Elektrik-Elektronik Tasarım II (Normal Öğretim), Undergraduate, 2020-2021  
Electronics Laboratory II (Normal+İkinci Öğretim), Undergraduate, 2020-2021  
Elektrik Elektronik Tasarım I (Normal Öğretim), Undergraduate, 2020-2021  
Control Laboratory II (Normal Öğretim), Undergraduate, 2019-2020  
Elektrik Elektronik Tasarım I (Normal+İkinci Öğretim), Undergraduate, 2019-2020  
Control Laboratory I (Normal Öğretim), Undergraduate, 2019-2020  
Probability and Statistics for Engineers (Normal+İkinci Öğretim), Undergraduate, 2019-2020  
Electronics Laboratory II (Normal+İkinci Öğretim), Undergraduate, 2019-2020  
Electronics Laboratory I (Normal+İkinci Öğretim), Undergraduate, 2019-2020  
Elektrik-Elektronik Tasarım II (Normal+İkinci Öğretim), Undergraduate, 2019-2020  
Kompleks Fonksiyonlar ve Dönüşüm Teknikleri (Normal+İkinci Öğretim), Undergraduate, 2019-2020  
Kompleks Fonksiyonlar ve Dönüşüm Teknikleri (Normal+İkinci Öğretim), Undergraduate, 2018-2019  
Electronics Laboratory II (Normal+İkinci Öğretim), Undergraduate, 2018-2019  
Elektrik-Elektronik Tasarım II (Normal+İkinci Öğretim), Undergraduate, 2018-2019  
Probability and Statistics for Engineers (Normal+İkinci Öğretim), Undergraduate, 2018-2019  
Elektrik Elektronik Tasarım I (Normal+İkinci Öğretim), Undergraduate, 2018-2019  
Electronics Laboratory I (Normal+İkinci Öğretim), Undergraduate, 2018-2019  
Control Laboratory II (Normal Öğretim), Undergraduate, 2018-2019  
Bitirme Çalışması I (Normal+İkinci Öğretim), Undergraduate, 2018-2019  
Probability and Statistics for Engineers (Normal+İkinci Öğretim), Undergraduate, 2017-2018  
Devre Teorisi, Undergraduate, 2017-2018  
Teknoloji ve İnovasyon Yönetimi (Normal+İkinci Öğretim), Undergraduate, 2017-2018  
Devre Laboratuvarı, Undergraduate, 2017-2018  
Electronics Laboratory II, Undergraduate, 2017-2018  
Bitirme Çalışması II, Undergraduate, 2017-2018

## Advising Theses

Deniz F. N., Kesirli Bulanık Çıkarım Sistemi Kullanılarak Denetleyici Tasarımı, Postgraduate, M.CENGİZ(Student), 2024  
Deniz F. N., Kesirli dereceli çok giriş çok çıkışlı sistemlerde ayrıştırma yöntemleri ve kontrolör tasarımı, Postgraduate, M.GÜNAY(Student), 2021

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

- I. **An effective Smith predictor based fractional-order PID controller design methodology for preservation of design optimality and robust control performance in practice**  
DENİZ F. N.  
INTERNATIONAL JOURNAL OF SYSTEMS SCIENCE, vol.53, no.14, pp.2948-2966, 2022 (SCI-Expanded)
- II. **An effective analog circuit design of approximate fractional-order derivative models of M-SBL fitting method**  
KÖSEOĞLU M., DENİZ F. N., ALAGÖZ B. B., ALİSOY H.  
ENGINEERING SCIENCE AND TECHNOLOGY-AN INTERNATIONAL JOURNAL-JESTECH, vol.33, 2022 (SCI-Expanded)
- III. **Behavioural modelling of delayed imbalance dynamics in nature: a parametric modelling for simulation of delayed instability dynamics**  
ALAGÖZ B. B., DENİZ F. N., KÖSEOĞLU M.  
INTERNATIONAL JOURNAL OF GENERAL SYSTEMS, vol.51, no.4, pp.313-333, 2022 (SCI-Expanded)
- IV. **An efficient PID-based optimizer loop and its application in De Jong's functions minimization and quadratic regression problems**  
ALAGÖZ B. B., DENİZ F. N., KÖSEOĞLU M.  
SYSTEMS & CONTROL LETTERS, vol.159, 2022 (SCI-Expanded)
- V. **Revisiting four approximation methods for fractional order transfer function implementations: Stability preservation, time and frequency response matching analyses**  
DENİZ F. N., ALAGÖZ B. B., TAN N., KÖSEOĞLU M.  
ANNUAL REVIEWS IN CONTROL, vol.49, pp.239-257, 2020 (SCI-Expanded)
- VI. **An integer order approximation method based on stability boundary locus for fractional order derivative/integrator operators**  
DENİZ F. N., ALAGÖZ B. B., TAN N., Atherton D. P.  
ISA TRANSACTIONS, vol.62, pp.154-163, 2016 (SCI-Expanded)
- VII. **Implicit disturbance rejection performance analysis of closed loop control systems according to communication channel limitations**  
ALAGÖZ B. B., TAN N., DENİZ F. N., KELEŞ C.  
IET CONTROL THEORY AND APPLICATIONS, vol.9, no.17, pp.2522-2531, 2015 (SCI-Expanded)
- VIII. **Stability region analysis in Smith predictor configurations using a PI controller**  
DENİZ F. N., TAN N., HAMAMCI S. E., Kaya I.  
TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.37, no.5, pp.606-614, 2015 (SCI-Expanded)
- IX. **Disturbance rejection performance analyses of closed loop control systems by reference to disturbance ratio**  
Alagoz B. B., DENİZ F. N., KELEŞ C., TAN N.  
ISA TRANSACTIONS, vol.55, pp.63-71, 2015 (SCI-Expanded)
- X. **Spatio-spectral analyses of electromagnetic wave energy absorption and heating effect**  
ALİSOY H. Z., ALAGÖZ B. B., US S. B., DENİZ F. N., ALAGÖZ S.  
OPTİK, vol.125, no.15, pp.4124-4130, 2014 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Hybrid Approximation Method For Time Response Improvement Of CFE Based Approximate Fractional Order Derivative Models By Using Gradient Descent Algorithm**  
Köseoğlu M., Deniz F. N., Alagöz B. B.  
Uludağ Üniversitesi Mühendislik Fakültesi Dergisi, vol.28, no.2, pp.403-416, 2023 (Peer-Reviewed Journal)
- II. **An application for the PID-based optimizer loop: Estimation of the annual production regression models of Malatya's apricot**  
DENİZ F. N.

Dicle Üniversitesi Mühendislik Fakültesi Mühendislik Dergisi, vol.13, no.3, pp.511-516, 2022 (Peer-Reviewed Journal)

- III. **Coefficient Diagram Method Based Decentralized Controller for Fractional Order TITO Systems**  
GÜNAY BULUT M., DENİZ F. N.  
Balkan Journal of Electrical and Computer Engineering, vol.10, no.2, pp.198-208, 2022 (Peer-Reviewed Journal)
- IV. **An experimental analog circuit realization of Matsuda's approximate fractional-order integral operators for industrial electronics**  
KÖSEOĞLU M., DENİZ F. N., ALAGÖZ B. B., YUCE A., TAN N.  
ENGINEERING RESEARCH EXPRESS, vol.3, no.4, 2021 (ESCI)
- V. **Tuning of PI-PD Controller Based on Standard Forms for Fractional Order Systems**  
DENİZ F. N., YÜCE A., TAN N.  
Journal of Applied Nonlinear Dynamics, vol.8, no.1, pp.5-23, 2019 (Scopus)
- VI. **An interactive design strategy for fractional order PI controllers in LabVIEW**  
Yüce A., Deniz F. N., Tan N., Atherton D. P.  
International Journal of Modelling, Identification and Control (IJMIC), vol.29, no.4, pp.304-314, 2018 (ESCI)
- VII. **Exact time response computation of control systems with fractional order lag and lead compensators**  
TAN N., ATHERTON D. P., YÜCE A., DENİZ F. N.  
INTERNATIONAL JOURNAL OF CIRCUITS, SYSTEMS AND SIGNAL PROCESSING, vol.10, pp.260-268, 2016 (Scopus)
- VIII. **Kapalı Çevrim PID Kontrolör Tasarımında Birim Basamak Cevabı Çoklu Ölçüt Performans Haritalaması**  
DENİZ F. N., KELEŞ C., ALAGÖZ B. B., TAN N.  
Sakarya Üniversitesi Fen Bilimleri Enstitüsü, vol.18, no.3, pp.157-165, 2014 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Comparative Performance Evaluation of Fractional Fuzzy Inference System for A High-Order System**  
Cengiz M., DENİZ F. N., ÖZGÜVEN Ö.  
7th International Symposium on Innovative Approaches in Smart Technologies (ISAS 2023), İstanbul, Turkey, 23 - 25 November 2023
- II. **Fractional Order PI Controller Design Based on Bode's Ideal Loop and Matsuda's Approximation Method for A Plant With An Integrator**  
DENİZ F. N.  
10th International Conference on Advanced Technologies (ICAT'22), Van, Turkey, 25 - 27 November 2022
- III. **An Approach to Preserve Optimality in Implementation of Fractional Order PID Controllers Considering Approximation Methods**  
DENİZ F. N.  
2022 International Symposium on Multidisciplinary Studies and Innovative Technologies (ISMSIT), Ankara, Turkey, 20 - 22 October 2022
- IV. **Position Control of DC Motor Using Fractional Fuzzy Inference System (FFIS)**  
Cengiz M., DENİZ F. N.  
14th International Conference On Engineering & Natural Sciences, Sivas, Turkey, 18 - 19 July 2022
- V. **Computation of Stabilizing Decentralized PI Controllers for Fractional Order TITO (FOTITO) Systems**  
Bulut M. G., DENİZ F. N.  
IEEE 11th Annual Computing and Communication Workshop and Conference (CCWC), ELECTR NETWORK, 27 - 30 January 2021, pp.1274-1280
- VI. **Computation of Stabilizing Decentralized PI Controllers for TITO Systems with Simplified and Inverted Decoupling**  
GÜNAY BULUT M., DENİZ F. N.  
2020 7th International Conference on Electrical and Electronics Engineering (ICEEE), Antalya, Turkey, 14 - 16 April

2020

- VII. **Tuning of Fractional Order PID Controllers Based on Integral Performance Criteria Using Fourier Series Method**  
DENİZ F. N., Yuce A., TAN N., Atherton D. P.  
20th World Congress of the International-Federation-of-Automatic-Control (IFAC), Toulouse, France, 9 - 14 July 2017, vol.50, pp.8561-8566
- VIII. **A New Integer Order Approximation Table for Fractional Order Derivative Operators**  
Yuce A., DENİZ F. N., TAN N.  
20th World Congress of the International-Federation-of-Automatic-Control (IFAC), Toulouse, France, 9 - 14 July 2017, vol.50, pp.9736-9741
- IX. **Kesir dereceli transfer fonksiyonları için tamsayı dereceli yaklaşım yöntemlerinin LabVIEW ortamında interaktif analizi Interactive Analysis of Integer Order Approximation Methods in LabVIEW Environment**  
YÜCE A., DENİZ F. N., TAN N.  
1st International Mediterranean Science and Engineering Congress, Adana, Turkey, 26 - 28 October 2016
- X. **PI Controller Design for Fractional Order Systems with LabVIEW**  
YÜCE A., DENİZ F. N., TAN N.  
ICFDA'16, Novi-Sad, Serbia And Montenegro, 18 July - 20 June 2016, pp.292-301
- XI. **PI PD controller Design for Fractional Order Plant Using Standard Forms International Conference on Fractional Differentiation and Its Applications**  
DENİZ F. N., YÜCE A., TAN N.  
ICFDA'16, Novi-Sad, Serbia And Montenegro, 18 July - 20 June 2016, pp.452-461
- XII. **Teaching Fractional Order Control Systems Using Interactive Tools**  
TAN N., YÜCE A., DENİZ F. N.  
International Conference on Education in Mathematics, Science & Technology, MUĞLA-BODRUM, Turkey, 19 - 22 May 2016, pp.616-626
- XIII. **A Model Identification Method for Tuning of PID Controller in a Smith Predictor Structure**  
DENİZ F. N., TAN N.  
13th IFAC Workshop on Time Delay Systems (TDS), İstanbul, Turkey, 22 - 24 June 2016, vol.49, pp.13-18
- XIV. **SBL Eşleştirme Yöntemi ile Kesir Dereceli Sistem Modellemesinin Avantajları**  
DENİZ F. N., ALAGÖZ B. B., TAN N.  
Otomatik Kontrol Ulusal Toplantısı, TOK'15, Denizli, Turkey, 9 - 12 September 2015
- XV. **SBL Eşleştirme Yöntemi ile Kesir Dereceli PID Kontrolörün Yaklaşık Modellenmesi ve Ters Sarkaç Kontrol Sisteminde Uygulaması**  
DENİZ F. N., YÜCE A., ALAGÖZ B. B., TAN N.  
Otomatik Kontrol Ulusal Toplantısı, TOK'15, Denizli, Turkey, 9 - 12 September 2015
- XVI. **Time Response Computation of Control systems with Fractional Order Lag or Lead Controller**  
TAN N., Yuce A., Atherton D. P., DENİZ F. N.  
Second International Conference on Mathematics and Computers in Sciences and in Industry MCSI, Sliema, Malta, 17 - 19 August 2015, pp.113-118
- XVII. **PID Controller Design Based on Second Order Model Approximation by Using Stability Boundary Locus Fitting**  
DENİZ F. N., ALAGÖZ B. B., TAN N.  
9th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 26 - 28 November 2015, pp.827-831
- XVIII. **Estimating the Time Response of Control Systems with Fractional Order PI from Frequency Response**  
TAN N., Yuce A., Atherton D. P., DENİZ F. N.  
2015 4th International Conference on Electrical Engineering (ICEE), Boumerdes, Algeria, 13 - 15 December 2015, pp.152-157
- XIX. **Obtaining the Time Response of Control Systems with Fractional Order PID from Frequency**

## Responses

Yuce A., DENİZ F. N., TAN N., Atherton D. P.

9th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 26 - 28 November 2015, pp.832-836

- XX. **Kesirli Dereceli Kontrol Sistemlerinde Tamsayı Dereceli Yaklaşım Metotlarının İncelenmesi**  
TAN N., YÜCE A., ÖZEL A., DENİZ F. N.  
Otomatik Kontrol Ulusal Toplantısı, TOK'14, Kocaeli, Turkey, 11 - 13 September 2014
- XXI. **Yüksek dereceli sistemlerin kararlılık sınır eğrileri ile ikinci derece yaklaşık modele indirgenmesi ve uygun PID kontrolör tasarımı**  
ALAGÖZ B. B., DENİZ F. N., TAN N.  
Otomatik Kontrol Ulusal Toplantısı, TOK'14, Kocaeli, Turkey, 11 - 13 September 2014
- XXII. **PID kullanılan Smith öngörücüsü yapısının kararlılık analizi**  
DENİZ F. N., TAN N., ALAGÖZ B. B.  
Otomatik Kontrol Ulusal Toplantısı, TOK'14, Kocaeli, Turkey, 11 - 13 September 2014
- XXIII. **Design of Fractional-Order PI Controllers for Disturbance Rejection Using RDR Measure**  
DENİZ F. N., ALAGÖZ B. B., KELEŞ C., TAN N.  
International Conference on Fractional Differentiation and its Applications (ICFDA), Catania, Italy, 23 - 25 June 2014
- XXIV. **Smith Öngörücüsü Yapıları İçin Kararlılık Bölgesi Analizi**  
Deniz F. N., Tan N., Hamamcı S. E., Kaya İ.  
TOK 2013 Otomatik Kontrol Ulusal Toplantısı, Malatya, Turkey, 26 September 2013
- XXV. **Görüntü İşleme ile PID Kararlılık Bölgesi Kontrolör Performansı Haritalaması**  
DENİZ F. N., KELEŞ C., ALAGÖZ B. B., TAN N.  
Otomatik Kontrol Ulusal Toplantısı, TOK2013, Malatya, Turkey, 26 - 28 September 2013, pp.874-878
- XXVI. **Darbe Generatörünün Maksimum Enerjisi Hakkında Varyasyonel Problem**  
alisoy h., alisoy g., KELEŞ C., DENİZ F. N., IŞIK İ., içel y.  
Otomatik Kontrol Ulusal Toplantısı, Malatya, Turkey, 25 - 27 September 2013, pp.1-5
- XXVII. **Medikal Görüntüler İçin Alternatif Bir Bölütleme Yaklaşımı**  
DENİZ F. N., ALAGÖZ B. B., TAĞLUK M. E.  
SIU2010 IEEE 18.Sinyal İşleme ve İletişim Uygulamaları Kurultayı, Diyarbakır, Turkey, 22 - 24 April 2010

## Supported Projects

Tan N., TUBITAK Project, Kesirli Dereceli Kontrol Sistemlerinin Analiz Ve Tasarımı İçin Yeni Metotların Geliştirilmesi Ve Uygulamaları, 2015 - 2018

## Metrics

Publication: 45

Citation (WoS): 150

Citation (Scopus): 90

H-Index (WoS): 8

H-Index (Scopus): 6

## Non Academic Experience

Türk Telekom