

Prof. Zümray Ölmez

Personal Information

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Education Information

Doctorate, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, Turkey 1995 - 2000

Post Graduate, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, Turkey 1992 - 1995

Under Graduate, İstanbul Teknik Üniversitesi, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, Turkey 1988 - 1992

Foreign Languages

German

English, C1 Advanced

Certificates, Courses and Trainings

Other, Modulations of Neuronal Signaling: Implications for Visual Perception, NATO ASI Summer School, 2000

Dissertations

Doctorate, Yapay sinir ağları ve genetik algoritmalar kullanılarak EKG vurularının sınıflandırılması, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, 2000

Post Graduate, Bulanık (Fuzzy) sınıflayıcılarla EKG şekil bozukluklarının belirlenmesi, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektronik Ve Haberleşme Mühendisliği Anabilim Dalı, 1995

Research Areas

Technical Sciences, Computer Sciences, bioinformatics, Artificial Intelligence, Computer Learning and Pattern Recognition, Biomedical Engineering, Biomedical Image Processing, Biosignal Processing

Academic Titles / Tasks

Professor, İstanbul Teknik Üniversitesi, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, 2009 - Continues

Associate Professor, İstanbul Teknik Üniversitesi, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, 2003 - 2009
Assistant Professor, İstanbul Teknik Üniversitesi, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, 2001 - 2003
Research Assistant, İstanbul Teknik Üniversitesi, Elektrik-Elektronik Fakültesi, Elektronik Ve Haberleşme Mühendisliği Bölümü, 1992 - 2001

Professional Experience

Fakülte Kurulu Üyesi, İstanbul Technical University, Elektrik-Elektronik, Elektronik Ve Haberleşme Mühendisliği, 2006 - 2009
Staj Başkanı, İstanbul Technical University, Elektrik-Elektronik, Elektronik Ve Haberleşme Mühendisliği, 2000 - 2004
Trainee, TRT İstanbul Radyosu, 1991 - 1991
Trainee, 1990 - 1990
Trainee, IBM International Business Machines Turkey, 1989 - 1989

Courses

Biyolojik İşaretlerin Oluşumu ve Algılama Yöntemleri, Under Graduate, 2016 - 2017
MEDICAL DECISION MAKING, Post Graduate, 2015 - 2016, 2016 - 2017

Jury Memberships

Doctoral Examination, Doktora Yeterlik Sınavı, Yıldız Teknik Üniversitesi - Elektronik ve Haberleşme Mühendisliği Bölümü, November, 2017
Doctoral Examination, Doktora Yeterlik Sınavı, Yıldız Teknik Üniversitesi - Elektronik ve Haberleşme Mühendisliği Bölümü, November, 2017
Doctoral Examination, Doktora Yeterlik Sınavı, Yıldız Teknik Üniversitesi - Elektronik ve Haberleşme Mühendisliği Bölümü, November, 2017
Doctoral Examination, Doktora Yeterlik Sınavı Jürisi, Gebze Teknik Üniversitesi - Elektronik Mühendisliği, June, 2017
Associate Professor Exam, Doçentlik Sınav Jürisi, Üniversitelerarası Kurul, April, 2017
Post Graduate, Tez Savunma (Y. Lisans), Sabancı Üniversitesi - Elektronik Mühendisliği, August, 2016
Associate Professor Exam, Doçentlik Sınav Jürisi, Üniversitelerarası Kurul, April, 2016
Doctorate, Tez Savunma (Doktora), Sabancı Üniversitesi - Elektronik Mühendisliği, February, 2014

Designed Lessons

Ölmez Z., Medical Decision Making, Post Graduate, 2015 - 2016
Ölmez Z., Pattern Recognition by Neural Networks, Post Graduate, 2002 - 2003

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

- I. **Comparative analysis of MABC with KNN, SOM, and ACO algorithms for ECG heartbeat classification**
DİLMAÇ S., DOKUR Z., Ölmez T.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.26, no.6, pp.2819-2830, 2018
(Journal Indexed in SCI)
- II. **Protein fold classification with Grow-and-Learn network**

Polat O., Dokur Z.

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.25, no.2, pp.1184-1196, 2017
(Journal Indexed in SCI)

- III. **Protein Fold Recognition Using Self-Organizing Map Neural Network**
Polat O., Dokur Z.
CURRENT BIOINFORMATICS, vol.11, no.4, pp.451-458, 2016 (Journal Indexed in SCI)
- IV. **A novel steady-state visually evoked potential-based brain-computer interface design: Character Plotter**
Iscan Z., DOKUR Z.
BIOMEDICAL SIGNAL PROCESSING AND CONTROL, vol.10, pp.145-152, 2014 (Journal Indexed in SCI)
- V. **Classification of electroencephalogram signals with combined time and frequency features**
Iscan Z., DOKUR Z., DEMIRALP T.
EXPERT SYSTEMS WITH APPLICATIONS, vol.38, no.8, pp.10499-10505, 2011 (Journal Indexed in SCI)
- VI. **Dimension reduction by a novel unified scheme using divergence analysis and genetic search**
Korurek M., YUKSEL A., DOKUR Z., Ölmez T.
DIGITAL SIGNAL PROCESSING, vol.20, no.6, pp.1535-1546, 2010 (Journal Indexed in SCI)
- VII. **Tumor detection by using Zernike moments on segmented magnetic resonance brain images**
Iscan Z., DOKUR Z., OELMEZ T.
EXPERT SYSTEMS WITH APPLICATIONS, vol.37, no.3, pp.2540-2549, 2010 (Journal Indexed in SCI)
- VIII. **Retrospective correction of near field effect of X-ray source in radiographic images by using genetic algorithms**
Koruerek M., YUEKSEL A., ISCAN Z., DOKUR Z., OELMEZ T.
EXPERT SYSTEMS WITH APPLICATIONS, vol.37, no.3, pp.1946-1954, 2010 (Journal Indexed in SCI)
- IX. **Respiratory sound classification by using an incremental supervised neural network**
Dokur Z.
PATTERN ANALYSIS AND APPLICATIONS, vol.12, no.4, pp.309-319, 2009 (Journal Indexed in SCI)
- X. **Medical image segmentation with transform and moment based features and incremental supervised neural network**
Iscan Z., YUKSEL A., DOKUR Z., KORUREK M., Ölmez T.
DIGITAL SIGNAL PROCESSING, vol.19, no.5, pp.890-901, 2009 (Journal Indexed in SCI)
- XI. **Feature determination for heart sounds based on divergence analysis**
Dokur Z., Ölmez T.
DIGITAL SIGNAL PROCESSING, vol.19, no.3, pp.521-531, 2009 (Journal Indexed in SCI)
- XII. **Heart sound classification using wavelet transform and incremental self-organizing map**
Dokur Z., OLMER T.
DIGITAL SIGNAL PROCESSING, vol.18, no.6, pp.951-959, 2008 (Journal Indexed in SCI)
- XIII. **Tissue segmentation in ultrasound images by using genetic algorithms**
Dokur Z., Ölmez T.
EXPERT SYSTEMS WITH APPLICATIONS, vol.34, no.4, pp.2739-2746, 2008 (Journal Indexed in SCI)
- XIV. **A unified framework for image compression and segmentation by using an incremental neural network**
Dokur Z.
EXPERT SYSTEMS WITH APPLICATIONS, vol.34, no.1, pp.611-619, 2008 (Journal Indexed in SCI)
- XV. **An incremental neural network for tissue segmentation in ultrasound images**
Kurnaz M. N., DOKUR Z., Olmez T.
COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE, vol.85, no.3, pp.187-195, 2007 (Journal Indexed in SCI)
- XVI. **Segmentation of remote-sensing images by incremental neural network**
Kurnaz M., DOKUR Z., Olmez T.
PATTERN RECOGNITION LETTERS, vol.26, no.8, pp.1096-1104, 2005 (Journal Indexed in SCI)
- XVII. **Classification of respiratory sounds by using an artificial neural network**
Dokur Z., Olmez T.

INTERNATIONAL JOURNAL OF PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE, vol.17, no.4, pp.567-580, 2003 (Journal Indexed in SCI)

- XVIII. **Application of InP neural network to ECG beat classification**
Olmez T., Dokur Z.
NEURAL COMPUTING & APPLICATIONS, vol.11, pp.144-155, 2003 (Journal Indexed in SCI)
- XIX. **Segmentation of MR and CT images by using a quantiser neural network**
Dokur Z., Olmez T.
NEURAL COMPUTING & APPLICATIONS, vol.11, pp.168-177, 2003 (Journal Indexed in SCI)
- XX. **Classification of heart sounds using an artificial neural network**
Olmez T., DOKUR Z.
PATTERN RECOGNITION LETTERS, vol.24, pp.617-629, 2003 (Journal Indexed in SCI)
- XXI. **Segmentation of MR and CT images using a hybrid neural network trained by genetic algorithms**
Dokur Z.
NEURAL PROCESSING LETTERS, vol.16, no.3, pp.211-225, 2002 (Journal Indexed in SCI)
- XXII. **Segmentation of ultrasound images by using a hybrid neural network**
Dokur Z., Olmez T.
PATTERN RECOGNITION LETTERS, vol.23, no.14, pp.1825-1836, 2002 (Journal Indexed in SCI)
- XXIII. **Recursive form of the discrete Fourier transform for two-dimensional signals**
Dokur Z., Olmez T.
INTELLIGENT DATA ENGINEERING AND AUTOMATED LEARNING - IDEAL 2002, vol.2412, pp.551-556, 2002 (Journal Indexed in SCI)
- XXIV. **ECG beat classification by a novel hybrid neural network**
Dokur Z., Olmez T.
COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE, vol.66, pp.167-181, 2001 (Journal Indexed in SCI)
- XXV. **Comparison of discrete wavelet and Fourier transforms for ECG beat classification**
Dokur Z., Olmez T., YAZGAN E.
ELECTRONICS LETTERS, vol.35, no.18, pp.1502-1504, 1999 (Journal Indexed in SCI)
- XXVI. **Detection of ECG waveforms by neural networks**
Dokur Z., OLMEZ T., YAZGAN E., ERSOY O.
MEDICAL ENGINEERING & PHYSICS, vol.19, no.8, pp.738-741, 1997 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- I. **Motor Imagery Based EEG Classification by Using Common Spatial Patterns and Convolutional Neural Networks**
Korhan N., Dokur Z., Ölmez T.
International Scientific Meeting on Electrical-Electronics and Biomedical Engineering and Computer Science (EBBT), İstanbul, Turkey, 24 - 26 April 2019
- II. **X-Ray Chest Image Classification by A Small-Sized Convolutional Neural Network**
Kesim E., Dokur Z., Ölmez T.
International Scientific Meeting on Electrical-Electronics and Biomedical Engineering and Computer Science (EBBT), İstanbul, Turkey, 24 - 26 April 2019
- III. **Fuzzy Local Information C-means Algorithm for Histopathological Image Segmentation**
Cetin M., Dokur Z., Ölmez T.
International Scientific Meeting on Electrical-Electronics and Biomedical Engineering and Computer Science (EBBT), İstanbul, Turkey, 24 - 26 April 2019
- IV. **Protein Fold Classification using Kohonen's Self-Organizing Map**
OZBUDAK O., Dokur Z.
2nd International Work-Conference on Bioinformatics and Biomedical Engineering (IWBBIO), Granada, Nicaragua, 7 - 09 April 2014, pp.903-911

- V. **Classification of EEG in a steady state visual evoked potential based brain computer interface experiment**
 İscan Z., Özkaya Ö., Dokur Z.
 10th International Conference on Adaptive and Natural Computing Algorithms, ICANNGA 2011, Ljubljana, Slovenia, 14 - 16 April 2011, pp.81-88
- VI. **Modeling of Inhomogeneous Intensity Distribution of X-Ray Source in Radiographic Images**
 YUKSEL A., Dokur Z., KORUREK M., Ölmez T.
 23rd International Symposium on Computer and Information Sciences, İstanbul, Turkey, 27 - 29 October 2008, pp.515-519
- VII. **Segmentation of medical images by using wavelet transform and incremental self-organizing map**
 Dokur Z., İscan Z., Ölmez T.
 5th Mexican International Conference on Artificial Intelligence (MICAI 2006), Apizaco, Mexico, 13 - 17 November 2006, vol.4293, pp.800-802
- VIII. **Classification of heart sounds by using wavelet transform**
 SAY O., Dokur Z., Ölmez T.
 24th Annual International Conference of the Engineering-in-Medicine-and-Biology-Society/Annual Fall Meeting of the Biomedical-Engineering-Society (EMBS 2002 BMES), Texas, United States Of America, 23 - 26 October 2002, pp.128-129
- IX. **Classification of tissues in MR images by using discrete cosine transform**
 Dokur Z., KURNAZ M., Ölmez T.
 24th Annual International Conference of the Engineering-in-Medicine-and-Biology-Society/Annual Fall Meeting of the Biomedical-Engineering-Society (EMBS 2002 BMES), Texas, United States Of America, 23 - 26 October 2002, pp.1101-1102
- X. **Classification of MR and CT images using genetic algorithms**
 Dokur Z., OLMEZ T., YAZGAN E.
 10th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society, HONG KONG, PEOPLES R CHINA, 29 October - 01 November 1998, vol.20, pp.1418-1421
- XI. **Classification of ECG waveforms using a novel neural network**
 OLMEZ T., Dokur Z., YAZGAN E.
 10th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society, HONG KONG, PEOPLES R CHINA, 29 October - 01 November 1998, vol.20, pp.1616-1619
- XII. **Classification of ECG waveforms by using genetic algorithms**
 OLMEZ T., Dokur Z., YAZGAN E.
 International Conference of the IEEE Engineering-in-Medicine-and-Biology-Society, Illinois, United States Of America, 30 October - 02 November 1997, vol.19, pp.92-94
- XIII. **Classification of magnetic resonance images by using genetic algorithms**
 Dokur Z., OLMEZ T., YAZGAN E.
 International Conference of the IEEE Engineering-in-Medicine-and-Biology-Society, Illinois, United States Of America, 30 October - 02 November 1997, vol.19, pp.1391-1393
- XIV. **MR image classification by the neural network and the genetic algorithms**
 OLMEZ T., Dokur Z., YAZGAN E.
 18th Annual International Conference of IEEE Engineering-in-Medicine-and-Biology-Society, Amsterdam, Netherlands, 31 October - 03 November 1996, vol.18, pp.1140-1141

Supported Projects

Ölmez Z., Türer C., Project Supported by Higher Education Institutions, Baskılı Devre Kartına PCB Montajı Yapılmış BGA Malzemelerde Derin Öğrenme Metoduyla Lehim Bağlantı Hatalarının Belirlenmesi, 2019 - 2020

Ölmez Z., Project Supported by Higher Education Institutions, Protein Fold Classification Using Kokonen's Self-Organizing Map, 2014 - 2018

Ölmez Z., Project Supported by Higher Education Institutions, Makro ve Mikro Protein Yapıları Kullanılarak Proteinlerin Analiz Edilmesi ve Sınıflandırılması, 2013 - 2015

Ölmez Z., Project Supported by Higher Education Institutions, Beyin Bilgisayar Arayüzleri Tasarımına Uygun Algortimaların Geliştirilmesi, 2010 - 2013

Ölmez Z., Project Supported by Higher Education Institutions, İnsan EEG(elektroensefelogram) Verilerini İstatistiksel Yöntemler ve Yapay Sinir Ağları Kullanarak Analiz Eden,Yorumlayan Sistemler, 2009 - 2011

Ölmez Z., Project Supported by Higher Education Institutions, Biyomedikal Görüntülerde Doku Analizi, 2004 - 2005

Activities in Scientific Journals

Neural Processing Letters, Committee Member, 2008 - Continues

Scientific Refereeing

Turkish Journal of Electrical Engineering and Computer Sciences, SCI Journal, December 2017

Turkish Journal of Electrical Engineering and Computer Sciences, SCI Journal, December 2017

Turkish Journal of Electrical Engineering and Computer Sciences, SCI Journal, November 2017
November 2017

Simulation: Transactions of the Society for Modeling and Simulation International, SCI Journal, July 2017

Turkish Journal of Electrical Engineering and Computer Sciences, SCI Journal, February 2017

Scientific Research / Working Group Memberships

Tıbbi Bilişim ve Sistemler Çalışma Grubu, İSTANBUL TEKNİK ÜNİVERSİTESİ, Turkey, <https://calismagruplari.itu.edu.tr/>,
2009 - Continues

Citations

Total Citations (WOS):781

h-index (WOS):14