

Prof. MEHMET SEZGİN

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: HKO-9559-2023

Yoksis Researcher ID: 217487

Biography

Mehmet Sezgin received B.Sc. and M.Sc. degrees in the Electronic and Communication Engineering department of **Istanbul Technical University**, Istanbul Turkey, in 1986 and 1990, respectively. He completed his Ph.D. in Aeronautical Engineering Department of Istanbul Technical University, in 2002.

He worked at Istanbul Technical University as Research Assistant. He has also worked at different institutions of **The Scientific and Technological Research Council of Turkey (TUBITAK)** as Researcher, Senior Researcher and Chief Researcher (TUBITAK MAM - Marmara Research Center, TUBITAK UEKAE - National Research Institute of Electronics and Cryptology, TUBITAK BILGEM - Center Of Research For Advanced Technologies Of Informatics And Information Security).

He completed numerous industrial, governmental and military projects as researcher and Project Leader. His research area is image processing signal processing, multi-sensor system design and automatic detection & classification of buried objects.

There are national and international **patent applications** with the name of Dr. Mehmet Sezgin. He is the author of **more than 50 highly cited papers** printed in SCI journals and numerous scientific conference papers. He has been reviewing processes of various scientific journals.

Dr. Mehmet Sezgin was included to the “**top 2% of the world’s most influential scientists**” list prepared by **Stanford University** in the “**career-long impact**” and “**annual impact**” categories for the **third time** in 2023, after 2021 and 2022.

He was national delegate in various **international activities** such as NATO SCI experts Group and NATO projects between 1999-2013.

He had been as Institute deputy director and Institute **Director of Information Technologies Institute of TÜBİTAK BİLGEM**. Currently he works at İstanbul Ticaret University as Professor.

Education Information

Doctorate, Istanbul Technical University, Fen Bilimleri Enstitüsü, Uçak Ve Uzay Mühendisliği (Dr), Turkey 1994 - 2002

Postgraduate, Istanbul Technical University, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, Turkey 1987 - 1990

Undergraduate, Istanbul Technical University, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, Turkey 1982 - 1986

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, İmge eşikleme yöntemlerinin başarımlı değerlendirilmesi ve tahribatsız muayenede kullanımı, Istanbul Technical University, Fen Bilimleri Enstitüsü, Uçak Ve Uzay Mühendisliği (Dr), 2002

Postgraduate, Anahtarlamalı kapasite filtrelerinde frekans karakteristiklerinin bilgisayar yardımıyla bulunması, Istanbul Technical University, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, 1990

Research Areas

Engineering and Technology

Academic Titles / Tasks

Professor, Istanbul Commerce University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2023 - Continues

Associate Professor, Istanbul Commerce University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2023 - 2023

Research Assistant, Istanbul Technical University, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, 1987 - 1990

Academic and Administrative Experience

Teknoloji Transfer Ofisi, Istanbul Commerce University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2023 - Continues

Courses

DESIGN PROJECTS, Undergraduate, 2023 - 2024, 2022 - 2023

Görüntü İşleme ve Bilgisayarlı Görü, Doctorate, 2023 - 2024

Electronic-1 Laboratory, Undergraduate, 2023 - 2024

Signals and Systems, Undergraduate, 2023 - 2024, 2022 - 2023
Electronics-1, Undergraduate, 2023 - 2024, 2022 - 2023
Fundamentals of Biomedical Engineering, Undergraduate, 2023 - 2024
GPR Sinyal ve Görüntü İşleme, Postgraduate, 2023 - 2024
Digital Image Processing, Undergraduate, 2023 - 2024
Görüntü İşleme (Yıldız Teknik Üniv), Doctorate, 2021 - 2022, 2020 - 2021, 2019 - 2020
İşaret İşlemede İleri Konular (Gebze Yüksek Teknoloji Enstitüsü), Postgraduate, 2011 - 2012, 2010 - 2011

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **A reinforcement learning (RL)-based hybrid method for ground penetrating radar (GPR)-driven buried object detection**
Alpdemir M. N., SEZGİN M.
Neural Computing and Applications, vol.36, no.14, pp.8199-8219, 2024 (SCI-Expanded)
- II. **Peak scatter-based buried object identification using GPR-EMI dual sensor system**
Yoldemir B., Sezgin M.
Nondestructive Testing and Evaluation, vol.34, no.4, pp.339-353, 2019 (SCI-Expanded)
- III. **Getting the Bugs Out: A Portable Harmonic Radar System for Electronic Countersurveillance Applications**
Aniktar H., Baran D., Karav E., Akkaya E., Birecik Y. S., Sezgin M.
IEEE Microwave Magazine, vol.16, no.10, pp.40-52, 2015 (SCI-Expanded)
- IV. **Detection of ammonia in liquids using millimeter wave spectroscopy**
Ozturk H., Nazli H., YEĞİN K., Sezgin M.
International Journal of Photoenergy, vol.2012, 2012 (SCI-Expanded)
- V. **Simultaneous buried object detection and imaging technique utilizing fuzzy weighted background calculation and target energy moments on ground penetrating radar data**
Sezgin M.
EURASIP JOURNAL ON ADVANCES IN SIGNAL PROCESSING, vol.2011, no.1, pp.1-2, 2011 (SCI-Expanded)
- VI. **Wideband antenna with conductive textile radiators for a dual-sensor subsurface detection system**
SALMAN A. O., Bicak E., Sezgin M.
IEEE Transactions on Antennas and Propagation, vol.59, no.10, pp.3746-3755, 2011 (SCI-Expanded)
- VII. **A least squares approach to buried object detection using ground penetrating radar**
Yoldemir A. B., Sezgin M.
IEEE Sensors Journal, vol.11, no.6, pp.1337-1341, 2011 (SCI-Expanded)
- VIII. **Observer-dependent variability of the thresholding step in the quantitative analysis of soil images and X-ray microtomography data**
Baveye P. C., Laba M., Otten W., Bouckaert L., Dello Sterpaio P., Goswami R. R., Grinev D., Houston A., Hu Y., Liu J., et al.
Geoderma, vol.157, no.1-2, pp.51-63, 2010 (SCI-Expanded)
- IX. **An improved design of planar elliptical dipole antenna for UWB applications**
Nazli H., Bicak E., TÜRETKEN B., Sezgin M.
IEEE Antennas and Wireless Propagation Letters, vol.9, pp.264-267, 2010 (SCI-Expanded)
- X. **Survey over image thresholding techniques and quantitative performance evaluation**
Sezgin M., Sankur B.
Journal of Electronic Imaging, vol.13, no.1, pp.146-168, 2004 (SCI-Expanded)
- XI. **A new dichotomization technique to multilevel thresholding devoted to inspection applications**
Sezgin M., Taşaltın R.
Pattern Recognition Letters, vol.21, no.2, pp.151-161, 2000 (SCI-Expanded)

Refereed Congress / Symposium Publications in Proceedings

- I. **Analysis of Deep CNN-based Ground Penetrating Radar (GPR) Image Classification Process using Explainable AI**
Alpdemir M. N., SEZGİN M.
2023 Innovations in Intelligent Systems and Applications Conference (ASYU), Sivas, Turkey, 11 - 13 October 2023
- II. **Classification of Buried Objects Using Deep Learning on GPR Data**
SEZGİN M., Alpdemir M. N.
2023 IEEE International Conference on Advanced Systems & Engineering Technologies 2023 IEEE IC_ASET, Hammamet, Tunisia, 29 April 2023
- III. **A Reinforcement Learning (RL)-Based Hybrid Search Method for Hidden Object Discovery using GPR**
Alpdemir M. N., SEZGİN M.
6th IEEE International Conference on Advanced Systems and Emergent Technologies, IC_ASET 2023, Hammamet, Tunisia, 29 April - 01 May 2023
- IV. **GPRStudio: an extensible cross platform GPR signal processing tool**
Çelik Özkan E., ÖZKAN E., Nazlı H., SEZGİN M.
SPIE Defense and Commercial Sensing Symposium, United States Of America, 12 April 2021
- V. **Identification of buried objects based on peak scatter modelling of GPR A-scan signals**
SEZGİN M., Yoldemir A. B., ÖZKAN E., Nazlı H.
SPIE Defense and Commercial Sensing Symposium, Baltimore, United States Of America, 14 April 2019
- VI. **Effect of Pulse Fidelity on Detection of Landmines**
Öztürk H., Hakkı N., YEĞİN K., SEZGİN M., Emrullah B., Hasan B., Kara H., Tura L., Vural Ö., Rıdvan G., et al.
SPIE Defense and Security Symposium, 29 April - 03 May 2013
- VII. **Discrimination of Buried objects Using Angular Radial Transform and Multi layer Perceptrons**
Gülay K., Ahmet Burak Y., Oğuz İ., SEZGİN M.
International Radar Symposium, 29 April - 03 May 2013
- VIII. **Millimeter Wave Detection of Landmines**
Hilmi Ö., Hakkı N., Emrullah B., SEZGİN M., TÜRETKEN B.
SPIE Defense and Security Symposium, 29 April - 01 May 2013
- IX. **Comparative Analysis Of Clutter Suppression Techniques For Landmine Detection Using Ground Penetrating Radar**
Ahmet Burak Y., SEZGİN M.
SPIE Defense and Security Symposium Orlando, 25 - 29 April 2011
- X. **Handheld Multisensor system design dedicated to mine detection**
SEZGİN M., çayır m., doğru m.
SPIE Defense and Security Symposium, 25 - 29 April 2011
- XI. **Effects of Different Soil Types on Strip Map GPR SAR Images**
Hakkı N., SEZGİN M.
SPIE Defense and Security Symposium, 25 - 29 April 2011
- XII. **Real time Buried Object Detection Using LMMSE Estimation**
Ahmet Burak Y., SEZGİN M.
IEEE, European Radar Conference 2010, 26 September - 01 October 2010
- XIII. **Rotation and scale invariant template matching applied to buried Object detection in GPR data**
Ahmet Burak Y., SEZGİN M.
30th IEEE International Geosciences and Remote Sensing, IGARSS 2010, 25 - 30 July 2010
- XIV. **Buried Object Detection Using Goodness of fit to Gumbel Distribution**
Ahmet Burak Y., SEZGİN M.
International Symposium on Antenna Technology and Applied Electromagnetics and the American Electromagnetics Conference, 5 - 09 July 2010
- XV. **Real Time Object Detection Using Dynamic Principal Component Analysis**
Kaplan G., İçoğlu O., SEZGİN M.

- XIII International Conference On Ground Penetrating Radar,Lecce, 21 - 25 June 2010
- XVII. **Textile Antenna for the Multi sensor Impulse GPR EMI Subsurface Detection System**
SALMAN A. O., Emrullah B., SEZGİN M.
XIII International Conference On Ground Penetrating Radar,Lecce, 21 - 25 June 2010
- XVII. **Experimental Investigation of Different Soil Types for Buried Object Imaging Using Impulse GPR**
Ahmet Burak Y., SEZGİN M.
XIII International Conference On Ground Penetrating Radar, 21 - 25 June 2010
- XVIII. **Adaptive Linear Prediction Based Buried Object Detection with Varying Detector Height**
Ahmet Burak Y., SEZGİN M.
XIII International Conference On Ground Penetrating Radar, 21 - 25 June 2010
- XIX. **A Novel Detection Warning Signal Creation Method for Hand Held GPR Applications**
Ahmet Burak Y., SEZGİN M.
XIII International Conference On Ground Penetrating Radar, 21 - 25 June 2010
- XX. **A false alarm reduction method for GPR sensor Moving at varying heights**
SEZGİN M., Nazlı H., ÖZKAN E., Çelik Özkan E.
SPIE Defense and Commercial Sensing Symposium, Los-Angeles, Chile, 26 April 2010
- XXI. **Depth estimation of buried objects using wavelet transform and statistical hypothesis testing**
Ahmet Burak Y., SEZGİN M.
SPIE Defense and Security Symposium Orlando, ABD, 5-9 April 2010, 5 - 09 April 2010
- XXII. **Development of Dual Sensor Hand Held Detector**
SEZGİN M.
SPIE Defense and Security Symposium Orlando, ABD, 5-9 April 2010, 5 - 09 April 2010
- XXIII. **Two Dimensional Template Matching Method for Buried Object Discrimination in GPR Data**
SEZGİN M.
SPIE Defense and Security Symposium, 13 - 17 April 2009
- XXIV. **Identification of Metallic Objects with Various Sizes and Burial Depths**
SEZGİN M., Gülay K., Sencer Melih D., Yıldırım B., Oğuz İ.
SPIE Defense and Security Symposium, 13 - 17 April 2009
- XXV. **Investigation of Convenient Antenna Designs for Ultra Wide Band GPR Systems**
TÜRK A. S., Demet Ş., SEZGİN M., Hakkı N.
Advanced Ground Penetrating Radar, 27 - 29 June 2007
- XXVI. **Gömülü Metalik Cisimlerin Yapay Sinir Ağına Dayalı Teşhisi**
SEZGİN M., Gülay K., Melih B., Yıldırım B.
IEEE 15. Sinyal İşleme ve İletişim Uygulamaları Kurultayı, Turkey, 11 - 13 June 2007
- XXVII. **CA CFAR Detection against K distributed clutter in GPR**
Yıldırım B., SEZGİN M.
SPIE Defense and Security Symposium,Orlando, 9 - 13 April 2007
- XXVIII. **Buried metallic object identification by EMI sensor**
SEZGİN M., Gülay K., Melih B., Yıldırım B.
SPIE Defense and Security Symposium, 9 - 13 April 2007
- XXIX. **Ultra Wide Band Antenna Design for Multi sensor Adaptive Ground Penetrating Impulse Radar**
TÜRK A. S., Kurt E., SEZGİN M., Yıldırım B.
Mediterranean Microwave Symposium, 18 - 21 September 2006
- XXX. **Signal processing techniques to improve GPR detection performance**
SEZGİN M., Yıldırım B., İsa T.
SPIE Defense and Security Symposium, 27 March - 01 April 2005
- XXXI. **Yere Girimli Radarda K Dağılımlı Kargaşaya Karşı CA CFAR Algılama**
Yıldırım B., SEZGİN M.
URSI-TÜRKİYE'2004 II. Ulusal Kongresi, Turkey, 8 - 10 September 2004
- XXXII. **Gömülü Cisimlerin GPR yardımıyla Sezimi**
SEZGİN M., İsa T.

- SİU2004 Sinyal İşleme ve İletişim Uygulamaları Kurultayı, Turkey, 28 - 30 April 2004
- XXXIII. **Real time detection of buried objects by using GPR**
SEZGİN M., İsa T., Öztürk S., Fatih K.
SPIE Defense and Security Symposium, 12 - 16 April 2004
- XXXIV. **Image Multi Thresholding Based On sample Moment Function**
SEZGİN M., Bülent S.
ICIP 2003, IEEE, International Conference on Image Processing, 14 - 17 September 2003
- XXXV. **Selection of Thresholding Methods for Non Destructive Testing Applications**
SEZGİN M., Bülent S.
ICIP 2001, IEEE International Conference on Image Processing, 7 - 10 October 2001
- XXXVI. **Tahribatsız Muayenede İmge Eşikleme Yöntemlerinin Başarım Karşılaştırması**
SEZGİN M., Bülent S.
SİU'2001 IEEE Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 25 - 27 April 2001
- XXXVII. **A novel multilevel thresholding method based on finding the consistent peak of correlation function**
SEZGİN M., TAŞALTIN R.
IAPR workshop on machine vision applications MVA'98, 17 - 19 November 1998
- XXXVIII. **A study on the evaluation of multilevel thresholding methods based on the automatic thresholding criterion**
SEZGİN M., TAŞALTIN R.
13th International symposium on computer and information sciences, 26 - 28 October 1998
- XXXIX. **Renyi entropisine dayalı yeni bir çok seviyeli eşikleme yöntemi**
SEZGİN M., Serdar B., PALACI Y., TAŞALTIN R.
6. Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 28 - 30 May 1998
- XL. **An Application of Multilevel Thresholding Methods to Visual Cloth Quality Inspection**
SEZGİN M., Fatih K., Serdar B.
International Conference on Quality Control by Artificial Vision - QCAV'97, 28 - 30 May 1997
- XLI. **Visual Inspection of Reflective Materials**
SEZGİN M., Serdar B.
International Conference on Quality Control by Artificial Vision - QCAV'97, 28 - 30 May 1997
- XLII. **Skıştırılmış İmgelerde Hareketli Hedef Belirleme**
Çetin S., SEZGİN M., YAKUP K.
5. Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 1 - 03 May 1997
- XLIII. **Yansımali Yüzeylerde Hata Belirleme**
SEZGİN M., Serdar B.
5. Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 1 - 03 May 1997
- XLIV. **Image Segmentation Based on Boundary Constraint Neural Network**
SEZGİN M., Kurugöllü F., Birecik S.
International Workshop on Image and Signal Processing - IWISP'96, 4 - 07 November 1996
- XLV. **Çok Seviyeli Eşikleme Yöntemlerinin Görsel Kalite Kontrolünde Kullanılması**
SEZGİN M., Fatih K., Serdar B., Çetin S.
4. Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 5 - 06 April 1996
- XLVI. **A Comparision of Visual Target Tracking Methods in Noisy Environments**
SEZGİN M., Serdar B., Demir D., BUCAK İ. Ö., Çetin S., Fatih K.
International Conference on Industrial Electronics Control and Instrumentation (IECON'95), 6 - 10 November 1995
- XLVII. **Hareketli hedeflerin sezimi ve izlenmesi**
SEZGİN M., Serdar B., Demir D.
3. Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 26 - 28 April 1995
- XLVIII. **Quality Inspection in PCBs and SMDs Using Computer Vision Techniques**
Demir D., SEZGİN M., Serdar B., Fatih K., BUCAK İ. Ö., Bülent S.
International Conference on Industrial Electronics Control and Instrumentation (IECON'94), 5 - 09 September

1994

- XLIX. Baskılı devre Plaketlerindeki lehim adacıklarının matematiksel morfoloji yyardımıyla incelenmesi**
Serdar B., SEZGİN M., BUCAK İ. Ö., Bülent S., Anarım E., SAĞLAM M.
2. Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 8 - 09 April 1994
- L. A Parallel Implementation of a Novel Cubic Interpolation Technique For Visual Analysis**
SEZGİN M., Ahmed B., Demir D., Murat E., Fatih K., Bardakçı M., Serdar B.
IEEE International Symposium on Industrial Electronics '93, 1 - 03 June 1993
- LI. TMS320C25 İşaret işleyici kullanan gerçek zaman izge çözümleyici**
SEZGİN M., Murat E., Çetin S., İsmail G., Celalettin K., Nur Y.
1. Sinyal İşleme ve Uygulamaları Kurultayı, Turkey, 21 - 22 April 1993
- LII. A Modified Cubic Interpolation for Rapid Image Processing**
Bouridane A., Murat E., SEZGİN M., Fatih K., İsmail G.
Picture Coding Symposium '93 Lausanne, 17 - 19 March 1993

Supported Projects

SEZGİN M., MİGSİS, Continues
SEZGİN M., Modern Mayın Tespit Sistemleri Projesi, Continues
SEZGİN M., Elde Taşınabilir Mayın Tespit Sistemi 2, Continues
SEZGİN M., Baskı devre PCB lerinin görsel kalite kontrolü Proje Çalışanı, Continues
SEZGİN M., Görme ve Görüntü İşleme, Continues
SEZGİN M., Yansımali Malzemelerin Görsel kalite kontrolü, Continues
SEZGİN M., CCD kamera görüntülerinde hareketli cisimlerin tespiti ve takibi, Continues
SEZGİN M., TSK Mesaj Kotarma Sistemi Projesi, Continues
SEZGİN M., Klasik ve iyileştirilmiş DES algoritmasının DSP üzerinde gerçekleşmesi, Continues
SEZGİN M., FIFO tabanlı veri aktarım kartı tasarımı, Continues
SEZGİN M., Mayın Tespit Sistemleri Projesi, Continues
SEZGİN M., DSP kartı kullanarak step motor kontrolü, Continues
SEZGİN M., Görme ve Görüntü İşleme Projesi, Continues

Activities in Scientific Journals

International Journal of Medical Imaging, SciencePG, Editor, 2022 - Continues

Scientific Refereeing

APPLIED ARTIFICIAL INTELLIGENCE AN INTERNATIONAL JOURNAL, National Scientific Refreed Journal, May 2024
TUBITAK Project, 1501 - Industry R & D Projects Support Program, VSENSE YAZILIM VE OTOMASYON SANAYİ LİMİTED
ŞİRKETİ, Turkey, April 2024

Scientific Consultations

Teknopark İstanbul, Scientific Consultancy, Istanbul Commerce University, Mühendislik Fakültesi, Elektrik-Elektronik
Mühendisliği Bölümü, Turkey, 2023 - Continues

Metrics

Publication: 63
Citation (WoS): 3239
Citation (Scopus): 4319
H-Index (WoS): 7
H-Index (Scopus): 9

Awards

Sezgin M., Classification of Buried Objects Using Deep Learning on GPR Data, Ieee Aset, May 2023
Sezgin M., TÜBİTAK MAM. Handheld Mine Detection System-1 Project Incentive award, Tübitak Mam, June 2008
Sezgin M., TÜBİTAK MAM. Modern Mine Detection Systems Project Achievement award, Tübitak Mam, June 2006
Sezgin M., TÜBİTAK MAM. Turkish Armed Forces Command Control Information Systems Project Achievement Award, Tübitak Mam, June 1999

Non Academic Experience

TÜBİTAK BİLGEM
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TUBITAK, TÜBİTAK BİLGEM, INFORMATION TECHNOLOGIES INSTITUTE
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