

Assoc. Prof. SERAP AYDIN

Personal Information

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Biography

Her research interests are futuristic neuro-marker development and neuro-modelling in the field of behavioral & computational neuroscience. She has studied on neuro-physiological experimental paradigms and data processing/analysis methods as well as smart classifiers in diagnose.

Foreign Languages

English, C1 Advanced

Certificates, Courses and Trainings

Health&Medicine, 2.TEORİ-PRATİK YÖNLERİ İLE NÖROPLASTİSİTE NÖROMODÜLASYON KURSU, Türk Nöroloji Derneği (Turkish Neurology Society), 2020

Education Management and Planning, EĞİTİMCİLERİN EĞİTİMİ, Hacettepe Üniversitesi, Yaşam Boyu Öğrenme Merkezi, 2018

Health&Medicine, İYİ KLİNİK UYGULAMALAR, Bahçeşehir Üniversitesi, Tıp Fakültesi, 2013

Dissertations

Doctorate, Extraction of auditory evoked potentials from ongoing EEG, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Biomedical Engineering, 2005

Research Areas

Medicine, Health Sciences, Fundamental Medical Sciences, Biophysics, Biostatistics and Medical Informatics, Internal Medicine Sciences, Psychiatry

Courses

Biomedical Signal Analysis, Under Graduate, 2020 - 2021

Elektriksel Korteks Aktiviteleri: EEG ve Uyandırılmış Potansiyeller, Under Graduate, 2020 - 2021

Electrical Correlates of the Perceptual Functions in the Cortex, Under Graduate, 2020 - 2021

Electrical Correlates of the Perceptual Functions in the Cortex, Under Graduate, 2020 - 2021

Electrical Activity of the Cortex: EEG and Evoked Potentials, Under Graduate, 2020 - 2021

Biyomedikal Sinyal Analizi, Under Graduate, 2020 - 2021

Korteksteki Algılama Fonksiyonlarının Elektriksel İlintileri, Under Graduate, 2020 - 2021
Innovative Emotion Recognition Paradigms, Under Graduate, 2020 - 2021
Davranışsal ve Hesaplamalı Sinirbilim (Behavioural and Computational Neuroscience), Doctorate, 2020 - 2021
Electrical Simulation of Circulation and Respiratory Systems, Under Graduate, 2020 - 2021
Futuristic Technological Trends, Under Graduate, 2020 - 2021
Futuristik Teknolojik Gelişmeler (Futuristic Technological Trends), Under Graduate, 2019 - 2020
Dolaşım ve Solunum Sistemlerinin Elektriksel Simülasyonu, Under Graduate, 2017 - 2018

Advising Theses

Aydın S., Smart Classification of Normal and Aggressive Muscle Actions, Post Graduate, K.AYDEMİR(Student), 2018
Aydın S., Entropy Based Methods to Analyze Single Channel Electrophysiological Brain Activities in Discriminating Emotional States, Post Graduate, A.YILDIRIM(Student), 2016
Aydın S., ANOVA Analysis of Phase Synchronization Estimations in Contrasting Emotional States by Means of EEG, Post Graduate, Ö.TIĞLI(Student), 2016
Aydın S., A Review on Brain Connectivity Measurements Used for Emotion Recognition, Post Graduate, F.VOLKAN(Student), 2016
Aydın S., Intercorrelation between singular spectrum of EEG subbands and emotional states, Post Graduate, A.MARAŞ(Student), 2016

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

- I. **Prediction of Reaction Time and Vigilance Variability From Spatio-Spectral Features of Resting-State EEG in a Long Sustained Attention Task**
Torkamani-Azar M., Kanik S. D. , Aydın S., Cetin M.
IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS, vol.24, pp.2550-2558, 2020 (Journal Indexed in SCI)
- II. **Deep Learning Classification of Neuro-Emotional Phase Domain Complexity Levels Induced by Affective Video Film Clips**
AYDIN S.
IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS, vol.24, pp.1695-1702, 2020 (Journal Indexed in SCI)
- III. **Neuro-Cortical Activity Variations Depends on Psycho-Physiological States**
AYDIN S.
ACTA PHYSIOLOGICA, vol.227, pp.98, 2019 (Journal Indexed in SCI)
- IV. **Investigation of Rumination and Distraction Emotion Regulation Strategies from a Neuro-Cognitive Point of View**
AYDIN S., Solak N.
ACTA PHYSIOLOGICA, vol.227, pp.46, 2019 (Journal Indexed in SCI)
- V. **The impact of musical experience on neural sound encoding performance**
AYDIN S., Guducu C., Kutluk F., Oniz A., Ozgoren M.
NEUROSCIENCE LETTERS, vol.694, pp.124-128, 2019 (Journal Indexed in SCI)
- VI. **Comparison of hemispheric asymmetry measurements for emotional recordings from controls**
Aydın S., Demirtaş S., Tunga M. A. , Ateş K.
NEURAL COMPUTING & APPLICATIONS, vol.30, pp.1341-1351, 2018 (Journal Indexed in SCI)
- VII. **Cortical correlations in wavelet domain for estimation of emotional dysfunctions**
Aydın S., Demirtaş S., Yetkin S.
NEURAL COMPUTING & APPLICATIONS, vol.30, pp.1085-1094, 2018 (Journal Indexed in SCI)
- VIII. **Decreased global field synchronization of multichannel frontal EEG measurements in obsessive-compulsive disorders**
Ozcoban M. A. , Tan O., Aydın S., Akan A.

- MEDICAL & BIOLOGICAL ENGINEERING & COMPUTING, vol.56, pp.331-338, 2018 (Journal Indexed in SCI)
- IX. **Best method for analysis of brain oscillations in healthy subjects and neuropsychiatric diseases**
Basar E., Golbasi B. T. , Tulay E., Aydin S., Basar-Eroglu C.
INTERNATIONAL JOURNAL OF PSYCHOPHYSIOLOGY, vol.103, pp.22-42, 2016 (Journal Indexed in SCI)
- X. **Emotion Recognition with Eigen Features of Frequency Band Activities Embedded in Induced Brain Oscillations Mediated by Affective Pictures**
Aydin S., Demirtas S., Ates K., Tunga M. A.
INTERNATIONAL JOURNAL OF NEURAL SYSTEMS, vol.26, 2016 (Journal Indexed in SCI)
- XI. **EEG complexity and frequency in chronic residual schizophrenia**
Tan O., Aydin S., Hizli Sayar G., Gürsoy D.
ANADOLU PSIKIYATRI DERGISI-ANATOLIAN JOURNAL OF PSYCHIATRY, vol.17, pp.385-392, 2016 (Journal Indexed in SCI)
- XII. **Mutual Information Analysis of Sleep EEG in Detecting Psycho-Physiological Insomnia**
Aydin S., Tunga M. A. , Yetkin S.
JOURNAL OF MEDICAL SYSTEMS, vol.39, 2015 (Journal Indexed in SCI)
- XIII. **Classification of Obsessive Compulsive Disorder by EEG Complexity and Hemispheric Dependency Measurements**
Aydin S., Arica N., Ergul E., Tan O.
INTERNATIONAL JOURNAL OF NEURAL SYSTEMS, vol.25, 2015 (Journal Indexed in SCI)
- XIV. **Artificial Apnea Classification with Quantitative Sleep EEG Synchronization**
Aksahin M., Aydin S., Firat H., Eroğul O.
JOURNAL OF MEDICAL SYSTEMS, vol.36, pp.139-144, 2012 (Journal Indexed in SCI)
- XV. **Computer Based Synchronization Analysis on Sleep EEG in Insomnia**
Aydin S.
JOURNAL OF MEDICAL SYSTEMS, vol.35, pp.517-520, 2011 (Journal Indexed in SCI)
- XVI. **Singular Spectrum Analysis of Sleep EEG in Insomnia**
Aydin S., Saraoglu H. M. , Kara S.
JOURNAL OF MEDICAL SYSTEMS, vol.35, pp.457-461, 2011 (Journal Indexed in SCI)
- XVII. **APPLICATION OF LINEAR PROJECTION ALGORITHMS FOR REDUCTION OF BACKGROUND EEG NOISE**
Aydin S.
BIOMEDICAL ENGINEERING-APPLICATIONS BASIS COMMUNICATIONS, vol.22, pp.19-24, 2010 (Journal Indexed in SCI)
- XVIII. **Determination of autoregressive model orders for seizure detection**
Aydin S.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.18, pp.23-30, 2010 (Journal Indexed in SCI)
- XIX. **Log Energy Entropy-Based EEG Classification with Multilayer Neural Networks in Seizure**
Aydin S., Saraoglu H. M. , Kara S.
ANNALS OF BIOMEDICAL ENGINEERING, vol.37, pp.2626-2630, 2009 (Journal Indexed in SCI)
- XX. **THE ROLE OF BIOMEDICAL ENGINEERING PROFESSIONS IN MEDICAL EDUCATION**
Aydin S.
BIOMEDICAL ENGINEERING-APPLICATIONS BASIS COMMUNICATIONS, vol.21, pp.265-270, 2009 (Journal Indexed in SCI)
- XXI. **A new combination: scale-space filtering of projected brain activities**
Aydin S.
MEDICAL & BIOLOGICAL ENGINEERING & COMPUTING, vol.47, pp.435-440, 2009 (Journal Indexed in SCI)
- XXII. **Comparison of Power Spectrum Predictors in Computing Coherence Functions for Intracortical EEG Signals**
Aydin S.
ANNALS OF BIOMEDICAL ENGINEERING, vol.37, pp.192-200, 2009 (Journal Indexed in SCI)
- XXIII. **Tikhonov regularized solutions for improvement of signal-to-noise ratio in case of auditory-evoked**

potentials

Aydin S.

MEDICAL & BIOLOGICAL ENGINEERING & COMPUTING, vol.46, pp.1051-1056, 2008 (Journal Indexed in SCI)

XXIV. Comparison of basic linear filters in extracting auditory Evoked Potentials

Aydin S.

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.16, pp.111-123, 2008 (Journal Indexed in SCI)

Articles Published in Other Journals

I. Obsesif Kompulsif Bozukluk Hastalarında Klinik Değerlendirme Ölçekleri ile EEG Senkronizasyonu Arasındaki Korelasyon

AYDIN S., TAN O., ÖZÇOBAN M. A. , AKAN A.

Sleyman Demirel niversitesi Fen Bilimleri Enstits Dergisi, vol.22, pp.667-670, 2018 (National Refreed University Journal)

II. Electroencephalographic Complexity and Decreased Randomness in Drug-Naive Obsessive-Compulsive Patients

Tan O., Aydin S.

DUSUNEN ADAM-JOURNAL OF PSYCHIATRY AND NEUROLOGICAL SCIENCES, vol.30, pp.101-112, 2017 (Journal Indexed in ESCI)

Refereed Congress / Symposium Publications in Proceedings

I. Spontan Nro-Kortikal Aktivitelerde Bilişsel Duygu Dzenleme Yeteneklerinin Etkisi (Influence of Emotion Regulation Strategies in Spontaneous Neuro-Cortical Activities)

Aydin S., Akin B.

28. IEEE SNYAL İŞLEME ve İLETİŞİM UYGULAMALARI KURULTAYI, Gaziantep, Turkey, 5 - 07 October 2020, pp.1-4

II. Ruminasyon ve Dikkat Dağıtma Duygu Dzenleme Stratejilerinin Nrobilişsel Perspektiften İncelenmesi

AYDIN S., SOLAK RSES N.

45. ULUSAL FZYOLOJ KONGRES, İzmir, Turkey, 31 October - 03 November 2019

III. Psiko-Fizyolojik Duruma Baęlı Nro-Kortikal Aktivite Deęişimleri

AYDIN S.

45. ULUSAL FZYOLOJ KONGRES, İzmir, Turkey, 31 October - 03 November 2019

IV. Prediction of Response Time and Vigilance Score in a Sustained Attention Task from Pre-Trial Phase Synchrony using Deep Neural Networks

Torkamani Azar M., demir s., Ahmed S. A. A. , AYDIN S., ETN M.

41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 23 - 27 July 2019

V. A case study on auditory brain activations relative to musical experience by means of eeg complexity levels

Aydin S., Gudc ., Kutluk F., zgren A. O. , zgren M.

26th IEEE Signal Processing and Communications Applications Conference, SIU 2018, İzmir, Turkey, 2 - 05 May 2018, pp.1-4

VI. Smart classification of normal and aggressive muscle actions Normal ve Agresif Kas Hareketlerinin Akıllı Sınıflandırması

Aydemir K., Aydin S.

26th IEEE Signal Processing and Communications Applications Conference, SIU 2018, İzmir, Turkey, 2 - 05 May 2018, pp.1-4

VII. Improving cognitive functions of dyslexics using multi-sensory learning and EEG neurofeedback

Eroglu G., Aydin S., Cetin M., Balcisoy S.

26th IEEE Signal Processing and Communications Applications Conference, SIU 2018, İzmir, Turkey, 2 - 05 May 2018, pp.1-4

- VIII. **Classification of Band-Specific Regional Hemispheric Connectivity in Obsessive Compulsive Disorder**
Aydin S., Tan O.
25th Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 15 - 18 May 2017
- IX. **Discrimination of Psychotic Symptoms from Controls Through Data Mining Methods Based on Emotional Principle Components**
Maras A., Aydin S.
International Conference on Medical and Biological Engineering in Bosnia and Herzegovina (CMBEBIH), Sarajevo, Bosnia And Herzegovina, 16 - 18 March 2017, vol.62, pp.26-30
- X. **Intercorrelation between singular spectrum of EEG sub-bands and emotional states**
AYDIN S., MARAŞ A.
ELECO2016, Turkey, 1 - 03 December 2016, pp.486-490
- XI. **Classification of EEG synchronization values of obsessive compulsive disorders patients using Support Vector Machine Method**
TAN O., AYDIN S., ÖZÇOBAN M. A.
2016 Medical Technologies National Congress (TIPTEKNO), Antalya, Turkey, Turkey, 27 - 29 October 2016
- XII. **Support Vector Machines in Classifying Normal and Aggressive Muscle Actions of Electrophysiological Entropies**
Aydin S., Akyuz S.
National Conference on Electrical, Electronics and Biomedical Engineering (ELECO), Bursa, Turkey, 1 - 03 December 2016, pp.526-529
- XIII. **Estimation of Cross Correlation in Classifying Neuromuscular Activities**
Aydin S.
National Conference on Electrical, Electronics and Biomedical Engineering (ELECO), Bursa, Turkey, 1 - 03 December 2016, pp.474-476
- XIV. **Investigation of Obsessive Compulsive Disorder with FFT Dipol Approximation by Means of EEG**
Ozcoban M. A. , Aydin S., Kara S., Tan O.
Medical Technologies National Conference (TIPTEKNO), Bodrum, Turkey, 15 - 18 October 2015
- XV. **Uyku Bozukluğunda Beynin Hemisferik ve Bağlı Nöral Dinamikleri**
AYDIN S.
26. Ulusal Biyofizik Kongresi, Tokat, Turkey, 9 - 12 September 2014
- XVI. **Nöropsikiyatride Çok Kanallı Hemisferik EEG Dinamikleri ve Akıllı Sınıflandırma**
AYDIN S., ARICA N., TAN O., ERGÜL E.
26. Ulusal Biyofizik Kongresi, Tokat, Turkey, 9 - 12 September 2014
- XVII. **http://www.turkbiyofizik.com/Kongre_ozetleri/26.pdf**
AYDIN S.
26. Ulusal Biyofizik Kongresi, Tokat, Turkey, 09 September 2014, pp.22
- XVIII. **The Role of Segmentation Interval in Detecting Seizure from EEG Series by using Embedding Entropy Metrics**
AYDIN S.
FEPS2014, Joint Meeting of the FEPS and the Hungarian Physiological Society, 27 - 30 August 2014
- XIX. **Complexity and Coherence Analysis on EEG of Patients with Obsessive Compulsive Disorder**
AYDIN S., ARICA N., ERGÜL E., TAN O.
FEPS2014, Joint Meeting of the FEPS and the Hungarian Physiological Society, Croatia, 27 - 30 August 2014
- XX. **Investigation the Level of Neural Synchronization by Using Global Field Synchronization Method in Obsessive Compulsive Disorder**
Ozcoban M. A. , Kara S., Tan O., Aydin S.
18th National Biomedical Engineering Meeting (BIYOMUT), İstanbul, Turkey, 16 - 17 October 2014
- XXI. **Classification of sleep apnea types using EEG synchronization criteria**

AYDIN S., EROĞUL O.

2010 15th National Biomedical Engineering Meeting, Antalya, Turkey, 21 - 24 April 2010

XXII. Model Order Sensitivity of Burg Method for EEG Diagnosis

Aydin S.

IEEE 16th Signal Processing and Communications Applications Conference, Aydın, Turkey, 20 - 22 April 2008, pp.66-67

XXIII. Parametric Power Spectrum Analysis of Epileptic Seizure

Aydin S.

IEEE 16th Signal Processing and Communications Applications Conference, Aydın, Turkey, 20 - 22 April 2008, pp.26-29

XXIV. Algebraic Perspectives Of Background EEG Elimination

Aydin S.

19th International EURASIP Conference (BIOSIGNAL), Brno, Czech Republic, 01 June 2008, pp.98-100

XXV. 1-D Orthogonal Perspectives Of Auditory Brain Activities

Aydin S.

19th International EURASIP Conference (BIOSIGNAL), Brno, Czech Republic, 01 June 2008, pp.101-106

XXVI. An assessment of Tikhonov regularizations to evoked brain signals

Aydin S.

ISPA 2007 - 5th International Symposium on Image and Signal Processing and Analysis, İstanbul, Turkey, 27 - 29 September 2007, pp.248-253

XXVII. Basic linear filters in extracting of auditory evoked potentials

Aydin S.

5th International Symposium on Image and Signal Processing and Analysis, İstanbul, Turkey, 27 - 29 September 2007, pp.242-247

Supported Projects

Aydin S., Dağ O., Project Supported by Higher Education Institutions, Developing Connectivity Model from Neuroelectrical Brain Activities based on Graph Theory (Çizgi Kuramı Ağlarıyla NöroElektriksel Beyin Aktivitelerinden Bağlantsallık Modeline Geçiş), 2020 - 2021

Scientific Refereeing

FRONTIERS IN PHYSIOLOGY, SCI Journal, October 2020

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS, SCI Journal, October 2020

BMC PSYCHIATRY, SCI Journal, August 2020

IEEE TRANSACTIONS ON NEURAL SYSTEMS AND REHABILITATION ENGINEERING, SCI Journal, January 2020

IEEE ACCESS, SCI Journal, December 2019

CLINICAL EEG AND NEUROSCIENCE, SCI Journal, July 2019

BMC PSYCHIATRY, SCI Journal, January 2019

IEEE Journal of Biomedical and Health Informatics, SCI Journal, November 2018

Scientific Consultations

TÜBİTAK 1001 PROJESİ, Project Consultancy, Hacettepe Üniversitesi, Tıp Fakültesi (Türkçe), Temel Tıp Bilimleri Bölümü, Turkey, 2018 - Continues

Invited Congress and Symposium Activities

45. ULUSAL FİZYOLOJİ KONGRESİ, Working Group, İzmir, Turkey, 2019

Citations

Total Citations (WOS):208

h-index (WOS):8