

Assoc. Prof. Levent UCUN

Personal Information

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International Researcher IDs

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Education Information

Doctorate, Yildiz Technical University, Faculty Of Electrical & Electronics, Electrical Engineering Department, Turkey 2007 - 2012

Postgraduate, Yildiz Technical University, Faculty Of Electrical & Electronics, Electrical Engineering Department, Turkey 2005 - 2007

Undergraduate, Yildiz Technical University, Faculty Of Electrical & Electronics, Electrical Engineering Department, Turkey 2001 - 2005

Foreign Languages

English, C1 Advanced

Research Areas

Control and System Engineering, Simulation, Modelling and Identification, Industrial automation, Control Systems and Instrumentation, Optimal Control, Mechatronic Systems

Academic Titles / Tasks

Associate Professor, Yildiz Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2023 - Continues

Assistant Professor, Yildiz Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2014 - 2023

Research Assistant PhD, Yildiz Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2012 - 2014

Research Assistant, Yildiz Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2009 - 2012

Research Assistant, Yildiz Technical University, Faculty Of Electrical & Electronics, Electrical Engineering Department, 2005 - 2009

Academic and Administrative Experience

Assistant Director of the Institute, Yildiz Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2024 - Continues

Vice Dean, Yildiz Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2023 - 2023

Courses

Multivariable Control Theory, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021

Robust Control Systems, Doctorate, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017

Introduction to Algorithm Design and Programming, Undergraduate, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019

Frequency Based System Identification, Postgraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018

Temel Bilgisayar Bilimleri, Undergraduate, 2017 - 2018, 2016 - 2017

Automation in Enviromental Engineering, Undergraduate, 2017 - 2018, 2016 - 2017

Multivariable Control Theory, Undergraduate, 2018 - 2019, 2017 - 2018, 2016 - 2017

Linear Algebra and Control Applications, Undergraduate, 2017 - 2018, 2016 - 2017

System Theory, Doctorate, 2016 - 2017

Control Systems, Undergraduate, 2016 - 2017

Advising Theses

Ucun L., Energy Management on Parallel Hybrid Electrical Vehicles, Postgraduate, T.GÜCÜKOĞLU(Student), 2019

Ucun L., Bernstein Polynomials Based Compensator Design for Actuator Saturated Coupled Tank Level Control System, Postgraduate, B.TACAL(Student), 2018

Ucun L., Feedforward Controller Design for Couple Tank System via Higher Order Sinusoidal Input Describing Functions, Postgraduate, A.SELMA(Student), 2017

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Chebyshev polynomials based compensator design via higher order sinusoidal input describing functions in traction motor drive to improve performance of electric vehicle**
Kaptan D., Tacal Ucun B., Ucun L.
Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, vol.238, no.12, pp.3634-3652, 2024 (SCI-Expanded)
- II. **Optimal controller design for autonomous quadrotor landing on moving platform**
Cengiz S. K., Ucun L.
SIMULATION MODELLING PRACTICE AND THEORY, vol.119, 2022 (SCI-Expanded)
- III. **Bernstein polynomials based compensator design for coupled tank system with saturation nonlinearity**
Tacal B., Ucun L.
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART I-JOURNAL OF SYSTEMS AND CONTROL ENGINEERING, vol.236, no.7, pp.1274-1284, 2022 (SCI-Expanded)
- IV. **Two-degree-of-freedom compensator design for disturbance attenuation problem via higher order sinusoidal input describing functions theory**
Erol B., Öz M. A. N., Ucun L.

- TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.43, no.5, pp.1009-1018, 2021 (SCI-Expanded)
- V. **H-infinity-based model following method in autolanding systems**
Tamkaya K., Uçun L., Üstoğlu İ.
AEROSPACE SCIENCE AND TECHNOLOGY, vol.94, 2019 (SCI-Expanded)
- VI. **Internal model controller design via H dynamic output feedback**
YAMAN S., Ustoglu I., UCUN L.
TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.39, no.3, pp.260-266, 2017 (SCI-Expanded)
- VII. **Receding horizon H-infinity control of time-delay systems**
TASCIKARAOGLU F. Y., UCUN L., KUCUKDEMIRAL I. B.
TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.37, no.5, pp.596-605, 2015 (SCI-Expanded)
- VIII. **Ethernet-based automation network systems mobile laboratory: a case study in nonlinear control of water tank system**
Uçun L., Akbatı O., Cansever G.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.23, pp.2344-2357, 2015 (SCI-Expanded)
- IX. **Robust delay-dependent feedforward control of neutral time-delay systems via dynamic IQCs**
UCUN L., Kucukdemiral I. B.
INTERNATIONAL JOURNAL OF SYSTEMS SCIENCE, vol.45, no.5, pp.858-872, 2014 (SCI-Expanded)
- X. **Delay-dependent feedforward control of time-delay systems with parametric uncertainties via dynamic IQCs**
UCUN L., KUCUKDEMIRAL I. B.
OPTIMAL CONTROL APPLICATIONS & METHODS, vol.35, no.2, pp.127-144, 2014 (SCI-Expanded)
- XI. **HOSIDF-based feedforward friction compensation in low-velocity motion control systems**
UCUN L., SALASEK J.
MECHATRONICS, vol.24, no.2, pp.118-127, 2014 (SCI-Expanded)
- XII. **Ellipsoid based L-2 controller design for LPV systems with Saturating actuators**
Kucukdemiral I. B., UCUN L., EREN Y., Gorgun H., Cansever G.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.19, no.5, pp.775-785, 2011 (SCI-Expanded)

Articles Published in Other Journals

- I. **Açık Su Kanal Sistemi için Bernstein Polinomları Tabanlı Kompanzator Tasarımı**
Tacal B., Uçun L., Engin Ş. N.
Fırat Üniversitesi Uzay ve Savunma Teknolojileri Dergisi, vol.1, no.1, pp.336-341, 2022 (Peer-Reviewed Journal)
- II. **Stream-flow Prediction in Ergene River Basin via Kalman Filter**
Özdoğan E., Vanolya M., Uçun L., Engin Ş. N.
The International Journal of Scientific Research & Engineering Technology, vol.9, no.3, pp.31-36, 2019 (Peer-Reviewed Journal)
- III. **Feedforward Friction Compensator Design for Shake Table System**
Uçun L.
Çukurova Üniversitesi Mühendislik Mimarlık Fakültesi Dergisi, vol.34, no.1, pp.255-264, 2019 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Dynamic Output Feedback H_{∞} Controller Design for a Two-Wheeled Climbing Robot**
Tacal Uçun B., Yaşar C. F., Uçun L.
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK2024), Konya, Turkey, 12 - 14 September 2024, pp.608-613
- II. **Design and Control of a Magnetic-Wheeled Climbing Robot for Vertical Steel Surfaces: Motor Positioning Performance Through Model Reference Adaptive Control**
Yaşar C. F., Tacal Uçun B., Uçun L.
2024 25th International Carpathian Control Conference (ICCC), Krakow, Poland, 22 - 24 May 2024, pp.1-6
- III. **Hybrid Kalman Filter-Based MPPT Design for Photovoltaic System in Energy Harvesting Optimization**
Rabeea W., UCUN L.
2nd International Conference on Forthcoming Networks and Sustainability in the AIoT Era, FoNeS-AIoT 2024, İstanbul, Turkey, 27 - 29 January 2024, vol.1035 LNNS, pp.345-365
- IV. **Model Predictive Controller Design for HVAC System in Electric Vehicle**
Temel O. S., Uçun L.
OTOMATİK KONTROL TÜRK MİLLİ KOMİTESİ ULUSAL TOPLANTISI (TOK2023), İstanbul, Turkey, 14 - 16 September 2023, pp.803-808
- V. **Flight Control System Design for Fixed Wing Aircraft**
Bodur A., Uçun L.
2023 10th International Conference on Recent Advances in Air and Space Technologies (RAST), İstanbul, Turkey, 7 - 09 June 2023, pp.1-6
- VI. **Feedforward Compensator Design in Traction Motor Drive for Electric Vehicles via Frequency Based System Identification**
Kaptan D., Tacal B., Uçun L.
ASYU2022, Akıllı Sistemlerde Yenilikler ve Uygulamaları Konferansı , Antalya, Turkey, 7 - 09 September 2022, pp.1-6
- VII. **Dynamic Output Feedback H_{∞} Controller and LQR Design for Active Suspension System**
Akçal A., Ayvalı E., Özkan E., Uçun L.
INTERNATIONAL SYMPOSIUM ON AUTOMOTIVE SCIENCE AND TECHNOLOGY , Ankara, Turkey, 8 - 10 September 2021, pp.234-240
- VIII. **Bir Alçak Yörünge Uydusu için Kuaterniyon Geribeslemeli Regülatör ve Doğrusal Kuadratik Regülatör Tasarımı**
Eşit M., Yakupoğlu Ş., Uçun L., Söken H. E., Gulmammadov F.
8. ULUSAL HAVACILIK VE UZAY KONFERANSI (UHUK), Ankara, Turkey, 9 - 11 September 2020, pp.1-12
- IX. **High State Feedback Controller Design for Two Degree of Freedom Gimbal System**
Çetinyol E., Çeviral B., Uçun L.
OTOMATİK KONTROL TÜRK MİLLİ KOMİTESİ ULUSAL TOPLANTISI (TOK2019), Muğla, Turkey, 11 - 14 September 2019, pp.74-79
- X. **Robust High Dynamic Output Feedback Controller Design for Coupled Tank Level Control System with Input Uncertainty**
Tacal B., Uçun L.
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK2019), Muğla, Turkey, 11 - 14 September 2019, pp.80-84
- XI. **Robust H-infinity Controller Design for Active Vibration Suppression with Input Constraints**
El Heraiki S., TACAL B., UCUN L.
20th International Carpathian Control Conference (ICCC), Poland, 26 - 29 May 2019, pp.104-109
- XII. **HOSIDF-based Chebyshev Structured Compensator Design for Disturbance Attenuation Problem**
ÖZ M. A. N., EROL B., UCUN L.
6th International Conference on Control Engineering & Information Technology, İstanbul, Turkey, 25 October 2018, pp.189-194
- XIII. **Optimal Decoupled Control of Two-Input Two-Output Systems**
Şen S., ÜSTOĞLU İ., UCUN L.
6th International Conference on Control Engineering & Information Technology, İstanbul, Turkey, 25 October 2018, pp.195-200

- XIV. **Eyleyici Doyumlu Çift Tank Seviye Kontrol Sistemi için Chebyshev Polinomları Tabanlı Kompanzatör Tasarımı**
Tacal B., Kılıç M., Uçun L.
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK 2018), Kayseri, Turkey, 12 - 14 September 2018, pp.82-87
- XV. **Economic Impact Analysis of Load Shifting in a Smart Household**
Farzambehboudi Y., Erdinç O., Boynueğri A. R., Uçun L., Öz M. A. N.
2018 International Conference on Smart Energy Systems and Technologies SEST 2018, Sevilla, Spain, 12 - 14 September 2018, pp.1-5
- XVI. **Yüksek Mertebeli Sinüzoidal Giriş Tanımlama Fonksiyonları Kullanılarak Çift Tank Seviye Kontrol Sistemi için İleribeslemeli Kontrolör Tasarımı**
Şenöz A. S., UCUN L.
OTOMATİK KONTROL TÜRK MİLLÎ KOMİTESİ ULUSAL TOPLANTISI (TOK 2017), İstanbul, Turkey, 21 September 2017, pp.114-119
- XVII. **Trafikte Zaman Kısıtı Altında Optimum Yol Güzergahının Belirlenmesi**
Güner G., Çakır Y. S., UCUN L.
OTOMATİK KONTROL TÜRK MİLLÎ KOMİTESİ ULUSAL TOPLANTISI (TOK 2017), İstanbul, Turkey, 21 September 2017, pp.575-579
- XVIII. **Kısıtlı veriye sahip bir kent içi trafik ağının modellenmesi ve algılayıcılarının en iyi şekilde konumlandırılması**
Yıldız Taşçıkaraoğlu F., Uçun L., Varaiya P.
Otomatik Kontrol Ulusal Toplantısı, TOK'2016, Eskişehir, Turkey, 29 September - 01 October 2016, pp.534-539
- XIX. **H_sonsuz Dinamik Çıkış Geri-Beslemeli İç Model Kontrolör Tasarımı**
Yaman S., ÜSTOĞLU İ., UCUN L.
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK2015), Denizli, Turkey, 10 - 12 September 2015, pp.250-255
- XX. **Zaman Gecikmeli Sistemlerin Model Öngörülü H_Sonsuz Kontrolü**
Yıldız Taşçıkaraoğlu F., Uçun L., Küçükdemiral İ. B.
Otomatik Kontrol Ulusal Toplantısı (TOK'2013), Malatya, Turkey, 26 - 28 September 2013, pp.1029-1034
- XXI. **Delay-Dependent Feedforward Control of Uncertain Neutral Time-Delay Systems via Dynamic IQCs**
UCUN L., KÜÇÜKDEMİRAL İ. B.
7th IFAC Symposium on Robust Control Design, Aalborg, Denmark, 20 June 2012
- XXII. **CoNeT Mobile Laboratory for Ethernet Based I/O Systems in Industrial Applications**
UCUN L., AKBATI O., Cansever G.
12th International Conference on Control, Automation and Systems (ICCAS), Jeju, South Korea, 17 - 21 October 2012, pp.18-22
- XXIII. **LPV control active suspension system**
Uçun L., Kucukdemiral I. B., Delibaşı A., Cansever G.
2011 IEEE International Conference on Mechatronics, ICM 2011, İstanbul, Turkey, 13 - 15 April 2011, pp.116-121
- XXIV. **LPV Control of Actuator Saturated Systems: A Case Study on Single-Track Vehicle Control**
KÜÇÜKDEMİRAL İ. B., UCUN L., EREN Y., GÖRGÜN H., DELİBAŞI A., CANSEVER G.
5th IFAC SYMPOSIUM ON MECHATRONIC SYSTEM, Boston, United States Of America, 13 - 15 September 2010
- XXV. **Eyleyici Doyumlu Sistemler için Elipsoit Tabanlı L2 Denetleyici Tasarımı**
Küçükdemiral İ. B., Uçun L., Eren Y., Görgün H., Cansever G.
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK2009), İstanbul, Turkey, 13 - 16 October 2009, pp.254-261
- XXVI. **PEM Tipi Yakıt Hücresi Sisteminde Kullanılan Kompresör Modelinin Adaptif Denetleyici ile Kontrolü**
EREN Y., UCUN L., GÖRGÜN H., KÜÇÜKDEMİRAL İ. B., CANSEVER G.
Elektrik Elektronik ve Bilgisayar Mühendisliği Sempozyumu (ELECO'08), Turkey, 26 - 30 November 2008
- XXVII. **Genelleştirilmiş Öngörülü Kontrol Algoritması ile Van De Vusse Reaktör Denetimi**
Uçun L., Küçükdemiral İ. B.
OTOMATİK KONTROL TÜRK MİLLÎ KOMİTESİ ULUSAL TOPLANTISI (TOK 2007), İstanbul, Turkey, 5 - 07 September 2007, pp.541-545

Supported Projects

UCUN L., YAŞAR C. F., ENGİN G., TACAL B., ETEMADİ A., AYAT AYDOĞAN B., ENGİN Ş. N., Project Supported by Higher Education Institutions, Frekans Tabanlı Sistem Tanıma Yaklaşımı ile Açık Su Kanal Sistemlerinde Verimliliği Arttırmaya Yönelik Su Seviyesi Kontrolü, 2022 - 2024

Yaşar C. F., Ucuñ L., TUBITAK Project, Design, Modeling and Control of Climbing Robots under External Forces: Applications for Robot Positioning on Vertical Metallic Wall, 2021 - 2024

Engin Ş. N., Ucuñ L., Engin G., VARANK G., TUBITAK Project, Havza Bilgi Sistemi Geliştirilmesi, 2016 - 2019

UCUN L., BEKLAN KÜÇÜKDEMİRAL İ., AYDEMİR M. E., Project Supported by Higher Education Institutions, Elektrik Enerjisi ile Çalışan Bulanık Mantık Kontrolörlü Düşük Maliyetli Bir Hava Aracının Tasarım ve İmalatı, 2015 - 2018

Yıldız Taşcıkaraoğlu F., Engin Ş. N., Ucuñ L., TUBITAK Project, Kent İçi Yol Ağlarının Modellenmesi, Kalibrasyonu ve Yeni Bir Mikrosimülâtörün Yaygın Olarak Kullanılan Simülâtörlerle Karşılaştırılması, 2015 - 2017

Arslan M. S., Küçükdemiral İ. B., Ucuñ L., Yıldız Taşcıkaraoğlu F., Project Supported by Higher Education Institutions, Bir rüzgar türbini laboratuvar deney düzeneğinin kurulması ve model öngörülü kontrol (MPC) ile gerçek zamanlı kontrolü, 2011 - 2013

Cansever G., Ucuñ L., Akbatı O., EU Supported Other Project, Co-Operative Network Training (CONET), 2009 - 2012

Cansever G., Küçükdemiral İ. B., TUBITAK Project, Doğrusal Motor Eyleyicili, Çeyrek Taşıt Aktif Süspansiyon Sistemi Geliştirilmesi Ve Doğrusal Parametreleri Değişen Optimal Kontrol Tekniğı İle Denetimi, 2008 - 2011

Mobility Activity

Post Doc, Post Doc, Czech Technical University, Czech Republic, 2012 - 2013

Non Academic Experience

Czech Technical University