

## Personal Information

Email: hocak@kocaeli.edu.tr

## Education Information

Doctorate, Case Western Reserve University, Elektrik-Elektronik Mühendisliği Ve Bilgisayar Bilimleri Bölümü, United States Of America 1999 - 2004

Under Graduate, Case Western Reserve University, Elektrik Mühendisliği, United States Of America 1994 - 1999

Post Graduate, Case Western Reserve University, Elektrik Mühendisliği Ve Uygulamalı Fizik Bölümü, United States Of America 1994 - 1999

## Foreign Languages

English, C1 Advanced

## Dissertations

Doctorate, Fault Detection, Diagnosis And Prognosis of Rolling Element Bearings: Frequency Domain Methods and Hidden Markov Modeling, Case Western Reserve University, Elektrik-Elektronik Mühendisliği Ve Bilgisayar Bilimleri Bölümü, 2003

Post Graduate, Design of a Voice Activated System Using Hidden Markov Models, Case Western Reserve University, Elektrik Mühendisliği Ve Uygulamalı Fizik Bölümü, 1999

## Research Areas

Artificial Intelligence, Computer Learning and Pattern Recognition, Electrical and Electronics Engineering

## Academic Titles / Tasks

Professor, Kocaeli Üniversitesi, Mühendislik Fakültesi, Mekatronik Mühendisliği Bölümü, 2014 - Continues

Associate Professor, Kocaeli Üniversitesi, Mühendislik Fakültesi, Mekatronik Mühendisliği Bölümü, 2009 - 2014

Assistant Professor, Kocaeli Üniversitesi, Mühendislik Fakültesi, Mekatronik Mühendisliği Bölümü, 2004 - 2009

Research Assistant, Kocaeli Üniversitesi, Mühendislik Fakültesi, Mekatronik Mühendisliği Bölümü, 2004 - 2004

Research Assistant, Case Western Reserve University, Engineering Faculty, Electrical Engineering And Computer Science, 1999 - 2003

## Professional Experience

Head of Department, Kocaeli Üniversitesi, Mühendislik Fakültesi, Mekatronik Mühendisliği Bölümü, 2015 - 2017

Deputy Head of Department, Kocaeli Üniversitesi, Mühendislik Fakültesi, Mekatronik Mühendisliği Bölümü, 2006 - 2012

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- **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, pp.247-263, 2017 (Journal Indexed in SCI)

- **A New Mobile Robot Toolbox for Matlab**

KARAKAYA S., Kucukyildiz G., OCAK H.

JOURNAL OF INTELLIGENT & ROBOTIC SYSTEMS, vol.87, pp.125-140, 2017 (Journal Indexed in SCI)

- **Development and optimization of a DSP-based real-time lane detection algorithm on a mobile platform**

Kucukyildiz G., OCAK H.

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.22, pp.1484-1500, 2014 (Journal Indexed in SCI)

- **Prediction of fetal state from the cardiotocogram recordings using adaptive neuro-fuzzy inference systems**

OCAK H., ERTUNÇ H. M.

NEURAL COMPUTING & APPLICATIONS, vol.23, pp.1583-1589, 2013 (Journal Indexed in SCI)

- **ANN- and ANFIS-based multi-staged decision algorithm for the detection and diagnosis of bearing faults**

ERTUNÇ H. M. , OCAK H., ALIUSTAOGLU C.

NEURAL COMPUTING & APPLICATIONS, vol.22, 2013 (Journal Indexed in SCI)

- **A Medical Decision Support System Based on Support Vector Machines and the Genetic Algorithm for the Evaluation of Fetal Well-Being**

OCAK H.

JOURNAL OF MEDICAL SYSTEMS, vol.37, 2013 (Journal Indexed in SCI)

- **TIME DELAY COMPENSATED VISION BASED STABILIZATION CONTROL OF AN INVERTED PENDULUM**

KİZİR S., OCAK H., BİNGÜL Z., OYSU C.

INTERNATIONAL JOURNAL OF INNOVATIVE COMPUTING INFORMATION AND CONTROL, vol.8, pp.8133-8145, 2012 (Journal Indexed in SCI)

- **A support vector machine-based online tool condition monitoring for milling using sensor fusion and a genetic algorithm**

KAYA B., OYSU C., ERTUNÇ H. M. , OCAK H.

PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART B-JOURNAL OF ENGINEERING MANUFACTURE, vol.226, pp.1808-1818, 2012 (Journal Indexed in SCI)

- **Prediction of Plantar Shear Stress Distribution by Artificial Intelligence Methods**

Yavuz M., OCAK H., Hetherington V. J. , Davis B. L.

JOURNAL OF BIOMECHANICAL ENGINEERING-TRANSACTIONS OF THE ASME, vol.131, 2009 (Journal Indexed in SCI)

- **Automatic detection of epileptic seizures in EEG using discrete wavelet transform and approximate entropy**

Ocak H.

EXPERT SYSTEMS WITH APPLICATIONS, vol.36, pp.2027-2036, 2009 (Journal Indexed in SCI)

- **Tool wear condition monitoring using a sensor fusion model based on fuzzy inference system**

ALIUSTAOGLU C., ERTUNÇ H. M. , OCAK H.

MECHANICAL SYSTEMS AND SIGNAL PROCESSING, vol.23, pp.539-546, 2009 (Journal Indexed in SCI)

- **Bearing condition diagnosis and prognosis using applied nonlinear dynamical analysis of machine vibration signal**

Janjarasjitt S., OCAK H., Loparo K. A.

JOURNAL OF SOUND AND VIBRATION, vol.317, pp.112-126, 2008 (Journal Indexed in SCI)

- **Post-sigh breathing behavior and spontaneous pauses in the C57BL/6J (B6) mouse**

Yamauchi M., Ocak H., Dostal J., Jacono F. J. , Loparo K. A. , Strohl K. P.

RESPIRATORY PHYSIOLOGY & NEUROBIOLOGY, vol.162, pp.117-125, 2008 (Journal Indexed in SCI)

- **Optimal classification of epileptic seizures in EEG using wavelet analysis and genetic algorithm**

OCAK H.

SIGNAL PROCESSING, vol.88, pp.1858-1867, 2008 (Journal Indexed in SCI)

- **Online tracking of bearing wear using wavelet packet decomposition and probabilistic modeling: A method for bearing prognostics**

Ocak H., Loparo K. A. , Discenzo F. M.

JOURNAL OF SOUND AND VIBRATION, vol.302, pp.951-961, 2007 (Journal Indexed in SCI)

- **HMM-based fault detection and diagnosis scheme for rolling element bearings**  
Ocak H., Loparo K.  
JOURNAL OF VIBRATION AND ACOUSTICS-TRANSACTIONS OF THE ASME, vol.127, pp.299-306, 2005  
(Journal Indexed in SCI)
- **Estimation of the running speed and bearing defect frequencies of an induction motor from vibration data**  
Ocak H., Loparo K.  
MECHANICAL SYSTEMS AND SIGNAL PROCESSING, vol.18, pp.515-533, 2004 (Journal Indexed in SCI)
- **Tool Wear Condition Monitoring in Drilling Operations using Hidden Markov Models**  
ERTUNÇ H. M. , LOPARO K., OCAK H.  
International Journal Of Machine Tools, vol.41, pp.1347-1362, 2001 (Journal Indexed in SSCI)

## Articles Published in Other Journals

- **Fuzzy logic-based moving obstacle avoidance method**  
KARAKAYA S., OCAK H.  
Global Journal of Computer Sciences: Theory and Research, vol.9, pp.1-9, 2019 (Refereed Journals of Other Institutions)
- **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, pp.389-403, 2017 (Journal Indexed in ESCI)
- **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 (Refereed Journals of Other Institutions)
- **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 (Refereed Journals of Other Institutions)
- **Virtual-reality-based remote-controlled mobile robot platform**  
AKKAYA U., ŞEKERCİ N., KARAGÖZ A., ÖZAYA U. , KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
Global Journal of Computer Sciences: Theory and Research, vol.7, pp.136-144, 2017 (Refereed Journals of Other Institutions)
- **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.10, pp.23-27, 2016 (Refereed Journals of Other Institutions)
- **Yapay Sinir Ağları Kullanılarak Karbonat Kayalarındaki Dokunun Tanımlanmasına Bir Örnek Akveren Formasyonu**  
Çakır Ş., Ertunç H. M. , Ocak H.  
Uygulamalı Yer Bilimleri Dergisi, vol.8, pp.71-79, 2009 (National Refreed University Journal)

## Refereed Congress / Symposium Publications in Proceedings

- **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 Ekim 2019
- **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 Mayıs 2018

- **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 Ağustos 2017

- **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 Ağustos 2017

- **Classification of motor imaginary in EEG using random forest classifier**

KÜÇÜKYILDIZ G., KARAKAYA S., OCAK H.

4th World Conference on Computer Engineering, COMENG-2017, 28 - 30 Ağustos 2017

- **Mobil Robotlar İçin Hibrit bir Nokta Stabilizasyonu Yöntemi**

KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.

INES2016, International Congress on Academic Researches, Antalya, Turkey, 3 - 05 Ekim 2016, pp.472

- **Speed Control Adaptation on Static Trajectories**

KARAKAYA S., OCAK H.

International Congress on Academic Researches, INES2016, 3 - 05 Kasım 2016

- **A Hybrid Posture Stabilization Method for Mobile Robots**

KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.

International Academic Research Congress, INES2016, 3 - 05 Kasım 2016

- **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 Eylül 2016

- **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**

Küçükyıldız G., OCAK H., Şaylı Ö., KARAKAYA S.

Medical Technologies National Conference, TIPTEKNO 2015, Bodrum, Turkey, 15 - 18 Ekim 2015

- **A Hybrid Indoor Localization System Based on Infra red Imaging and Odometry**

KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H., Kılıncı O.

19th International Conference on Image Processing, Computer Vision, & Pattern Recognition, IPCV15, 27 - 30

Temmuz 2015, pp.224-228

- **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 Haziran

2015, pp.846-855

- **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 Haziran

2015, pp.937-943

- **Real Time Control of a WheelChair based on EMG and Kinect for the Disabled People**

Kucukyildiz G., OCAK H., Sayli O., KARAKAYA S.

Medical Technologies National Conference (TIPTEKNO), Bodrum, Turkey, 15 - 18 Ekim 2015

- **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

Mayıs 2015, pp.515-518

- **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 Aralık 2014, pp.683-687

- **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 Nisan 2014

- **Image Processing Based Indoor Localization System**

Kilinc O., Kucukyildiz G., KARAKAYA S., OCAK H.

22nd IEEE Signal Processing and Communications Applications Conference (SIU), Trabzon, Turkey, 23 - 25 Nisan 2014, pp.1654-1657

- **A DSPIC Based Real Time Position Control of a DC Motor Using PID and Fuzzy Logic Controller**  
TAŞÇI G., KÜÇÜKYILDIZ G., ERTUNÇ H. M. , OCAK H.  
Proceedings of the 18th International Conference, Mechanika 2013, 4 - 05 April 2013
- **Image Processing Based Low Cost Range Finder**  
KARAKAYA S., KÜÇÜKYILDIZ G., OCAK H.  
18th International Conference Mechanika 2013, 4 - 05 Nisan 2013, pp.113-117
- **Image Processing Based Olive Seperation Machine**  
KUNCAN M., ERTUNÇ H. M. , KÜÇÜKYILDIZ G., OCAK H., ÖZTÜRK S.  
18th International Conference Mechanika 2013, 4 - 05 Nisan 2013, pp.142-145
- **Vision based magnetic levitation system Görü tabanlı manyetik süspansiyon sistemi**  
KİZİR S., Küçükyildiz G., OCAK H., BİNGÜL Z.  
2012 20th Signal Processing and Communications Applications Conference, SIU 2012, Fethiye, Mugla, Turkey, 18 - 20 Nisan 2012
- **Development and optimization of DSP based real time lane detection algorithm on a mobile robot platform Mobil robot platformu üzerinde DSP tabanlı gerçek zamanlı şerit tespiti algoritmasının geliştirilmesi ve optimizasyonu**  
Küçükyildiz G., OCAK H.  
2012 20th Signal Processing and Communications Applications Conference, SIU 2012, Fethiye, Mugla, Turkey, 18 - 20 Nisan 2012
- **Obstacle and optimal heading direction detection algorithm on a mobile robot platform Mobil robot platformu üzerinde engel algılanması ve optimal yönün belirlenmesi**  
KARAKAYA S., Küçükyildiz G., OCAK H., BİNGÜL Z.  
2012 20th Signal Processing and Communications Applications Conference, SIU 2012, Fethiye, Mugla, Turkey, 18 - 20 Nisan 2012
- **Vibration Analysis Based Localized Bearing Fault Diagnosis Under Different Load Conditions**  
ERTUNÇ H. M. , OCAK H., MERDOĞLU M., BAYRAM S., ÇAVUŞ M.  
Proceedings of 12th International Workshop on Research and Education in Mechatronics, 15 - 16 Eylül 2011
- **Ters Sarkaç Sisteminin Görme Tabanlı Gecikme Telafili Kontrolü**  
KİZİR S., OCAK H., BİNGÜL Z., OYSU C.  
TOK 2011, Otomatik Kontrol Ulusal Toplantısı, Turkey, 14 - 16 September 2011
- **Web Tabanlı Gezgin Robot Tasarımı ve Uygulamalar**  
FATİHOĞLU Y. S. , OCAK H.  
Arge Proje Pazarı 2010, Turkey, 9 - 10 Nisan 2010
- **Determining bearing faults using wavelet and approximate entropy Dalgacık ve yaklaşık entropi analizi ile rulman hatalarının belirlenmesi**  
Aliustaoglu C., ERTUNÇ H. M. , OCAK H.  
2008 IEEE 16th Signal Processing, Communication and Applications Conference, SIU, Aydın, Turkey, 20 - 22 Nisan 2008
- **Online Fault Detection of Roller Element Bearings Applied On a Fuzzy Inference System**  
ALIUŞTAOĞLU C., ERTUNÇ H. M. , OCAK H.  
6th International Symposium on Intelligent and Manufacturing Systems Features, 14 - 16 October 2008
- **Diagnosis of Sectional Bearing Faults Using Vibration Analysis**  
ALIUŞTAOĞLU C., ERTUNÇ H. M. , OCAK H.  
9th International Workshop on Research and Education in Mechatronics, 18 - 19 September 2008
- **Applied Real Time Bearing Fault Diagnosis Based On Vibration and Current Analysis**  
ALIUŞTAOĞLU C., ERTUNÇ H. M. , OCAK H.  
Proceedings of The 2008 International Conference on Artificial Intelligence, 14 - 17 July 2008
- **Determining Bearing Faults Using Wavelet and Approximate Entropy**  
Aliustaoglu C., ERTUNÇ H. M. , OCAK H.  
IEEE 16th Signal Processing and Communications Applications Conference, Aydın, Turkey, 20 - 22 Nisan 2008,

pp.400-403

- **Online tracking of bearing wear using wavelet packet transform and hidden Markov models Dalgacik paket dönüşümü ve sakli Markov modelleren kullanarak rulman arizalarinin çevrimiçi izlenmesi**  
OCAK H., ERTUNÇ H. M. , Loparo K. A.  
2006 IEEE 14th Signal Processing and Communications Applications, Antalya, Turkey, 17 - 19 Nisan 2006, vol.2006
- **İkili ve Renkli Logo ile Sayısal Damgalama**  
KIZIR S., ERTUNÇ H. M. , OCAK H.  
ELECO2006, Turkey, 01 September 2006
- **Online tracking of bearing wear using wavelet packet transform and hidden Markov models**  
OCAK H., ERTUNÇ H. M. , Loparo K. A.  
IEEE 14th Signal Processing and Communications Applications, Antalya, Turkey, 16 - 19 Nisan 2006, pp.137-138
- **Real Time Monitoring of Tool Wear Using Multiple Modeling Method**  
ERTUNÇ H. M. , LOPARO K. A. , ÖZDEMİR E., OCAK H.  
IEEE International Electric Machines and Drives Conference IEMDC 2001, 17 - 20 Haziran 2001
- **A new Bearing Fault Detection and Diagnosis Scheme based on Hidden Markov Modeling of Vibration Signals**  
OCAK H., Loparo K. A.  
IEEE International Conference on Acoustics, Speech, and Signal Processing, 7 - 11 Mayıs 2001, vol.5, pp.3141-3144
- **Estimation of the Running Speed and Bearing Defect Frequencies of an Induction Motor using Vibration Data**  
OCAK H., Loparo K. A. , Discenzo F. M. , Yoo J., Twarowski A.  
International Conference on Acoustics, Noise and Vibration, ICANOV2K, 8 - 12 Ağustos 2000

## Supported Projects

- OCAK H., Project Supported by Higher Education Institutions, GÖRÜNTÜ İŞLEME TABANLI İÇ MEKAN KONUMLAMA SİSTEMİNİN DONANIMSAL OLARAK GERÇEKLEŞMESİ, 2015 - 2016
- OCAK H., Project Supported by Higher Education Institutions, EEG TABANLI ÇOKLU TRESENSÖR DESTEKLİ AKÜLÜ SANDALYE SİSTEMİNİN GELİŞTİRİLMESİ, 2014 - 2015
- OCAK H., Project Supported by Higher Education Institutions, Web Tabanlı Gezgin Robot Tasarımı ve Uygulamaları, 2010 - 2012

## Citations

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