

## Asst. Prof. SUAT KARAKAYA

### Personal Information

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### International Researcher IDs

ORCID: 0000-0002-3082-0304

Publons / Web Of Science ResearcherID: F-4860-2018

Yoksis Researcher ID: 124748

### Education Information

Doctorate, Kocaeli University, Fen Bilimleri Enstitüsü, Mekatronik Mühendisliği, Turkey 2011 - 2019

Undergraduate, Kocaeli University, Mühendislik Fakültesi, Mekatronik Mühendisliği Bölümü, Turkey 2007 - 2011

### Foreign Languages

English, C1 Advanced

### Dissertations

Doctorate, Design and Implementation of an Autonomous Mobile Robot, Kocaeli University, Mühendislik Fakültesi, Mekatronik Mühendisliği, 2019

### Research Areas

Computer Vision, Mechatronic Systems, Route and Motion Planning, System Dynamics and Control, Robotics, Mechatronics

### Academic Titles / Tasks

Assistant Professor, Kocaeli University, Mühendislik Fakültesi, Mekatronik Mühendisliği, 2021 - Continues

### Academic and Administrative Experience

Deputy Head of Department, Kocaeli University, Mühendislik Fakültesi, Mekatronik Mühendisliği, 2021 - Continues

Adaptation/Exemption Committee Member, Kocaeli University, Mühendislik Fakültesi, Mekatronik Mühendisliği, 2020 - Continues

## Courses

Occupational Safety and Project Management, Undergraduate, 2022 - 2023  
Uygulamalı İşaret İşleme, Postgraduate, 2022 - 2023  
MATLAB Programlamaya Giriş, Undergraduate, 2023 - 2024  
Bitirme Çalışması, Undergraduate, 2022 - 2023  
İmalat Teknikleri, Undergraduate, 2023 - 2024  
Mekatronik Mühendisliği Tasarım Uygulamaları, Undergraduate, 2023 - 2024  
Object Oriented Programming, Undergraduate, 2022 - 2023  
Innovation and Project Management, Undergraduate, 2019 - 2020

## Advising Theses

Karakaya S., Kısıtlı Ortamlarda Özelleştirilmiş Bir Yörünge Planlama Şemasının Geliştirilmesi, Postgraduate, M.TERCAN(Student), Continues  
Karakaya S., OTONOM MOBİL ROBOTLAR İÇİN METASEZGİSEL YÖNTEMLER KULLANILARAK YOL PLANLAMA ALGORİTMASININ GELİŞTİRİLMESİ, Postgraduate, Y.TEZEL(Student), 2024

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

- I. **Enhanced Resampling Scheme for Monte Carlo Localization**  
Karakaya S.  
INTELLIGENT SERVICE ROBOTICS, vol.1, no.1, pp.1-12, 2024 (SCI-Expanded)
- II. **A Novel Local Motion Planner: Navibug**  
KARAKAYA S., OCAK H.  
JOURNAL OF INTELLIGENT & ROBOTIC SYSTEMS, vol.100, pp.987-1003, 2020 (SCI-Expanded)
- III. **Low Cost Easy-to-Install Indoor Positioning System**  
KARAKAYA S., OCAK H.  
JOURNAL OF INTELLIGENT & ROBOTIC SYSTEMS, vol.100, no.1, pp.131-144, 2020 (SCI-Expanded)
- IV. **Design and Implementation of a Multi Sensor Based Brain Computer Interface for a Robotic Wheelchair**  
Kucukyildiz G., OCAK H., KARAKAYA S., Sayli O.  
JOURNAL OF INTELLIGENT & ROBOTIC SYSTEMS, vol.87, no.2, pp.247-263, 2017 (SCI-Expanded)
- V. **A New Mobile Robot Toolbox for Matlab**  
KARAKAYA S., Kucukyildiz G., OCAK H.  
JOURNAL OF INTELLIGENT & ROBOTIC SYSTEMS, vol.87, no.1, pp.125-140, 2017 (SCI-Expanded)

## Articles Published in Other Journals

- I. **A new Probabilistic Hybrid Segmentation Technique**  
Karakaya S.  
International Journal of Natural and Engineering Sciences, vol.17, no.2, pp.52-62, 2023 (Peer-Reviewed Journal)
- II. **Image Processing Based Package Volume Measurement System Using Kinect Sensor**  
Ocak H., Küçük yıldız G., Karakaya S.  
Sigma Journal of Engineering and Natural Sciences, vol.40, no.1, pp.27-44, 2022 (ESCI)
- III. **A Novel Dynamic Window Approach Supported by Posture Control**  
Karakaya S., Ocak H.  
Bilecik Şeyh Edebali Üniversitesi Fen Bilimleri Dergisi, vol.7, no.1, pp.184-200, 2020 (Peer-Reviewed Journal)

- IV. **Fuzzy logic-based moving obstacle avoidance method**  
KARAKAYA S., OCAK H.  
Global Journal of Computer Sciences: Theory and Research, vol.9, no.1, pp.1-9, 2019 (Peer-Reviewed Journal)
- V. **POINT STABILIZATION TECHNIQUE USING MODEL PREDICTIVE CONTROL AND EXACT EUCLIDIAN DISTANCE TRANSFORM METHODS**  
Karakaya S., Kucukyildiz G., Ocak H.  
SIGMA JOURNAL OF ENGINEERING AND NATURAL SCIENCES-SIGMA MUHENDISLIK VE FEN BILIMLERI DERGISI, vol.35, no.3, pp.389-403, 2017 (ESCI)
- VI. **A dynamic path planning method for wheeled mobile robots (Dyna-bug)**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
Global Journal of Computer Sciences: Theory and Research, vol.7, pp.123-128, 2017 (Peer-Reviewed Journal)
- VII. **Classification of motor imaginary in EEG using random forest classifier**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
Global Journal of Computer Sciences: Theory and Research, vol.7, pp.129-135, 2017 (Peer-Reviewed Journal)
- VIII. **Virtual-reality-based remote-controlled mobile robot platform**  
AKKAYA U., ŞEKERCİ N., KARAGÖZ A., ÖZAY A. U., KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
Global Journal of Computer Sciences: Theory and Research, vol.7, pp.136-144, 2017 (Peer-Reviewed Journal)
- IX. **Detection of Obstacle Free Gaps for Mobile Robot Applications Using 2 D LIDAR Data**  
Karakaya S., Küçükyıldız G., Ocak H.  
International Journal of Natural and Engineering Sciences, vol.10, no.3, pp.23-27, 2016 (Peer-Reviewed Journal)

## **Refereed Congress / Symposium Publications in Proceedings**

- I. **Otonom Mobil Robotlar İçin Metasezgisel Yöntemler Kullanılarak Yol Planlama Algoritmasının Geliştirilmesi ve Performanslarının Karşılaştırılması**  
Tezel Y., Karakaya S.  
5th INTERNATIONAL ENGINEERING RESEARCH SYMPOSIUM , Düzce, Turkey, 7 - 09 March 2024, pp.1-10
- II. **Extended RANSAC Algorithm With Polyline Splitting Approach**  
Karakaya S.  
8th International Erciyes Conference on Scientific Research , Kayseri, Turkey, 1 - 02 October 2022, pp.1-12
- III. **A Novel Predictive Maintenance Method for Telecommunication Services**  
Küçükyıldız G., Karakaya S., Kundakçı İ. M.  
INTERNATIONAL TECHNOLOGICAL SCIENCES AND DESIGN SYMPOSIUM (ITESDES 2022), Giresun, Turkey, 2 - 05 June 2022, pp.10-11
- IV. **A New Feature Extraction Method for Indoor Localization**  
Karakaya S.  
INTERNATIONAL TECHNOLOGICAL SCIENCES AND DESIGN SYMPOSIUM (ITESDES 2022), Giresun, Turkey, 2 - 05 June 2022, pp.28
- V. **DESIGN AND IMPLEMENTATION OF A WHEELED MOBILE ROBOT PLATFORM**  
KARAKAYA S., OCAK H.  
10th International Conference on Image Processing, Wavelet and Applications (IWW2019), Kocaeli, Turkey, 18 - 20 October 2019
- VI. **One Dimensional Moving Obstacle Detection Method for Mobile Robotics Applications**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
26th International Signal Processing and Communications Applications Conference, 2 - 05 May 2018
- VII. **Virtual-reality-based remote-controlled mobile robot platform**  
AKKAYA U., ŞEKERCİ N., KARAGÖZ A., ÖZAY A. U., KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
4th World Conference on Computer Engineering, COMENG-2017, 28 - 30 August 2017
- VIII. **Classification of Motor Imaginary in EEG Using Random Forest Classifier**  
KÜÇÜKYILDIZ G., KARAKAYA S., OCAK H.

- 4th Global Conference on Computer Engineering, COMENG 2017, İstanbul, Turkey, 28 - 30 August 2017, pp.15
- IX. **A dynamic path planning method for wheeled mobile robots (Dyna-bug)**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
4th World Conference on Computer Engineering, COMENG-2017, 28 - 30 August 2017
- X. **Speed Control Adaptation on Static Trajectories**  
KARAKAYA S., OCAK H.  
International Congress on Academic Researches, INES2016, 3 - 05 November 2016
- XI. **A Hybrid Posture Stabilization Method for Mobile Robots**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
International Academic Research Congress, INES2016, 3 - 05 November 2016
- XII. **Detection of Obstacle Free Gaps for Mobile Robot Applications Using 2 D LIDAR Data**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
International Congress on Natural and Engineering Sciences, ICNES 2016, 1 - 05 September 2016
- XIII. **Real time control of a wheelchair based on EMG and Kinect for the disabled people Engelliler için EMG Tabanlı Kinect Destekli Bir Tekerlekli Sandalyenin Gerçek Zamanlı Kontrolü**  
Küçükyildiz G., OCAK H., Şaylı Ö., KARAKAYA S.  
Medical Technologies National Conference, TIPTEKNO 2015, Bodrum, Turkey, 15 - 18 October 2015
- XIV. **A Hybrid Indoor Localization System Based on Infra red Imaging and Odometry**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H., Kılınç O.  
19th International Conference on Image Processing, Computer Vision, & Pattern Recognition, IPCV15, 27 - 30 July 2015, pp.224-228
- XV. **A Bug Based Local Path Planning Method for Static and Dynamic Environments**  
KARAKAYA S., OCAK H., KÜÇÜKYILDIZ G.  
International Symposium on Innovative Technologies in Engineering and Science, ISITES2015, 3 - 05 June 2015, pp.846-855
- XVI. **Brain Computer Interface with Low Cost Commercial EEG Device**  
KÜÇÜKYILDIZ G., OCAK H., ŞAYLI Ö., KARAKAYA S.  
International Symposium on Innovative Technologies in Engineering and Science, ISITES2015, 3 - 05 June 2015, pp.937-943
- XVII. **Image processing based package volume detection with Kinect Kinect Sensörü Kullanılan Görüntü İşleme Tabanlı Koli Hacim Ölçüm Sistemi**  
OCAK H., Ambarkutuk M., Kucukyildiz G., KARAKAYA S.  
2015 23rd Signal Processing and Communications Applications Conference, SIU 2015, Malatya, Turkey, 16 - 19 May 2015, pp.515-518
- XVIII. **Development of a Human Tracking Indoor Mobile Robot Platform**  
KARAKAYA S., KÜÇÜKYILDIZ G., Toprak C., OCAK H.  
16th IEEE International Conference on Mechatronics, Mechatronika2014, 3 - 05 December 2014, pp.683-687
- XIX. **Kinematic Model Based Path Tracking Algorithm for Differential Drive Mobile Robots**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
IEEE 20th Signal Processing and Communications Applications, 23 - 25 April 2014
- XX. **Image Processing Based Indoor Localization System**  
Kılınç O., Kucukyildiz G., KARAKAYA S., OCAK H.  
22nd IEEE Signal Processing and Communications Applications Conference (SIU), Trabzon, Turkey, 23 - 25 April 2014, pp.1654-1657
- XXI. **Bulanık Mantık Hız Kontrolü Destekli Distance Transform Yol Planlama**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
TOK 2013, Otomatik Kontrol Ulusal Toplantısı, Malatya, Turkey, 26 - 28 September 2013
- XXII. **Kamera ve Lazer Kullanılarak Lidar Sistemi Geliştirilmesi**  
KILINÇ O., KÜÇÜKYILDIZ G., KARAKAYA S., OCAK H.  
TOK 2013, Otomatik Kontrol Ulusal Toplantısı, Malatya, Turkey, 26 - 28 September 2013
- XXIII. **Kinect Tabanlı Robot Kolu Kontrolü**

ÖZKÖK İ., KÜÇÜKYILDIZ G., KARAKAYA S., OCAK H.

TOK 2013, Otomatik Kontrol Ulusal Toplantısı, Malatya, Turkey, 26 - 28 September 2013

**XXIV. Image Processing Based Low Cost Range Finder**

KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.

18th International Conference Mechanika 2013, 4 - 05 April 2013, pp.113-117

**XXV. Obstacle and Optimal Heading Direction Detection Algorithm on a Mobile Robot Platform**

KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H., BİNGÜL Z.

20th International Signal Processing and Communications Applications Conference, Muğla, Turkey, 18 - 20 April 2012

## Supported Projects

OCAK H., KİZİR S., ERTUNÇ H. M., TUBITAK Project, İç Mekanlarda Otonom Bir Şekilde Hareket Edebilen Bir Mobil Robotun Tasarım İmalat Ve Kontrolü, 2014 - 2016

## Metrics

Publication: 40

Citation (WoS): 33

Citation (Scopus): 86

H-Index (WoS): 2

H-Index (Scopus): 4

## Scholarships

2211 - Yurt İçi Lisansüstü Burs Programı, TUBITAK, 2011 - 2019

## Awards

Karakaya S., 2017 Akademik Yayın Teşvik Ödülü, Kocaeli Üniversitesi, March 2018

Karakaya S., 2011 Lisans Bölüm Birinciliği Ödülü, Kocaeli Üniversitesi, August 2011

## Non Academic Experience

Company, Ceselsan Makina, Giresun, İmalat

Organized industrial Zone, TAYSAD OSB., Ağır Makine İmalatı