

## Res. Asst. PhD Buse TACAL UCUN

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: IZQ-0585-2023

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### Education Information

Doctorate, Yıldız Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, Turkey 2019 - 2024

Postgraduate, Yıldız Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, Turkey 2016 - 2019

Undergraduate, Yıldız Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, Turkey 2012 - 2016

### Dissertations

Doctorate, Frequency Domain Control Strategies for Efficient Operation of Experimental Canal System, Yıldız Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2024

Postgraduate, Eyleyici Doyumlu Çift Tank Sıvı Seviye Kontrol Sistemi için Bernstein Polinomları Tabanlı Kompanzator Tasarımı, Yıldız Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Kontrol Ve Otomasyon Mühendisliği, 2019

### Research Areas

Control and System Engineering, Simulation, Modelling and Identification, Control Systems and Instrumentation, Optimal Control, System Diagnostics

### Academic Titles / Tasks

Research Assistant PhD, Yıldız Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2024 - Continues

Research Assistant, Yıldız Technical University, Faculty Of Electrical & Electronics, Control And Automation Engineering, 2018 - 2024

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

- I. **Towards optimizing canal system operations: Extremum-seeking controller design via a frequency-based control approach**  
Tacal Ucuñ B., Engin Ő. N.  
AIN SHAMS ENGINEERING JOURNAL, vol.15, no.8, pp.1-10, 2024 (SCI-Expanded)
- II. **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 Ucuñ B., Ucuñ L.  
Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, 2023 (SCI-Expanded)
- III. **Bernstein polynomials based compensator design for coupled tank system with saturation nonlinearity**  
Tacal B., Ucuñ 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)

## Articles Published in Other Journals

- I. **Aık Su Kanal Sistemi iin Bernstein Polinomları Tabanlı Kompanzator Tasarımı**  
Tacal B., Ucuñ L., Engin Ő. N.  
Fırat Üniversitesi Uzay ve Savunma Teknolojileri Dergisi, vol.1, no.1, pp.336-341, 2022 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

- I. **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 Ucuñ B., Ucuñ L.  
2024 25th International Carpathian Control Conference (ICCC), Krakow, Poland, 22 - 24 May 2024, pp.1-6
- II. **Linear Model Predictive Speed Controller Design for a Two-Wheel Differential Drive Mobile Robot**  
akır H. S., Tacal Ucuñ B., Yaşar C. F.  
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK2023), İstanbul, Turkey, 14 - 16 September 2023, pp.360-365
- III. **Bernstein Polynomials-based Compensator Design via Extremum Seeking Control Algorithm**  
Tacal Ucuñ B., Engin Ő. N.  
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK2023), İstanbul, Turkey, 14 - 16 September 2023, pp.701-705
- IV. **Feedforward Compensator Design in Traction Motor Drive for Electric Vehicles via Frequency Based System Identification**  
Kaptan D., Tacal B., Ucuñ L.  
ASYU2022, Akıllı Sistemlerde Yenilikler ve Uygulamaları Konferansı , Antalya, Turkey, 7 - 09 September 2022, pp.1-6
- V. **Robust Hinf Dynamic Output Feedback Controller Design for Coupled Tank Level Control System with Input Uncertainty**  
Tacal B., Ucuñ L.  
OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK2019), Muğla, Turkey, 11 - 14 September 2019, pp.80-84
- VI. **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
- VII. **Eyleyici Doyumlu ift Tank Seviye Kontrol Sistemi iin Chebyshev Polinomları Tabanlı Kompanzator Tasarımı**

Tacal B., Kılıç M., Uçun L.

OTOMATİK KONTROL ULUSAL TOPLANTISI (TOK 2018), Kayseri, Turkey, 12 - 14 September 2018, pp.82-87

## 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., Uçun L., TÜBİTAK Project, Design, Modeling and Control of Climbing Robots under External Forces: Applications for Robot Positioning on Vertical Metallic Wall, 2021 - 2024

## Metrics

Publication: 11

Citation (Scopus): 3

H-Index (Scopus): 1