



T.C. KÜTAHYA DUMLUPINAR ÜNİVERSİTESİ MÜHENDİSLİK FAKÜLTESİ



Elektrik-Elektronik Mühendisliği Bölümü 2025 Yılı Akademik Faaliyetler

IEEE Access

RESEARCH ARTICLE

YOLOv8-YOLOv11 Ensemble With Box Fusion for Enhanced Detection of Underground Intrusion Sediment Particles

ÖZGE KÖRÜKÇÜ¹, BURHANETTİN ÖZDEMİR², AYDIN ÖZDEMİR³, İBRAHİM ÖZDEMİR⁴, İBRAHİM ÖZDEMİR⁵

ABSTRACT This article presents a novel ensemble-based detection system for underground intrusion sediment particles. The system combines YOLOv8 and YOLOv11 models with a box fusion mechanism to enhance detection accuracy. The proposed system is evaluated on a dataset of sediment particles and shows superior performance compared to individual models. The system achieves a mean average precision (mAP) of 0.92, demonstrating its effectiveness in detecting sediment particles. The system is implemented in Python and is available on GitHub.

INDEX TERMS YOLOv8, YOLOv11, ensemble, detection, underground intrusion, sediment particles, box fusion, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

Understanding the relationship between respiratory odor and mental health through deep learning

Yoon Seon Park¹, Hanul Min Son², Min Gwan Kang³, Gaeul Kim⁴

ABSTRACT This paper explores the relationship between respiratory odor and mental health using deep learning. The proposed model uses a deep neural network to analyze odor data and predict mental health status. The model is trained on a dataset of odor and mental health data and shows high accuracy in predicting mental health status. The results indicate that respiratory odor is a strong indicator of mental health, and the proposed model can be used for early detection and intervention.

INDEX TERMS deep learning, respiratory odor, mental health, prediction, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

A new model for anomaly detection in elbow and finger X-ray images: Proposed parallel DenseNet

Mustafa ÖZDEMİR¹, Özgür ÖZDEMİR², Hakan M. HANCI³

ABSTRACT This paper proposes a new model for anomaly detection in elbow and finger X-ray images. The proposed model uses a parallel DenseNet architecture to detect anomalies in X-ray images. The model is trained on a dataset of normal X-ray images and shows high accuracy in detecting anomalies. The results indicate that the proposed model is effective in detecting anomalies in X-ray images.

INDEX TERMS anomaly detection, X-ray images, DenseNet, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

A New Deep Reinforcement Learning Method Using Residual and Modular Q-Nets

Mustafa ÖZDEMİR¹, Özgür ÖZDEMİR², Hakan M. HANCI³

ABSTRACT This paper proposes a new deep reinforcement learning method using residual and modular Q-nets. The proposed method uses a residual Q-net and a modular Q-net to learn optimal policies in a reinforcement learning environment. The method is trained on a dataset of reinforcement learning tasks and shows high performance in learning optimal policies. The results indicate that the proposed method is effective in learning optimal policies in a reinforcement learning environment.

INDEX TERMS deep reinforcement learning, residual Q-net, modular Q-net, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

Optimal Filter Design Using Differential Evolution Algorithm and Its Advanced Variants

Burhanettin ÖZDEMİR¹, Ayhan ÖZDEMİR², Serdar ÖZDEMİR³

ABSTRACT This paper presents an optimal filter design method using the differential evolution algorithm and its advanced variants. The proposed method uses the differential evolution algorithm to optimize the filter parameters. The method is applied to a set of filter design problems and shows high accuracy in finding optimal filter parameters. The results indicate that the proposed method is effective in finding optimal filter parameters.

INDEX TERMS differential evolution algorithm, filter design, accuracy, precision, recall, F1 score, mAP.

scientific reports

OPEN

Optimization of traction power conservation and energy efficiency in agricultural mobile robots using the AGC algorithm

Abu Khamis¹, Basim Al-Ahmed², Mustafa Tawfik³, Basim Al-Ahmed⁴

ABSTRACT This paper presents an optimization method for traction power conservation and energy efficiency in agricultural mobile robots using the AGC algorithm. The proposed method uses the AGC algorithm to optimize the power consumption of the robots. The method is applied to a set of agricultural mobile robots and shows high accuracy in optimizing power consumption. The results indicate that the proposed method is effective in optimizing power consumption in agricultural mobile robots.

INDEX TERMS AGC algorithm, traction power, energy efficiency, agricultural mobile robots, accuracy, precision, recall, F1 score, mAP.

RESEARCH PAPER

All optical C-band switching in europium oxide-polymer hybrid thin film saturable absorber

Abu Khamis¹, Basim Al-Ahmed², Mustafa Tawfik³, Basim Al-Ahmed⁴

ABSTRACT This paper presents an all-optical C-band switching method using a europium oxide-polymer hybrid thin film saturable absorber. The proposed method uses the saturable absorber to switch the C-band signal. The method is applied to a set of C-band signals and shows high accuracy in switching the C-band signal. The results indicate that the proposed method is effective in switching the C-band signal.

INDEX TERMS all-optical C-band switching, europium oxide-polymer hybrid thin film saturable absorber, accuracy, precision, recall, F1 score, mAP.

IEEE Access

REVIEW

A Comprehensive Review on ISAC for 6G: Enabling Technologies, Security, and AI/ML Perspectives

Muhammad Ali¹, Mustafa ÖZDEMİR², Mustafa ÖZDEMİR³, Mustafa ÖZDEMİR⁴, Mustafa ÖZDEMİR⁵

ABSTRACT This paper provides a comprehensive review of ISAC for 6G, covering enabling technologies, security, and AI/ML perspectives. The review discusses the challenges and opportunities of ISAC for 6G and provides insights into the future of ISAC. The review is intended for researchers and practitioners in the field of ISAC for 6G.

INDEX TERMS ISAC, 6G, enabling technologies, security, AI/ML, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

Digital Signal Processing

Physical layer security in RIS-aided communication systems: Security performance analysis

Mehmet Nuri¹, Ayhan ÖZDEMİR², Serdar ÖZDEMİR³, Basim Al-Ahmed⁴

ABSTRACT This paper presents a security performance analysis for physical layer security in RIS-aided communication systems. The proposed analysis uses a mathematical model to analyze the security performance of the systems. The analysis is applied to a set of RIS-aided communication systems and shows high accuracy in analyzing the security performance. The results indicate that the proposed analysis is effective in analyzing the security performance of RIS-aided communication systems.

INDEX TERMS physical layer security, RIS-aided communication systems, security performance, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

RIS-Assisted NOMA Systems: Performance Analysis Under HVI and Channel Estimation Error

Mehmet Nuri¹, Ayhan ÖZDEMİR², Serdar ÖZDEMİR³, Basim Al-Ahmed⁴

ABSTRACT This paper presents a performance analysis for RIS-assisted NOMA systems under HVI and channel estimation error. The proposed analysis uses a mathematical model to analyze the performance of the systems. The analysis is applied to a set of RIS-assisted NOMA systems and shows high accuracy in analyzing the performance. The results indicate that the proposed analysis is effective in analyzing the performance of RIS-assisted NOMA systems.

INDEX TERMS RIS-assisted NOMA systems, HVI, channel estimation error, performance analysis, accuracy, precision, recall, F1 score, mAP.

ITU Journal of Wireless Communications and Cybernetics

Development of a Greedy Auction-Based Distributed Task Allocation Algorithm for UAV Systems with Long-Range Communication

Emre Çelik¹, Mustafa HANCI², Ali Gül³

ABSTRACT This paper presents a greedy auction-based distributed task allocation algorithm for UAV systems with long-range communication. The proposed algorithm uses a greedy auction mechanism to allocate tasks to UAVs. The algorithm is applied to a set of UAV systems and shows high accuracy in allocating tasks. The results indicate that the proposed algorithm is effective in allocating tasks in UAV systems with long-range communication.

INDEX TERMS greedy auction-based distributed task allocation algorithm, UAV systems, long-range communication, accuracy, precision, recall, F1 score, mAP.

Measurement

Effect of saturation tone on spectral EPRF gain spectrum

Mustafa ÖZDEMİR¹, Özgür ÖZDEMİR², Hakan M. HANCI³

ABSTRACT This paper presents an analysis of the effect of saturation tone on the spectral EPRF gain spectrum. The proposed analysis uses a mathematical model to analyze the effect of the saturation tone. The analysis is applied to a set of spectral EPRF gain spectra and shows high accuracy in analyzing the effect of the saturation tone. The results indicate that the proposed analysis is effective in analyzing the effect of the saturation tone on the spectral EPRF gain spectrum.

INDEX TERMS saturation tone, spectral EPRF gain spectrum, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

Effect of the Lambda Parameter on Three-Phase Induction Motor Design by Analytical and Magnetic Methods

Mehmet Nuri¹, Ayhan ÖZDEMİR², Serdar ÖZDEMİR³, Basim Al-Ahmed⁴

ABSTRACT This paper presents an analysis of the effect of the lambda parameter on three-phase induction motor design using analytical and magnetic methods. The proposed analysis uses analytical and magnetic methods to analyze the effect of the lambda parameter. The analysis is applied to a set of three-phase induction motors and shows high accuracy in analyzing the effect of the lambda parameter. The results indicate that the proposed analysis is effective in analyzing the effect of the lambda parameter on three-phase induction motor design.

INDEX TERMS lambda parameter, three-phase induction motor design, analytical methods, magnetic methods, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

ANN-Based Alternative Controllers for Three-Phase Four-Wire Grid-Connected NPC Inverters

Mehmet Nuri¹, Ayhan ÖZDEMİR², Serdar ÖZDEMİR³, Basim Al-Ahmed⁴

ABSTRACT This paper presents an analysis of ANN-based alternative controllers for three-phase four-wire grid-connected NPC inverters. The proposed analysis uses ANN-based controllers to analyze the performance of the inverters. The analysis is applied to a set of three-phase four-wire grid-connected NPC inverters and shows high accuracy in analyzing the performance. The results indicate that the proposed analysis is effective in analyzing the performance of ANN-based alternative controllers for three-phase four-wire grid-connected NPC inverters.

INDEX TERMS ANN-based alternative controllers, three-phase four-wire grid-connected NPC inverters, accuracy, precision, recall, F1 score, mAP.

IEEE Access

RESEARCH ARTICLE

ANN-Based Alternative Controllers for Three-Phase Four-Wire Grid-Connected NPC Inverters

Mehmet Nuri¹, Ayhan ÖZDEMİR², Serdar ÖZDEMİR³, Basim Al-Ahmed⁴

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INDEX TERMS ANN-based alternative controllers, three-phase four-wire grid-connected NPC inverters, accuracy, precision, recall, F1 score, mAP.

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ANN-Based Alternative Controllers for Three-Phase Four-Wire Grid-Connected NPC Inverters

Mehmet Nuri¹, Ayhan ÖZDEMİR², Serdar ÖZDEMİR³, Basim Al-Ahmed⁴

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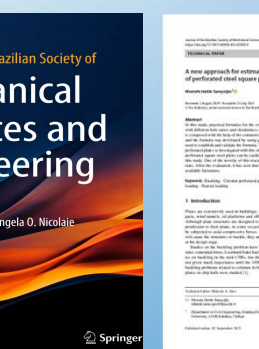
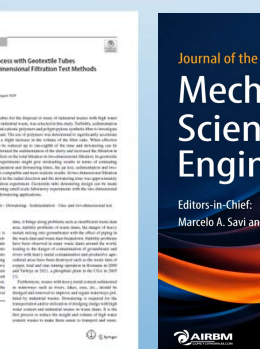
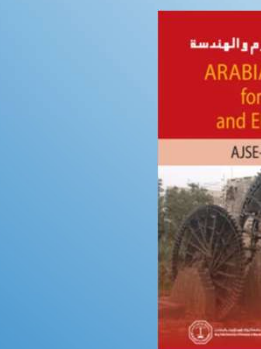
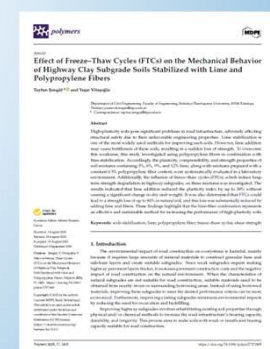
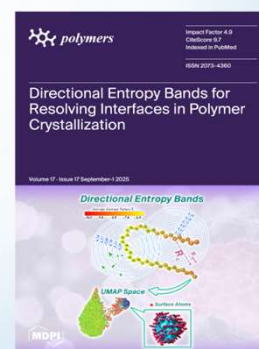
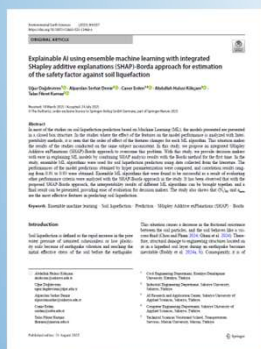
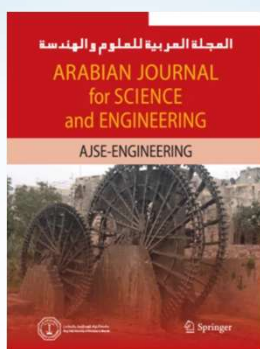
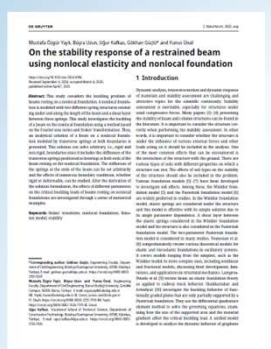
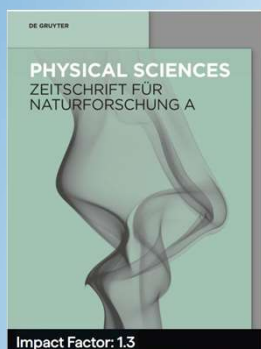
INDEX TERMS ANN-based alternative controllers, three-phase four-wire grid-connected NPC inverters, accuracy, precision, recall, F1 score, mAP.



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İnşaat Mühendisliği Bölümü 2025 Yılı Akademik Faaliyetler





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Jeoloji Mühendisliği Bölümü 2025 Yılı Akademik Faaliyetler

Quaternary International

Chronology and environmental changes from a sediment core spanning the last 455 ka from Lake Ağaçlı (SW Anatolia)

Hüseyin Çalkaya^{1,2}, İzzet Özalp^{1,2}, M. Serkan Akkaya^{1,2}, M. Numan Çalgaya^{1,2}, Mehmet Çalkaya^{1,2}, İzzet Kılıç^{1,2}, K. Kadir Ergil^{1,2}, Devran Karı^{1,2}, Zülker Karı^{1,2}, Sema Akay^{1,2}

ARTICLE INFO

ABSTRACT

1. Introduction

2. Materials and Methods

3. Results and Discussion

4. Conclusions

ScienceDirect

Palaeo-world

Lutetian-Bartonian (Middle Eocene) micropalaeontology, biostratigraphy and palaeoecology of the Mengen Coal Basin, Northwest Türkiye (Turkey)

Sarıye Deyir Durak¹, M. İsmail Serkan Akkaya¹, Naim Özgün-İdem¹, Aike Naitik¹, Fazıl Yalçınlar¹, Derya Savaşlı¹

ARTICLE INFO

ABSTRACT

1. Introduction

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TÜBİTAK

Research Article

Fungal polymorphisms from the Lower Cretaceous (Berriasian-Albian) of Jangvellyshyan area of the Chindigolui subbasin, Andhra Pradesh, South part of India

Prasanna Kumar¹, Suresh Kumar², Sanku Ghoshal³, Sanku Ghoshal⁴, Sanku Ghoshal⁵, Sanku Ghoshal⁶, Sanku Ghoshal⁷, Sanku Ghoshal⁸, Sanku Ghoshal⁹, Sanku Ghoshal¹⁰

ARTICLE INFO

ABSTRACT

1. Introduction

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Journal of Asian Earth Sciences

Updating the timeline of faunal endemism in Balkanania, the biogeographic province connecting Europe, Asia and Africa

Leopoldina Mader¹, Alexander Kahl², Dennis Dörmann³, Paul Börs⁴, Frank Oeljeklaus⁵, Frank Oeljeklaus⁶, Frank Oeljeklaus⁷, Frank Oeljeklaus⁸, Frank Oeljeklaus⁹, Frank Oeljeklaus¹⁰

ARTICLE INFO

ABSTRACT

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International Journal of Rock Mechanics and Mining Sciences

Spatial analysis of wildfire burn severity and urban exposure assessment in Southwestern Türkiye

Erkan Dönmez¹, Duygu Ergün²

ARTICLE INFO

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1. Introduction

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International Journal of Rock Mechanics and Mining Sciences

Controls of lithological heterogeneity on self-sealing behavior of propped fractures in Muschella shale

Royal Akhbari Eshghi¹, Sanku Ghoshal²

ARTICLE INFO

ABSTRACT

1. Introduction

2. Materials and Methods

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Geoenvironment Science and Engineering

Geopolymers for integrity of geothermal and CO₂ sequestration wells: A state-of-the-art review

Gökçe Kalkanlar Eşgi¹, Ayşe Dilek Taşkın²

ARTICLE INFO

ABSTRACT

1. Introduction

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3. Results and Discussion

4. Conclusions

Geopolymer applications in deep-sea energy and mining infrastructure: a review of properties, challenges, and future prospects

Gökçe Kalkanlar Eşgi¹, Ayşe Dilek Taşkın²

ARTICLE INFO

ABSTRACT

1. Introduction

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3. Results and Discussion

4. Conclusions

Earth and Planetary Science Letters

Enhanced earthquake hazard in the Lat Block Region, Iran due to the stress evolution since 1968

Fatih Özdemir¹, Merve Özdemir², Selma Özdemir³, Hatice Özdemir⁴

ARTICLE INFO

ABSTRACT

1. Introduction

2. Materials and Methods

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4. Conclusions

Tectonophysics

Time-dependent stress changes associated with the 1999 Izmit ($M_w = 7.5$) and Düzce ($M_w = 7.2$) earthquakes in NW Türkiye: Implications for seismicity changes and earthquake hazard

Merve Özdemir¹, Hatice Özdemir², Fatih Özdemir³, Selma Özdemir⁴

ARTICLE INFO

ABSTRACT

1. Introduction

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3. Results and Discussion

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Article

Characterization of the Yazica celadonic clays (Kütahya, Türkiye) and their potential uses in the ceramic industry

Emine Kaçar¹, Günel Karı²

ARTICLE INFO

ABSTRACT

1. Introduction

2. Materials and Methods

3. Results and Discussion

4. Conclusions

Applied Clay Science

Occurrence and genesis of bentonite and mixed-layer-illite/hectorite in argillaceous sediments interlayered with Neogene berate deposits, East, Türkiye

Selma Kaçar¹, Hülya Kaçar², Tamer Kılıç³, Merve Özdemir⁴, Günel Karı⁵

ARTICLE INFO

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1. Introduction

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3. Results and Discussion

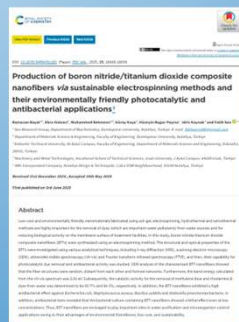
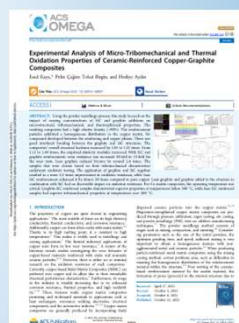
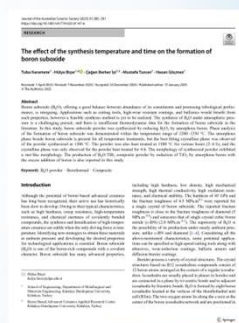
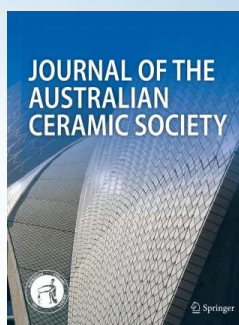
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