

Prof. ÜNAL ERKAN MUMCUOĞLU

Personal Information

Office Phone: [+90 312 210 3753](tel:+903122103753)

Email: merkan@metu.edu.tr

Web: <https://avesis.metu.edu.tr/merkan>

International Researcher IDs

ScholarID: h3t8UeMAAAAJ

ORCID: 0000-0003-1037-093X

Publons / Web Of Science ResearcherID: B-5480-2012

ScopusID: 56198552400

Yoksis Researcher ID: 11953

Education Information

Doctorate, University of Southern California, Electrical Engineering, United States Of America 1990 - 1994

Postgraduate, Ihsan Dogramaci Bilkent University, Institute Of Engineering And Natural Sciences, Elektrik Ve Elektronik Mühendisliği (YL) (Tezli), Turkey 1987 - 1990

Undergraduate, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, Turkey 1982 - 1987

Foreign Languages

English, B2 Upper Intermediate

Research Areas

Biomedical Engineering, Biomedical Image Processing, Engineering and Technology

Academic Titles / Tasks

Professor, Middle East Technical University, Graduate School of Informatics, Medical Informatics, 2013 - Continues

Associate Professor, Middle East Technical University, Graduate School of Informatics, Information Systems, 2008 - 2013

Assistant Professor, Middle East Technical University, Graduate School of Informatics, Information Systems, 2002 - 2008

Academic and Administrative Experience

Middle East Technical University, Graduate School of Informatics, Medical Informatics, 2005 - 2008

Advising Theses

MUMCUOĞLU Ü. E., A comparison of deep neural network architectures for COVID-19 detection using CT chest images,

Postgraduate, M.TUNAHAN(Student), 2022

MUMCUOĞLU Ü. E., An emotion recognition method with low spec ECG and EEG devices, Postgraduate, E.KUTLU(Student), 2022

MUMCUOĞLU Ü. E., Automatic segmentation of mitochondria in scanning electron microscopy images, Postgraduate, M.ÇAĞRI(Student), 2021

MUMCUOĞLU Ü. E., Single-image bayesian restoration and multi-image super-resolution restoration for b-mode ultrasound images using an accurate system model, Doctorate, M.Cüneyitoğlu(Student), 2019

MUMCUOĞLU Ü. E., A deep learning approach to surface reconstruction for surgical navigation during laparoscopic, endoscopic or robotic surgery, Postgraduate, A.Zabardast(Student), 2019

MUMCUOĞLU Ü. E., Semi-automatic segmentation of mitochondria on transmission electron microscopy images using live-wire and surface dragging methods, Postgraduate, M.FARZIN(Student), 2017

MUMCUOĞLU Ü. E., Semi-automatic segmentation of mitochondria on electron microscopy images using kalman filtering approach, Postgraduate, A.Mohammadi(Student), 2016

MUMCUOĞLU Ü. E., Detection and segmentation of mitochondria from electron microscope tomography images, Doctorate, F.SERDAR(Student), 2016

MUMCUOĞLU Ü. E., Automatic segmentation of cristae membranes in 3d electron microscopy tomography images using artificial neural networks, Postgraduate, M.ALPHAN(Student), 2016

MUMCUOĞLU Ü. E., Semi-automatic/user-guided segmentation of mitochondria on transmission electron microscopy images, Postgraduate, M.ÇÖÇELLİ(Student), 2015

MUMCUOĞLU Ü. E., Predicting the level of knee osteoarthritis by using dimension reduction techniques on time series features of gait data, Postgraduate, S.CANER(Student), 2013

ÖZKAN YILDIRIM S., MUMCUOĞLU Ü. E., Analyses of factors affecting acceptance of homecare technologies by patients with chronic diseases, Postgraduate, A.KUTLAY(Student), 2012

KANOĞLU U., MUMCUOĞLU Ü. E., Automatic Bayesian segmentation of human facial tissue using 3D MR-CT fusion by incorporating models of measurement blurring, noise and partial volume, Doctorate, E.Şener(Student), 2012

MUMCUOĞLU Ü. E., Segmentation of human facial muscles on ct and mri data using level set and bayesian methods, Postgraduate, H.Emre(Student), 2011

MUMCUOĞLU Ü. E., Computational representation of protein sequences for homology detection and classification, Doctorate, H.Oğul(Student), 2006

MUMCUOĞLU Ü. E., A geographic information system application for ambulance routing services : a prototype, Postgraduate, B.Güliden(Student), 2004

MUMCUOĞLU Ü. E., Interactive volume rendering for medical images, Postgraduate, K.Orhun(Student), 2004

MUMCUOĞLU Ü. E., Design and implementation of mobile patient data collection and transmission for an emergency ambulance, Postgraduate, E.Kösen(Student), 2004

MUMCUOĞLU Ü. E., Mumcuoğlu Ü., Analysis of microarray images using fcm and k-means clustering algorithms, Postgraduate, E.Ergüt(Student), 2003

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Single-image Bayesian Restoration and Multi-image Super-resolution Restoration for B-mode Ultrasound Using an Accurate System Model Involving Correlated Nature of the Speckle Noise.**
Cüneyitoğlu Ö., Mumcuoğlu Ü. E., Sancak İ.
Ultrasonic imaging, vol.41, pp.368-386, 2019 (SCI-Expanded)
- II. **A validated active contour method driven by parabolic arc model for detection and segmentation of mitochondria**
Tasel S. F., Mumcuoğlu E. U., Hassanpour R. Z., Perkins G.
JOURNAL OF STRUCTURAL BIOLOGY, vol.194, pp.253-271, 2016 (SCI-Expanded)
- III. **Bayesian segmentation of human facial tissue using 3D MR-CT information fusion, resolution enhancement and partial volume modelling**
Şener E., Mumcuoğlu E. U., Hamcan S.

COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE, vol.124, pp.31-44, 2016 (SCI-Expanded)

- IV. **Image Analysis for Cystic Fibrosis: Computer-Assisted Airway Wall and Vessel Measurements from Low-Dose, Limited Scan Lung CT Images**
Mumcuoglu E. U., Long F. R., Castile R. G., Gurcan M. N.
JOURNAL OF DIGITAL IMAGING, vol.26, no.1, pp.82-96, 2013 (SCI-Expanded)
- V. **Automatic segmentation of human facial tissue by MRI-CT fusion: A feasibility study**
Kale E. H., Mumcuoglu E. U., HAMCAN S.
COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE, vol.108, no.3, pp.1106-1120, 2012 (SCI-Expanded)
- VI. **Computerized detection and segmentation of mitochondria on electron microscope images**
Mumcuoglu E. U., Hassanpour R., Tasel S. F., Perkins G., Martone M. E., Gurcan M. N.
JOURNAL OF MICROSCOPY, vol.246, pp.248-265, 2012 (SCI-Expanded)
- VII. **Computerized scar detection on renal cortical scintigraphy images**
MUMCUOĞLU Ü. E., Bozkurt F. M., Aslan M., Sener E., UĞUR Ö.
NUCLEAR MEDICINE COMMUNICATIONS, vol.32, no.11, pp.1070-1078, 2011 (SCI-Expanded)
- VIII. **Development of a Visio-Haptic Integrated Dental Training Simulation System**
Konukseven E. İ., Önder M. E., Mumcuoğlu Ü. E., Kişnişçi R. S.
JOURNAL OF DENTAL EDUCATION, vol.74, pp.880-891, 2010 (SCI-Expanded)
- IX. **Subcellular localization prediction with new protein encoding schemes**
Ogul H., Mumcuoglu E. U.
IEEE-ACM TRANSACTIONS ON COMPUTATIONAL BIOLOGY AND BIOINFORMATICS, vol.4, no.2, pp.227-232, 2007 (SCI-Expanded)
- X. **A discriminative method for remote homology detection based on n-peptide compositions with reduced amino acid alphabets**
OĞUL H., Mumcuoglu E. U.
BIOSYSTEMS, vol.87, no.1, pp.75-81, 2007 (SCI-Expanded)
- XI. **Sampling of sentinel nodes: A simulation study**
Celasun B., Mumcuoglu E. U., Kalkan H.
ANALYTICAL AND QUANTITATIVE CYTOLOGY AND HISTOLOGY, vol.28, no.6, pp.346, 2006 (SCI-Expanded)
- XII. **SVM-based detection of distant protein structural relationships using pairwise probabilistic suffix trees**
Ogul H., Mumcuoglu E. U.
COMPUTATIONAL BIOLOGY AND CHEMISTRY, vol.30, no.4, pp.292-299, 2006 (SCI-Expanded)
- XIII. **Protein solvent accessibility prediction using support vector machines and sequence conservations**
Ogul H., Mumcuoglu E. U.
ARTIFICIAL INTELLIGENCE AND NEURAL NETWORKS, vol.3949, pp.141-148, 2006 (SCI-Expanded)
- XIV. **Discriminative remote homology detection using maximal unique sequence matches**
OGUL H., Mumcuoglu U.
ADVANCES IN INTELLIGENT DATA ANALYSIS VI, PROCEEDINGS, vol.3646, pp.283-292, 2005 (SCI-Expanded)
- XV. **FAST GRADIENT-BASED METHODS FOR BAYESIAN RECONSTRUCTION OF TRANSMISSION AND EMISSION PET IMAGES**
MUMCUOĞLU E., LEAHY R., CHERRY S., ZHOU Z.
IEEE TRANSACTIONS ON MEDICAL IMAGING, vol.13, no.4, pp.687-701, 1994 (SCI-Expanded)

Books & Book Chapters

- I. **Ultrasonik Tıbbi Görüntülemenin Temelleri ve Görüntü Analizinde Yeni Yaklaşımlar**
Cüneyitoğlu Özkul M., MUMCUOĞLU Ü. E.
in: Biyomedikal Mühendisliği ve Uygulamaları, Eroğul Osman, Koçak Onur, Editor, TMMOB, EMO Ankara Şubesi, Ankara, pp.319-348, 2019
- II. **Chapter 13: Acceptance of Mobile Homecare Technologies: An Empirical Investigation on Patients**

with Chronic Diseases

Özkan Yıldırım S., Kutluay A., Mumcuoğlu Ü. E.

in: CURRENT AND EMERGING M-HEALTH TECHNOLOGIES, sezgin,e yıldırım,s,i yıldırım,s sümür,e., Editor, Springer, London/Berlin , Berlin, pp.201-222, 2018

Refereed Congress / Symposium Publications in Proceedings

- I. **Automatic detection of mitochondria from electron microscope tomography images: a curve fitting approach**
Tasel S. F., HASSANPOUR R., Mumcuoglu E. U., Perkins G., Martone M.
Conference on Medical Imaging - Image Processing, California, United States Of America, 16 - 18 February 2014, vol.9034
- II. **Image analysis for cystic fibrosis: Automatic lung airway wall and vessel measurement on CT images**
MUMCUOĞLU Ü. E.
2009 Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 3 - 06 September 2009
- III. **Accurate geometric and physical response modelling for statistical image reconstruction in high resolution PET**
MUMCUOĞLU Ü. E., LEAHY R. M., CHERRY S. R., HOFFMAN E.
IEEE Nuclear Science Symposium, 1996, California, United States Of America, 2 - 09 November 1996, vol.3, pp.1569-1573

Supported Projects

MUMCUOĞLU Ü. E., CÜNEYİTOĞLU ÖZKUL M., Project Supported by Higher Education Institutions, Serbest-el taramayla elde edilen B-modu ultrason videodan 3B hacimsel görüntü oluşturma, görüntü onarma, ters-evrişim ve çözünürlük-üstü uygulamalar, 2018 - 2019

MUMCUOĞLU Ü. E., TUBITAK Project, AĞIZ 3 BOYUTLU GÖRÜNTÜSÜNÜ DIŞ ŞABLONU İLE EŞLEŞTİREREK DURUM TESPİTİ YAPABİLECEK TANI VE TEŞHİS KOYMAYA DOĞRU AKILLI ÖĞRENME ÖZELLİKLERİ EKLENEN YAZILIM PLATFORMU GELİŞTİRİLMESİ, 2016 - 2016

MUMCUOĞLU Ü. E., Taşel S. F., Project Supported by Higher Education Institutions, Elektron Mikroskop Tomografisi Görüntülerinde Mitokondri Tespiti ve Bölütlemesi, 2014 - 2014

Metrics

Publication: 20

Citation (WoS): 342

Citation (Scopus): 364

H-Index (WoS): 8

H-Index (Scopus): 9