

Prof. CEM ÜNSALAN

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International Researcher IDs

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Biography

Cem Ünsalan is a full professor at the Department of Electrical and Electronics Engineering at Marmara University, Turkey since 2017. Prior to joining Marmara University, he worked the Department of Electrical and Electronics Engineering at Yeditepe University for 14 years as a faculty member. He also served as the department head for four years there. Dr. Ünsalan received his BSc degree (1995) from Hacettepe University, Turkey; his MSc degree from Bogazici University, Turkey (1998); and PhD degree (2003) from The Ohio State University, USA.

Dr. Ünsalan has published four books on microcontrollers and FPGA systems. The three microcontroller books are on Texas Instruments MSP430 and MSP432 microcontrollers, and Arm Cortex M architecture. The FPGA book is on Xilinx's Artix7 FPGA chip. All these books aim to introduce basic embedded system concepts through practical applications. He has also published books on computer vision and image understanding.

Education Information

Doctorate, Ohio State University, Elektrik Müh., United States Of America 1999 - 2003

Postgraduate, Bogazici University, Institute Of Science, Elektrik-Elektronik Mühendisliği (YI) (Tezli), Turkey 1995 - 1998

Undergraduate, Hacettepe University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, Turkey 1991 - 1995

Dissertations

Doctorate, Multispectral Satellite Image Understanding, Ohio State University, Elektrik Müh., 2003

Postgraduate, Pattern recognition methods for texture analysis, case study: Steel surfaces, Bogazici University, Institute Of Science, 1998

Research Areas

Electrical and Electronics Engineering

Academic Titles / Tasks

Professor, Marmara University, Faculty of Engineering, Electrical and Electronics Engineering, 2017 - Continues

Professor, Yeditepe University, Faculty Of Engineering-Architecture, Department Of Electrical And Electronics Engineering, 2013 - 2017

Associate Professor, Yeditepe University, Faculty Of Engineering-Architecture, Department Of Electrical And Electronics Engineering, 2008 - 2013

Assistant Professor, Yeditepe University, Faculty Of Engineering-Architecture, Department Of Electrical And Electronics Engineering, 2003 - 2008

Instructor, The Ohio State University, Mühendislik Fakültesi, Elektrik Mühendisliği, 1999 - 2003

Research Assistant, Bogazici University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, 1996 - 1998

Academic and Administrative Experience

Marmara University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2017 - Continues

Yeditepe Üniversitesi, Mühendislik-Mimarlık Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2013 - 2017

Advising Theses

ÜNSALAN C., EMBEDDED SYSTEM DESIGN TO DETECT OBJECTS IN UAV IMAGES, Doctorate, B.DENİZER(Student), 2019

ÜNSALAN C., MAŞAZADE E., Real-time system for bird sound recognition, Postgraduate, O.KÜÇÜKTOPCU(Student), 2017

ÜNSALAN C., 3D object detection and representation in remote sensing: Probabilistic methods and applications, Doctorate, A.HİMMET(Student), 2017

ÜNSALAN C., Configurable hardware based genome aligner, Doctorate, M.YAĞMUR(Student), 2016

ÜNSALAN C., Real time indoor environment modeling, Postgraduate, D.BEKER(Student), 2014

ÜNSALAN C., Automated tolerance inspection of free form objects, Postgraduate, M.ÇAĞKAN(Student), 2012

ÜNSALAN C., Two dimensional change detection methods for satellite images, Postgraduate, M.İLSEVER(Student), 2012

ÜNSALAN C., Human identification and tracking, Postgraduate, M.YÜCE(Student), 2011

ÜNSALAN C., Gait analysis and its implementation, Postgraduate, S.GÜVENİLİR(Student), 2011

ÜNSALAN C., Designing a range scanner on an embedded processor using color coded structured light, Doctorate, R.BENVENİSTE(Student), 2011

ÜNSALAN C., A video surveillance system based on interacting multiple models, Postgraduate, C.SARITAŞ(Student), 2010

ÜNSALAN C., Object detection in aerial and satellite images, Doctorate, B.SIRMAÇEK(Student), 2009

ÜNSALAN C., 3D scanner implementation for shiny surfaces using color invariants, Postgraduate, R.BENVENİSTE(Student), 2007

ÜNSALAN C., Registering range images and segmenting 3d object models, Postgraduate, O.SERTEL(Student), 2006

Jury Memberships

Appointment to Academic Staff-Assistant Professorship, Appointment Academic Staff, Marmara Üniversitesi, July, 2019

Associate Professor Exam, Associate Professor Exam, Dicle Üniversitesi, June, 2019

Associate Professor Exam, Associate Professor Exam, Karadeniz Teknik Üniversitesi, April, 2019

Published journal articles indexed by SCI, SSCI, and AHCI

1. Planogram compliance control via object detection, sequence alignment, and focused iterative search
YÜCEL M., ÜNSALAN C.

- Multimedia Tools and Applications, vol.83, no.8, pp.24815-24839, 2024 (SCI-Expanded)
- II. **Implementation and Applications of a Ternary Threshold Logic Gate**
UNUTULMAZ A., ÜNSALAN C.
Circuits, Systems, and Signal Processing, vol.43, no.2, pp.1192-1207, 2024 (SCI-Expanded)
 - III. **Land classification in satellite images by injecting traditional features to CNN models**
Aksoy M. Ç., Sirmacek B., ÜNSALAN C.
Remote Sensing Letters, vol.14, no.2, pp.157-167, 2023 (SCI-Expanded)
 - IV. **Shelf control in retail stores via ultra-low and low power microcontrollers**
Yucel M. E., ÜNSALAN C.
JOURNAL OF REAL-TIME IMAGE PROCESSING, vol.19, no.4, pp.751-762, 2022 (SCI-Expanded)
 - V. **Probabilistic object tracking by low power microcontrollers**
Buyukesmeli H., Maşazade E., Ünsalan C.
JOURNAL OF REAL-TIME IMAGE PROCESSING, vol.18, pp.2539-2550, 2021 (SCI-Expanded)
 - VI. **Determining and evaluating new store locations using remote sensing and machine learning**
Hoke B., Turgay Z., ÜNSALAN C., Kucukaydin H.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.29, no.3, pp.1509-1524, 2021 (SCI-Expanded)
 - VII. **Probabilistic object detection and shape extraction in remote sensing data**
Ozcan A. H., ÜNSALAN C.
COMPUTER VISION AND IMAGE UNDERSTANDING, vol.195, 2020 (SCI-Expanded)
 - VIII. **A real-time bird sound recognition system using a low-cost microcontroller**
Kucuktopcu O., Maşazade E., Ünsalan C., Varshney P. K.
APPLIED ACOUSTICS, vol.148, pp.194-201, 2019 (SCI-Expanded)
 - IX. **Highly accurate and sensitive short read aligner**
Gok M. Y., GÖREN UĞURDAĞ S., ÜNSALAN C., Sagioglu M. S.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.26, no.2, pp.721-731, 2018 (SCI-Expanded)
 - X. **Ground filtering and DTM generation from DSM data using probabilistic voting and segmentation**
Ozcan A. H., ÜNSALAN C., Reinartz P.
INTERNATIONAL JOURNAL OF REMOTE SENSING, vol.39, no.9, pp.2860-2883, 2018 (SCI-Expanded)
 - XI. **Tree crown detection and delineation in satellite images using probabilistic voting**
Ozcan A. H., Hisar D., Sayar Y., Unsalan C.
REMOTE SENSING LETTERS, vol.8, no.8, pp.761-770, 2017 (SCI-Expanded)
 - XII. **LiDAR Data Filtering and DTM Generation Using Empirical Mode Decomposition**
Ozcan A. H., Unsalan C.
IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATIONS AND REMOTE SENSING, vol.10, no.1, pp.360-371, 2017 (SCI-Expanded)
 - XIII. **Nary coded structured light-based range scanners using color invariants**
Benveniste R., Unsalan C.
JOURNAL OF REAL-TIME IMAGE PROCESSING, vol.9, no.2, pp.359-377, 2014 (SCI-Expanded)
 - XIV. **Low-cost prioritization of image blocks in wireless sensor networks for border dsurveillance**
Irgan K., Unsalan C., Baydere S.
JOURNAL OF NETWORK AND COMPUTER APPLICATIONS, vol.38, pp.54-64, 2014 (SCI-Expanded)
 - XV. **Road Network Detection Using Probabilistic and Graph Theoretical Methods**
ÜNSALAN C., Sirmacek B.
IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING, vol.50, no.11, pp.4441-4453, 2012 (SCI-Expanded)
 - XVI. **Hands-on DSP education through experiments**
Benveniste R., Unsalan C.
INTERNATIONAL JOURNAL OF ELECTRICAL ENGINEERING EDUCATION, vol.49, no.3, pp.302-309, 2012 (SCI-Expanded)
 - XVII. **A Color Invariant for Line Stripe-Based Range Scanners**

Benveniste R., Unsalan C.

COMPUTER JOURNAL, vol.54, no.5, pp.738-753, 2011 (SCI-Expanded)

- XVIII. **Multi spectral Satellite Image Understanding From Land Classification to Building and Road Detection Final Comments**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.179-182, 2011 (SCI-Expanded)
- XIX. **Review on Land Use Classification**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.49-64, 2011 (SCI-Expanded)
- XX. **Remote Sensing Satellites and Airborne Sensors**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.7-15, 2011 (SCI-Expanded)
- XXI. **Detecting Residential Regions by Graph-Theoretical Measures**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.131-136, 2011 (SCI-Expanded)
- XXII. **Review on Building and Road Detection**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.139-144, 2011 (SCI-Expanded)
- XXIII. **Graph Theoretical Measures for Land Development**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.99-120, 2011 (SCI-Expanded)
- XXIV. **Feature Based Grouping to Detect Suburbia**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.123-129, 2011 (SCI-Expanded)
- XXV. **Linearized Shadow and Water Indices**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.41-46, 2011 (SCI-Expanded)
- XXVI. **Land Use Classification using Structural Features**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.65-81, 2011 (SCI-Expanded)
- XXVII. **House and Street Network Detection in Residential Regions**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.145-176, 2011 (SCI-Expanded)
- XXVIII. **A Probabilistic Framework to Detect Buildings in Aerial and Satellite Images**
Sirmacek B., Unsalan C.
IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING, vol.49, no.1, pp.211-221, 2011 (SCI-Expanded)
- XXIX. **Land Use Classification via Multispectral Information**
ÜNSALAN C., Boyer K. L.
MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.83-98, 2011 (SCI-Expanded)
- XXX. **Linearized Vegetation Indices**

ÜNSALAN C., Boyer K. L.

MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.19-39, 2011 (SCI-Expanded)

- XXXI. **Multispectral Satellite Image Understanding From Land Classification to Building and Road Detection Introduction**

ÜNSALAN C., Boyer K. L.

MULTISPECTRAL SATELLITE IMAGE UNDERSTANDING: FROM LAND CLASSIFICATION TO BUILDING AND ROAD DETECTION, pp.1-4, 2011 (SCI-Expanded)

- XXXII. **Using local features to measure land development in urban regions**

Sirmacek B., Unsalan C.

PATTERN RECOGNITION LETTERS, vol.31, no.10, pp.1155-1159, 2010 (SCI-Expanded)

- XXXIII. **Urban Area Detection Using Local Feature Points and Spatial Voting**

Sirmacek B., Unsalan C.

IEEE GEOSCIENCE AND REMOTE SENSING LETTERS, vol.7, no.1, pp.146-150, 2010 (SCI-Expanded)

- XXXIV. **Urban-Area and Building Detection Using SIFT Keypoints and Graph Theory**

ÜNSALAN C.

Ieee Transactions On Geoscience And Remote Sensing, vol.47, pp.1156-1167, 2009 (SCI-Expanded)

- XXXV. **Statistical, Structural, Hybrid, and Graph Theoretical Features to Measure Land Development**

ÜNSALAN C.

Ieee Geoscience And Remote Sensing Letters, vol.6, pp.72-76, 2009 (SCI-Expanded)

- XXXVI. **Measuring Land Development in Urban Regions Using Graph Theoretical and Conditional Statistical Features**

ÜNSALAN C.

Ieee Transactions On Geoscience And Remote Sensing, vol.45, pp.3989-3999, 2007 (SCI-Expanded)

- XXXVII. **A model based approach for pose estimation and rotation invariant object matching**

ÜNSALAN C.

PATTERN RECOGNITION LETTERS, vol.28, no.1, pp.49-57, 2007 (SCI-Expanded)

- XXXVIII. **Gradient-Magnitude-Based Support Regions in Structural Land Use Classification**

ÜNSALAN C.

IEEE Geoscience And Remote Sensing Letters, vol.3, pp.546-550, 2006 (SCI-Expanded)

- XXXIX. **Range image registration with edge detection in spherical coordinates**

Sertel O., Unsalan C.

MULTIMEDIA CONTENT REPRESENTATION, CLASSIFICATION AND SECURITY, vol.4105, pp.745-752, 2006 (SCI-Expanded)

- XL. **A system to detect houses and residential street networks in multispectral satellite images**

ÜNSALAN C., Boyer K.

COMPUTER VISION AND IMAGE UNDERSTANDING, vol.98, no.3, pp.423-461, 2005 (SCI-Expanded)

- XLI. **A theoretical and experimental investigation of graph theoretical measures for land development in satellite imagery**

ÜNSALAN C., Boyer K.

IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, vol.27, no.4, pp.575-589, 2005 (SCI-Expanded)

- XLII. **Classifying land development in high-resolution satellite imagery using hybrid structural-multispectral features**

ÜNSALAN C., Boyer K.

IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING, vol.42, no.12, pp.2840-2850, 2004 (SCI-Expanded)

- XLIII. **Linearized vegetation indices based on a formal statistical framework**

ÜNSALAN C., Boyer K.

IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING, vol.42, no.7, pp.1575-1585, 2004 (SCI-Expanded)

- XLIV. **Classifying, land development in high-resolution panchromatic satellite images using straight-line statistics**

ÜNSALAN C.

IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING, vol.42, pp.907-919, 2004 (SCI-Expanded)

XLV. Conversions between parametric and implicit forms using polar/spherical coordinate representations

ÜNSALAN C., Ercil A.

COMPUTER VISION AND IMAGE UNDERSTANDING, vol.81, no.1, pp.1-25, 2001 (SCI-Expanded)

Articles Published in Other Journals

I. Classifying land development in high resolution satellite images using straight line statistics

Ünsalan C., Boyer K. L.

Proceedings - International Conference on Pattern Recognition, vol.16, no.1, pp.127-130, 2002 (Scopus)

II. Shapes of features and a modified measure for linear discriminant analysis

Ünsalan C., Ercil A.

Proceedings - International Conference on Pattern Recognition, vol.15, no.2, pp.410-413, 2000 (Scopus)

Books & Book Chapters

I. Embedded System Design with Arm Cortex-M Microcontrollers

ÜNSALAN C., Gürhan H. D., Yücel M. E.

Springer, New York, 2022

II. Embedded Digital Control with Microcontrollers: Implementation with C and Python

ÜNSALAN C., EROL BARKANA D., Gürhan H. D.

Wiley-IEEE, New York, 2021

III. Digital Signal Processing using Arm Cortex-M based Microcontrollers: Theory and Practice

ÜNSALAN C., Gürhan H. D., Yücel M. E.

ARM Education Media, 2018

IV. Programmable Microcontrollers: Applications on the MSP432 LaunchPad

ÜNSALAN C., Gürhan H. D., Yücel M. E.

McGraw-Hill, New-York, 2017

V. Digital System Design with FPGA: Implementation using Verilog and VHDL

ÜNSALAN C., Tar B.

McGraw-Hill, New-York, 2017

VI. Programmable Microcontrollers with Applications MSP430 LaunchPad with CCS and Grace

ÜNSALAN C., Gürhan H. D.

Mc-Graw Hill, New-York, 2013

VII. Two Dimensional Change Detection Methods: Remote Sensing Applications

Ünsalan C.

Springer, London/Berlin , London, 2012

VIII. Multispectral Satellite Image Understanding: From Land Classification to Building and Road Detection

Ünsalan C.

Springer, London/Berlin , London, 2011

IX. Color Coded Structured Light based Range Scanners: Designing an Embedded System

Ünsalan C.

Lambert Academic Publishing, London, 2011

X. Object Detection in Satellite and Aerial Images: Remote Sensing Applications

Ünsalan C.

VDE-Verlag GmbH, Munich, 2010

XI. Automatic inspection of steel structure

ÜNSALAN C., ERÇİL F. A.

in: Recent Advances in Mechatronics, Kaynak, Okayay, Editor, Springer-Verlag Ltd., Singapore, pp.468-480, 1999

Refereed Congress / Symposium Publications in Proceedings

- I. **ForestMap: Mapping Forest Attributes Across the Globe - First Case Study**
Fransson J. E., Sertel E., ÜNSALAN C., Salo J., Holmstrom A., Wallerman J., Nilsson M.
2023 IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2023, California, United States Of America, 16 - 21 July 2023, vol.2023-July, pp.3395-3397
- II. **Forest Biophysical Parameter Estimation via Machine Learning and Neural Network Approaches**
Aksoy S., Hasan Al Shwayyat S. Z., Nur Topgul S., Sertel E., ÜNSALAN C., Salo J., Holmstrom A., Wallerman J., Nilsson M., Fransson J. E.
2023 IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2023, California, United States Of America, 16 - 21 July 2023, vol.2023-July, pp.2661-2664
- III. **Smart Trap Design with Machine Learning and Embedded System Structure Makine Öğrenmesi ve Gömülü Sistem Yapısı ile Akıllı Tuzak Tasarımı**
Atmaca E., Hoke B., ÜNSALAN C.
30th Signal Processing and Communications Applications Conference, SIU 2022, Safranbolu, Turkey, 15 - 18 May 2022
- IV. **RLSNAKE: A HYBRID REINFORCEMENT LEARNING APPROACH FOR ROAD DETECTION**
Botteghi N., Sırmaçek B., ÜNSALAN C.
The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, Göttingen, Germany, 28 - 30 June 2021
- V. **Voting based tree detection from satellite images Uydu Imgelerinde Oylama Tabanlı Ağaç Tespiti**
Özcan A. H., Sayar Y., Hisar D., Ünsalan C.
24th Signal Processing and Communication Application Conference, SIU 2016, Zonguldak, Turkey, 16 - 19 May 2016, pp.453-456
- VI. **Building detection with spatial voting and morphology based segmentation Oylama ve Morfolojik Bölütleme ile Bina Tespiti**
Özcan A. H., Ünsalan C.
24th Signal Processing and Communication Application Conference, SIU 2016, Zonguldak, Turkey, 16 - 19 May 2016, pp.429-432
- VII. **Multiscale tree analysis from satellite images**
Ozcan A. H., Sayar Y., Hisar D., Unsalan C.
7th International Conference on Recent Advances in Space Technologies, RAST 2015, İstanbul, Turkey, 16 - 19 June 2015, pp.265-269
- VIII. **Sparse people group and crowd detection using spatial point statistics in airborne images**
Ozcan A. H., Unsalan C., Reinartz P.
7th International Conference on Recent Advances in Space Technologies, RAST 2015, İstanbul, Turkey, 16 - 19 June 2015, pp.307-310
- IX. **Using empirical mode decomposition for ground filtering**
Ozcan A. H., Unsalan C.
7th International Conference on Recent Advances in Space Technologies, RAST 2015, İstanbul, Turkey, 16 - 19 June 2015, pp.317-321
- X. **Detecting inshore ships in satellite images Uydu Görüntülerinden Kiyidaki Gemi Tespiti**
Ozcan A. H., Unsalan C.
2015 23rd Signal Processing and Communications Applications Conference, SIU 2015, Malatya, Turkey, 16 - 19 May 2015, pp.1220-1223
- XI. **LiDAR height data filtering using Empirical Mode Decomposition Görgül Kip Ayırışımı ile LiDAR**

Yükseklik Verisi Filtreleme

Özcan A. H., Ünsalan C.

2015 23rd Signal Processing and Communications Applications Conference, SIU 2015, Malatya, Turkey, 16 - 19 May 2015, pp.1224-1227

XII. Crowd detection in airborne images using spatial point statistics

Özcan A. H., Ünsalan C., Reinartz P.

2015 23rd Signal Processing and Communications Applications Conference, SIU 2015, Malatya, Turkey, 16 - 19 May 2015, pp.419-422

XIII. A probabilistic approach to building change detection

Özcan A. H., Ünsalan C., Reinartz P.

2014 22nd Signal Processing and Communications Applications Conference, SIU 2014, Trabzon, Turkey, 23 - 25 April 2014, pp.489-492

XIV. A systematic approach for building change detection using multi-source data

Özcan A. H., Ünsalan C., Reinartz P.

2014 22nd Signal Processing and Communications Applications Conference, SIU 2014, Trabzon, Turkey, 23 - 25 April 2014, pp.477-480

XV. Building detection using HOG descriptors

Ilsever M., Ünsalan C.

6th International Conference on Recent Advances in Space Technologies, RAST 2013, İstanbul, Turkey, 12 - 14 June 2013, pp.115-119

XVI. Locating the urban area in satellite images to detect changes in them

Ilsever M., Ünsalan C.

6th International Conference on Recent Advances in Space Technologies, RAST 2013, İstanbul, Turkey, 12 - 14 June 2013, pp.109-114

XVII. Building detection using local features and DSM data

Özcan A. H., Ünsalan C., Reinartz P.

6th International Conference on Recent Advances in Space Technologies, RAST 2013, İstanbul, Turkey, 12 - 14 June 2013, pp.139-143

XVIII. Reconfigurable hardware-based genome aligner using quality scores Yeniden yapılandırılabilir donanım tabanlı kalite değerlerini kullanan genom hizalayıcı

Yagmur Gök M., Sagirolu M. Ş., Ünsalan C., Gören S.

2013 21st Signal Processing and Communications Applications Conference, SIU 2013, Haspolat, Turkey, 24 - 26 April 2013

XIX. Programmable Hardware based Short Read Aligner Using Phred Quality Scores

Gök M. Y., Sagirolu M. S., ÜNSALAN C., Goren S.

ASE/IEEE International Conference on Social Computing (SocialCom), Washington, Kiribati, 8 - 14 September 2013, pp.864-867

XX. Reconfigurable Hardware-based Genome Aligner Using Quality Scores

Gök M. Y., Sagirolu M. S., ÜNSALAN C., Goren S.

21st Signal Processing and Communications Applications Conference (SIU), CYPRUS, 24 - 26 April 2013

XXI. Performance assessment of automatic crowd detection techniques on airborne images

Sirmacek B., Lichtenauer J., Ünsalan C., Reinartz P.

2012 32nd IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2012, Munich, Germany, 22 - 27 July 2012, pp.2198-2201

XXII. Graph matching based change detection in satellite images

Ilsever M., Ünsalan C.

2012 32nd IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2012, Munich, Germany, 22 - 27 July 2012, pp.6213-6215

XXIII. Pixel based change detection using an ensemble of fuzzy and binary logic operations

Ilsever M., Altunkaya U., Ünsalan C.

2012 32nd IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2012, Munich, Germany, 22 -

27 July 2012, pp.6185-6187

- XXIV. **Using structural features to detect buildings in panchromatic satellite and aerial images**
Sirmacek B., Ünsalan C.
5th International Conference on Recent Advances in Space Technologies, RAST 2011, İstanbul, Turkey, 9 - 11 June 2011, pp.107-111
- XXV. **Road detection from remotely sensed images using color features**
Sirmacek B., Ünsalan C.
5th International Conference on Recent Advances in Space Technologies, RAST 2011, İstanbul, Turkey, 9 - 11 June 2011, pp.112-115
- XXVI. **Urban area detection from remotely sensed images using combination of local features**
Sirmacek B., Ünsalan C.
5th International Conference on Recent Advances in Space Technologies, RAST 2011, İstanbul, Turkey, 9 - 11 June 2011, pp.188-192
- XXVII. **Single stripe projection based range scanner implementation on TI DaVinCi DM6437 EVM**
Benveniste R., Ünsalan C.
4th European DSP Education and Research Conference, EDERC 2010, Nice, France, 1 - 02 December 2010, pp.231-235
- XXVIII. **A binary coded structured light system to scan shiny surfaces Parlak yüzeyleri taramak için ikili kodlama temelli bir sistem**
Benveniste R., Ünsalan C.
18th IEEE Signal Processing and Communications Applications Conference, SIU 2010, Diyarbakır, Turkey, 22 - 24 April 2010, pp.292-295
- XXIX. **A color invariant based binary coded structured light range scanner for shiny objects**
Benveniste R., Ünsalan C.
2010 20th International Conference on Pattern Recognition, ICPR 2010, İstanbul, Turkey, 23 - 26 August 2010, pp.798-801
- XXX. **Road network extraction using edge detection and spatial voting**
Sirmacek B., Ünsalan C.
2010 20th International Conference on Pattern Recognition, ICPR 2010, İstanbul, Turkey, 23 - 26 August 2010, pp.3113-3116
- XXXI. **Binary and ternary coded structured light 3D scanner for shiny objects**
Benveniste R., Ünsalan C.
25th International Symposium on Computer and Information Sciences, ISCIS 2010, London, United Kingdom, 22 - 24 September 2010, pp.241-244
- XXXII. **Detection of kidney stones from X-ray images X-işini imgelerinden böbrek taşının bulunması**
Altıntaş A., Ünsalan C., Keskin A. Ü., Yencilek F.
2010 15th National Biomedical Engineering Meeting, BIYOMUT2010, Antalya, Turkey, 21 - 24 April 2010
- XXXIII. **Single stripe projection based range scanning of shiny objects under ambient light**
Benveniste R., Ünsalan C.
2009 24th International Symposium on Computer and Information Sciences, ISCIS 2009, Guzelyurt, Cyprus (Gkry), 14 - 16 September 2009, pp.1-6
- XXXIV. **Building detection using local gabor features in very high resolution satellite images**
Sirmacek B., Ünsalan C.
4th International Conference on Recent Advances in Space Technologies 2009, RAST '09, İstanbul, Turkey, 11 - 13 June 2009, pp.283-286
- XXXV. **Damaged building detection in aerial images using shadow information**
Sirmacek B., Ünsalan C.
4th International Conference on Recent Advances in Space Technologies 2009, RAST '09, İstanbul, Turkey, 11 - 13 June 2009, pp.249-252
- XXXVI. **Urban area detection using gabor features and spatial voting Gabor öznelikleri ve uzamsal oylama ile yerleşim bölgelerinin bulunması**

Sirmaçek B., Ünsalan C.

2009 IEEE 17th Signal Processing and Communications Applications Conference, SIU 2009, Antalya, Turkey, 9 - 11 April 2009, pp.812-815

XXXVII. Urban Area Detection Using Gabor Features and Spatial Voting

Sirmacek B., ÜNSALAN C.

IEEE 17th Signal Processing and Communications Applications Conference, Antalya, Turkey, 9 - 11 April 2009, pp.101-104

XXXVIII. Building detection from aerial images using invariant color features and shadow information

Sirmaçek B., Ünsalan C.

2008 23rd International Symposium on Computer and Information Sciences, ISCIS 2008, İstanbul, Turkey, 27 - 29 October 2008

XXXIX. Detecting residential regions in satellite images using local features and graph matching Yerel öznitelikler ve graf eşleştirme ile uydu görüntülerinde yerleşim bölgelerinin bulunması

Sirmaçek B., Ünsalan C.

2008 IEEE 16th Signal Processing, Communication and Applications Conference, SIU, Aydın, Turkey, 20 - 22 April 2008

XL. Detecting Residential Regions in Satellite Images using Local Features and Graph Matching

Surmacek B., Uensalan C.

IEEE 16th Signal Processing and Communications Applications Conference, Aydın, Turkey, 20 - 22 April 2008, pp.96-99

XLl. Measuring land development in Urban regions using graph theoretical features

Ünsalan C.

3rd International Conference on Recent Advances in Space Technologies, RAST 2007, İstanbul, Turkey, 14 - 16 June 2007, pp.279-284

XLII. Detecting changes in multispectral satellite images using time dependent angle vegetation indices

Ünsalan C.

3rd International Conference on Recent Advances in Space Technologies, RAST 2007, İstanbul, Turkey, 14 - 16 June 2007, pp.345-348

XLIII. Using color indices to overcome the scattering problem in line laser scanners Çizgi lazer tarama sistemlerinde parlama probleminin çözümü için renk indislerinin kullanımı

Benveniste R., Ünsalan C.

2006 IEEE 14th Signal Processing and Communications Applications, Antalya, Turkey, 17 - 19 April 2006, vol.2006

XLIV. Change detection in high resolution satellite imagery using graph theoretical features Yüksek çözünürlüklü uydu görüntülerinden graf teorisine dayanan öznitelikler ile değişimlerin bulunması

Ünsalan C.

2006 IEEE 14th Signal Processing and Communications Applications, Antalya, Turkey, 17 - 19 April 2006, vol.2006

XLV. Using color indices to overcome the scattering problem in line laser scanners

Benveniste R., ÜNSALAN C.

IEEE 14th Signal Processing and Communications Applications, Antalya, Turkey, 16 - 19 April 2006, pp.441-442

XLVI. Segmenting free-form 3D objects by a function representation in spherical coordinates

Sertel O., Ünsalan G.

ISCIS 2006: 21th International Symposium on Computer and Information Sciences, İstanbul, Turkey, 1 - 03 November 2006, pp.343-352

XLVII. Change detection in high resolution satellite imagery using graph theoretical features

ÜNSALAN C.

IEEE 14th Signal Processing and Communications Applications, Antalya, Turkey, 16 - 19 April 2006, pp.81-84

XLVIII. Range image registration with edge detection in spherical coordinates

Sertel O., Ünsalan C.

International Workshop on Multimedia Content Representation, Classification and Security, MRCS 2006, İstanbul, Turkey, 11 - 13 September 2006, pp.745-752

XLIX. A system to detect houses and residential street networks in multispectral satellite images

Ünsalan C., Boyer K. L.

Proceedings of the 17th International Conference on Pattern Recognition, ICPR 2004, Cambridge, United Kingdom, 23 - 26 August 2004, vol.3, pp.49-52

L. A theoretical and experimental investigation of graph theoretical measures for land development in satellite imagery

Ünsalan C., Boyer K. L.

Proceedings of the 17th International Conference on Pattern Recognition, ICPR 2004, Cambridge, United Kingdom, 23 - 26 August 2004, vol.2, pp.64-67

LI. Linearized Vegetation Indices Using a Formal Statistical Framework

Ünsalan C., Boyer K. L.

2003 IGARSS: Learning From Earth's Shapes and Colours, Toulouse, France, 21 - 25 July 2003, vol.2, pp.982-984

LII. Classifying land development in high resolution satellite images using straight line statistics

ÜNSALAN C., Boyer K.

16th International Conference on Pattern Recognition (ICPR), QUEBEC CITY, Canada, 11 - 15 August 2002, pp.127-130

LIII. Shapes of features and a modified measure for linear discriminant analysis

ÜNSALAN C., Ercil A.

15th International Conference on Pattern Recognition (ICPR-2000), Barcelona, Spain, 3 - 07 September 2000, pp.410-413

Supported Projects

Ünsalan C., EU Supported Other Project, ForestMap – The next generation of forest maps - adapting a Nordic success story across the globe, 2022 - 2025

Ünsalan C., TUBITAK Project, Development of Intelligent Earthquake Vibration Sensor System, 2023 - 2024

Ünsalan C., TUBITAK Project, Perakende Sektöründe Gömülü Sistem ile Raf Kontrolü, 2019 - 2022

Ünsalan C., Project Supported by Higher Education Institutions, Embedded system based probabilistic object tracking using UAV images, 2019 - 2021

Ünsalan C., TUBITAK Project, Olasılıksal Yöntemler ile Uydu Görüntüleri ve Üç Boyut Verisinden Nesne Bulmak, 2014 - 2018

Ünsalan C., TUBITAK Project, Aktif Hidrolik Takoz Tasarımı, 2015 - 2017

Ünsalan C., Akgün M. A., TUBITAK Project, Designing and development of a biomechatronic reptile robot, 2014 - 2017

Ünsalan C., German International Cooperation Center (GIZ) Supported Project, Enhanced change detection accuracy by integrated 3 D information and remote sensing data, 2011 - 2014

Ünsalan C., TUBITAK Project, Designing a range scanner using color coded structured light, 2009 - 2011

Ünsalan C., Municipality, Using computer vision techniques to assign land use in satellite images, 2008 - 2009

Ünsalan C., Erçil F. A., EU Supported Other Project, Automatic inspection of metallic surfaces, 2006 - 2008

Ünsalan C., TUBITAK Project, Change detection and analysis of the change on high resolution satellite imagery, 2005 - 2008

Ünsalan C., Kurnaz I., Development Agency, A study of transcriptional profiling of gene expression in metastatic tumors using integrated bioinformatics approach and drug target identification, 2005 - 2008

Ünsalan C., Municipality, Pixel based change detection using multi spectral high resolution satellite imagery, 2006 - 2007

Ünsalan C., Boyer K., Project Supported by Private Organizations in Other Countries, Multi spectral spatiotemporal image understanding for change detection and analysis, 2000 - 2002

Ünsalan C., Erçil F. A., TÜBİTAK International Bilateral Joint Cooperation Program Project, A new implicit polynomial technology for advanced manufacturing, 1998 - 2000

Ünsalan C., Erçil F. A., TUBITAK Project, Rotation and scale invariant object recognition and automated tolerance control, 1998 - 2000

Ünsalan C., Erçil F. A., EU Supported Other Project, ST JOSEPH 2000 A new generation woodworking machinery and advanced distributed system with vision technology for agile furniture factory and JIT enterprise, 1997 - 1999

Patent

Ünsalan C., Bir yüzey tarama sistemi, Patent, CHAPTER H Electricity, The Invention Registration Number: TR 2010 11109 B , Standard Registration, 2010

Scientific Consultations

Migros, Project Consultancy, Marmara University, Faculty of Engineering, Electrical and Electronics Engineering, Turkey, 2018 - 2019

Milsoft, Project Consultancy, Yeditepe University, Faculty Of Engineering-Architecture, Department Of Electrical And Electronics Engineering, Turkey, 2010 - 2011

Texas Instruments, Scientific Consultancy, Yeditepe University, Faculty Of Engineering-Architecture, Department Of Electrical And Electronics Engineering, Turkey, 2010 - 2010

Metrics

Publication: 111

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H-Index (Scopus): 17

Scholarships

The Ohio State University - Honda Corporation Fellowship, Other International Organizations, 2002 - 2003