

## Assoc. Prof. ZAFER AYDIN

### Personal Information

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### Education Information

Doctorate, Georgia Institute Of Technology, Mühendislik Fakültesi, Elektrik Ve Bilgisayar Mühendisliği, United States Of America 2002 - 2008

Postgraduate, Bilkent Üniversitesi, Mühendislik Fakültesi, Elektrik Ve Elektronik Mühendisliği, Turkey 1999 - 2001

Undergraduate, Bilkent Üniversitesi, Mühendislik Fakültesi, Elektrik Ve Elektronik Mühendisliği, Turkey 1995 - 1999

### Dissertations

Doctorate, Bayesian Models and Algorithms for Protein Beta-Sheet Prediction, Georgia Institute Of Technology, Mühendislik Fakültesi, Elektrik Ve Bilgisayar Mühendisliği, 2008

Postgraduate, A Novel Approach for Time-Frequency Localized Signal Design, Bilkent Üniversitesi, Mühendislik Fakültesi, Elektrik Ve Elektronik Mühendisliği, 2001

### Research Areas

Computer Sciences, bioinformatics, Artificial Intelligence, Computer Learning and Pattern Recognition, Engineering and Technology

### Courses

Machine Learning, Postgraduate, 2017 - 2018

Analysis of Algorithms, Undergraduate, 2017 - 2018

Data Mining, Postgraduate, 2014 - 2015, 2015 - 2016

Object Oriented Programming, Undergraduate, 2015 - 2016

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

- I. **IGPRED: Combination of convolutional neural and graph convolutional networks for protein secondary structure prediction**  
GÖRMEZ Y., Sabzekekar M., AYDIN Z.  
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, 2021 (Journal Indexed in SCI)
- II. **Crowdsourcing digital health measures to predict Parkinson's disease severity: the Parkinson's Disease Digital Biomarker DREAM Challenge**  
Sieberts S. K. , Schaff J., Duda M., Pataki B. A. , Sun M., Snyder P., Daneault J., Parisi F., Costante G., Rubin U., et al.  
NPJ DIGITAL MEDICINE, vol.4, no.1, 2021 (Journal Indexed in SCI)

- III. **A noise-aware feature selection approach for classification**  
Sabzekar M., AYDIN Z.  
SOFT COMPUTING, 2021 (Journal Indexed in SCI)
- IV. **A review of mammographic region of interest classification**  
Yengec Tasdemir S. B. , TAŞDEMİR K., AYDIN Z.  
WILEY INTERDISCIPLINARY REVIEWS-DATA MINING AND KNOWLEDGE DISCOVERY, vol.10, no.5, 2020 (Journal Indexed in SCI)
- V. **A deep learning approach with Bayesian optimization and ensemble classifiers for detecting denial of service attacks**  
Gormez Y., AYDIN Z., Karademir R., GÜNGÖR V. Ç.  
INTERNATIONAL JOURNAL OF COMMUNICATION SYSTEMS, vol.33, no.11, 2020 (Journal Indexed in SCI)
- VI. **Effect of interpolation on specular reflections in texture-based automatic colonic polyp detection**  
Kacmaz R. N. , YILMAZ B., AYDIN Z.  
INTERNATIONAL JOURNAL OF IMAGING SYSTEMS AND TECHNOLOGY, 2020 (Journal Indexed in SCI)
- VII. **Lung cancer subtype differentiation from positron emission tomography images**  
AYYILDIZ O., AYDIN Z., YILMAZ B., KARAÇAVUŞ S., Senkaya K., İÇER S., Tasdemir A., Kaya E.  
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.28, no.1, pp.262-274, 2020 (Journal Indexed in SCI)
- VIII. **Structural profile matrices for predicting structural properties of proteins**  
Azginoglu N., AYDIN Z., ÇELİK M.  
JOURNAL OF BIOINFORMATICS AND COMPUTATIONAL BIOLOGY, vol.18, no.4, 2020 (Journal Indexed in SCI)
- IX. **Metabolic Imaging based Sub-Classification of Lung Cancer**  
Bicakci M., AYYILDIZ O., AYDIN Z., BAŞTÜRK A., Karacavus S., YILMAZ B.  
IEEE Access, 2020 (Journal Indexed in SCI Expanded)
- X. **A crowdsourced analysis to identify ab initio molecular signatures predictive of susceptibility to viral infection**  
Fourati S., Taa A., Mahmoudian M., Burkhart J. G. , Klen R., Henao R., Yu T., AYDIN Z., Yeung K. Y. , Ahsen M. E. , et al.  
NATURE COMMUNICATIONS, vol.9, 2018 (Journal Indexed in SCI)
- XI. **Dimensionality reduction for protein secondary structure and solvent accesibility prediction**  
AYDIN Z., KAYNAR O., GÖRMEZ Y.  
JOURNAL OF BIOINFORMATICS AND COMPUTATIONAL BIOLOGY, vol.16, no.5, 2018 (Journal Indexed in SCI)
- XII. **Protein beta-sheet prediction using an efficient dynamic programming algorithm**  
Sabzekar M., Naghibzadeh M., Eghdami M., AYDIN Z.  
COMPUTATIONAL BIOLOGY AND CHEMISTRY, vol.70, pp.142-155, 2017 (Journal Indexed in SCI)
- XIII. **Knowledge based response correction method for design of reconfigurable N-shaped microstrip patch antenna using inverse ANNs**  
AOAD A., ŞİMŞEK M., AYDIN Z.  
INTERNATIONAL JOURNAL OF NUMERICAL MODELLING-ELECTRONIC NETWORKS DEVICES AND FIELDS, vol.30, 2017 (Journal Indexed in SCI)
- XIV. **BAUM-2: a multilingual audio-visual affective face database**  
Erdem C. E. , TURAN Ç., AYDIN Z.  
MULTIMEDIA TOOLS AND APPLICATIONS, vol.74, no.18, pp.7429-7459, 2015 (Journal Indexed in SCI)

## Articles Published in Other Journals

- I. **Performance Analysis of Machine Learning and Bioinformatics Applications on High Performance Computing Systems**  
AYDIN Z.  
Academic Platform Journal of Engineering and Science, vol.8, no.1, pp.1-14, 2020 (Other Refereed National Journals)

- II. **Classification of Cardiovascular Artery Diseases Using Artificial Neural Network**  
HACILAR H., GÖRMEZ Y., GÜNGÖR B., Gezer C., AYDIN Z., GÜNGÖR V. Ç.  
International Journal of Bioscience, Biochemistry and Bioinformatics, vol.10, no.1, pp.34-41, 2020 (Refereed Journals of Other Institutions)
- III. **New modeling of reconfigurable microstrip antenna using hybrid structure of simulation driven and knowledge based artificial neural networks**  
Aoad A., AYDIN Z.  
PAMUKKALE UNIVERSITY JOURNAL OF ENGINEERING SCIENCES-PAMUKKALE UNIVERSITESI MUHENDISLIK BILIMLERI DERGISI, vol.26, no.5, pp.935-943, 2020 (Journal Indexed in ESCI)
- IV. **Intelligent Anomaly Detection Techniques for Denial of Service Attacks**  
GÜNGÖR V. Ç. , AYDIN Z., Karademir R.  
International Journal of Computer and Communication Engineering, vol.7, no.2, pp.20-31, 2018 (Refereed Journals of Other Institutions)
- V. **Sentiment Analizinde Öznitelik Düşürme Yöntemlerinin Oto Kodlayıcı Derin Öğrenme Makinaları ile Karşılaştırılması**  
KAYNAR O., AYDIN Z., GÖRMEZ Y.  
Bilişim Teknolojileri Dergisi, vol.10, no.3, pp.319-326, 2017 (Other Refereed National Journals)
- VI. **Sentiment Analizinde Öznitelik Düşürme Yöntemlerinin Oto Kodlayıcı Derin Öğrenme Makinaları ile Karşılaştırılması**  
Kaynar O., AYDIN Z., Görmez Y.  
International Journal of Informatics Technologies, vol.10, no.3, pp.319-326, 2017 (International Refereed University Journal)
- VII. **Template Scoring Methods for Protein Torsion Angle Prediction**  
AYDIN Z., Baker D., Noble W. S.  
Communications in Computer and Information Science, vol.574, pp.206-223, 2016 (Refereed Journals of Other Institutions)
- VIII. **Design of a Reconfigurable 5-Fingers Shaped Microstrip Patch Antenna by Artificial Neural Networks**  
Aoad A., Şimşek M., AYDIN Z.  
International Journal of Advanced Research in Computer Science and Software Engineering, vol.4, no.10, pp.61-70, 2014 (Refereed Journals of Other Institutions)

## **Refereed Congress / Symposium Publications in Proceedings**

- I. **Classification of Cardiovascular Artery Diseases based on Deep Neural Network**  
Hacılar H., GÖRMEZ Y., GÜNGÖR B., Gezer C., AYDIN Z., GÜNGÖR V. Ç.  
3rd Int. Conference on Information System and Data Mining (ICISDM 2019), Texas, United States Of America, 6 - 08 April 2019
- II. **NSEM: Duygu Analizi için Özgün Yığınlanmış Topluluk Yöntemi(NSEM: Novel Stacked Ensemble Method for Sentiment Analysis)**  
IŞIK Y. E. , GÖRMEZ Y., KAYNAR O., AYDIN Z.  
IEEE 2018 International Conference on Artificial Intelligence and Data Processing (IDAP), Malatya, Turkey, 28 - 30 September 2018, pp.1-4
- III. **ROI Detection in Mammogram Images using Wavelet-Based Haralick and HOG Features**  
Tasdemir S. B. Y. , TAŞDEMİR K., AYDIN Z.  
17th IEEE International Conference on Machine Learning and Applications (IEEE ICMLA), Florida, United States Of America, 17 - 20 December 2018, pp.105-109
- IV. **H2O Otomatik Makine Öğrenme Algoritmasının Metabolomik Verilerinde Performansının Araştırılması**  
ÜNLÜSAVURAN M., ERTÜRK ZARARSIZ G., ZARARSIZ G., İPEKTEN F., KORKMAZ S., GÖKSÜLÜK D., DOĞAN H. O. , ELDEM V., ERKORKMAZ Ü., KOÇYİĞİT İ., et al.

XX. Ulusal ve III. Uluslararası Biyoistatistik Kongresi, 26 - 29 October 2018

- V. **NSEM: Novel Stacked Ensemble Method for Sentiment Analysis**  
Emre Isik Y., GÖRMEZ Y., KAYNAR O., AYDIN Z.  
International Conference on Artificial Intelligence and Data Processing (IDAP), Malatya, Turkey, 28 - 30 September 2018
- VI. **Protein İkincil Yapı Tahmini için NR ve UniClustVeri Tabanlarının Karşılaştırılması (Comparison of NR and UniClust databases for protein secondary structure prediction)**  
AYDIN Z., KAYNAR O., GÖRMEZ Y.  
IEEE Conferences 2018 26th Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2 - 05 May 2018, pp.1-4
- VII. **Protein İkincil Yapı Tahmini İçin Makine Öğrenmesi Yöntemlerinin Karşılaştırılması (Comparison of machine learning classifiers for protein secondary structure prediction)**  
AYDIN Z., KAYNAR O., GÖRMEZ Y., İŞİK Y. E.  
IEEE Conferences 2018 26th Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2 - 05 May 2018, vol.1
- VIII. **A Novel Feature Design and Stacking Approach for Non-Technical Electricity Loss Detection**  
AYDIN Z., GÜNGÖR V. Ç.  
2018 IEEE Innovative Smart Grid Technologies - Asia (ISGT Asia), Singapore, Singapore, 22 - 25 May 2018
- IX. **Protein Secondary Structure Prediction Using Support Vector Machine and Hierarchical Clustering**  
ATASEVER S., AYDIN Z., ERBAY H.  
WC BIG DATA 2018, KUŞADASI, Turkey, 28 - 30 April 2018
- X. **Ceph-based Storage Server Application**  
Azginoglu N., Eren M. A. , ÇELİK M., AYDIN Z.  
6th International Symposium on Digital Forensic and Security (ISDFS), Antalya, Turkey, 22 - 25 March 2018, pp.408-411
- XI. **Open Source SLURM Computer Cluster System Design and a Sample Application**  
Azginoğlu N., Atasever U., AYDIN Z., Çelik M., Erbay H.  
IEEE International Conference on Computer Science and Engineering, Antalya, Turkey, 5 - 08 October 2017, pp.403-406
- XII. **Combining Classifiers for Protein Secondary Structure Prediction**  
AYDIN Z., Uzut O. G.  
9th International Conference on Computational Intelligence and Communication Networks (CICN), Girne, Cyprus (Kkct), 16 - 17 September 2017, pp.29-33
- XIII. **Feature Selection for Protein Dihedral Angle Prediction**  
AYDIN Z., KAYNAR O., GÖRMEZ Y.  
9th International Conference on Computational Intelligence and Communication Networks (CICN), Girne, Cyprus (Kkct), 16 - 17 September 2017, pp.48-52
- XIV. **Discovering Biomarkers for Early Prognosis of Respiratory Virus Infection**  
AYDIN Z.  
RECOMB/ISCB Conference on Regulatory and Systems Genomics with DREAM Challenges, United States Of America, 6 - 09 November 2016
- XV. **Identifying Discriminative Scores of HMM-profile Alignments by Feature Selection**  
AYDIN Z., ERDEM H. E. , UZUT Ö. G.  
International Symposium on Health Informatics and Bioinformatics, Muğla, Turkey, 16 - 17 October 2015, pp.1
- XVI. **Development of Knowledge Based Response Correction for a Reconfigurable N-Shaped Microstrip Antenna Design**  
Aoad A., Şimşek M., AYDIN Z.  
IEEE MTT-S International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization, Ottawa, Canada, 11 - 14 August 2015, pp.1-3
- XVII. **Short Term Electricity Load Forecasting: A Case Study of Electric Utility Market in Turkey**  
YASİN M., GÖZE T., ÖZCAN İ., GÜNGÖR V. Ç. , AYDIN Z.

- International Istanbul Smart Grid Congress And Exhibition, İstanbul, Turkey, 29 - 30 April 2015, pp.1-5
- XVIII. Template Scoring Methods for Protein Torsion Angle Prediction**  
AYDIN Z., Baker D., Noble W. S.  
8th International Joint Conference on Biomedical Engineering Systems and Technologies (BIOSTEC), Lisbon, Portugal, 12 - 15 January 2015, vol.574, pp.206-223
- XIX. Constructing structural profiles for protein torsion angle prediction**  
AYDIN Z., BAKER D., NOBLE W. S.  
Bioinformatics, Lizbon, Portugal, 12 - 15 January 2015, pp.26-35
- XX. Design of a tri band 5-fingers shaped microstrip patch antenna with an adjustable resistor**  
Aoad A., AYDIN Z., Korkmaz E.  
IEEE International Conference on Antenna Measurements and Applications, Antibes Juan-Les-Pins, France, 16 - 19 October 2014, pp.1-4
- XXI. A method for extraction of affective audio-visual facial clips from movies**  
Turan Ç., Kansın C., Zhalehpour S., AYDIN Z., EROĞLU ERDEM Ç.  
IEEE Signal Processing and Applications Conference, Turkey, 24 - 26 April 2013
- XXII. Protein torsion angle class prediction by a hybrid architecture of Bayesian and neural networks**  
AYDIN Z., Thompson J., Bilmes J., Baker D., Noble W. S.  
International Conference on Bioinformatics and Computational Biology, 16 - 19 July 2012
- XXIII. Protein function prediction with amino acid sequence and secondary structure alignment scores**  
AYGÜN E., KÖMÜRLÜ C., AYDIN Z., ÇATALTEPE Z.  
International Symposium on Health Informatics and Bioinformatics (HIBIT), 18 - 20 May 2008
- XXIV. Training set reduction methods for protein secondary structure prediction in single-sequence condition**  
AYDIN Z., ALTUNBAŞAK Y., PAKATÇI İ. K., ERDOĞAN H.  
29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS'xx07), 23 - 26 August 2007
- XXV. Yetim proteinlerde ikincil yapı öngörüsü için eğitim kümesi indirgeme yöntemleri**  
PAKATÇI İ. K., AYDIN Z., ERDOĞAN H., ALTUNBAŞAK Y.  
IEEE Signal Processing and Communication Applications Conference (SIU), Turkey, 11 - 13 June 2007
- XXVI. Protein fold recognition using residue-based alignments of sequence and secondary structure**  
AYDIN Z., ERDOĞAN H., ALTUNBAŞAK Y.  
IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP), 15 - 20 April 2007
- XXVII. A modified stack decoder for protein secondary structure prediction**  
AYDIN Z., AKGÜN T., ALTUNBAŞAK Y.  
IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP), 19 - 23 March 2005
- XXVIII. Protein secondary structure prediction with semi Markov HMMs**  
AYDIN Z., ALTUNBAŞAK Y., BORODOVSKY M.  
26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 1 - 05 September 2004
- XXIX. A new approach to time-frequency localized signal design**  
ÖZDEMİR A. K., AYDIN Z., ARIKAN O.  
IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP), 13 - 17 May 2002

## Supported Projects

AYDIN Z., TUBITAK Project, Zenginleştirilmiş Öznitelikler ve Makine Öğrenmesi Teknikleri ile Protein Yerel Yapı Tahmini, 2014 - 2017

AYDIN Z., GÜNGÖR V. Ç., TUBITAK Project, Elektrik Kayıp-Kaçak Analizi ve Talep Tahmini için Çoklu İletişim Arayüzü Destekleyen Telemetrik Gömülü Sistem Tasarımı ve Geliştirilmesi, 2013 - 2016

## **Activities in Scientific Journals**

TURKISH JOURNAL OF BIOLOGY, Editor, 2014 - 2015

## **Scientific Refereeing**

Knowledge and Information Systems, SCI Journal, October 2017

Knowledge and Information Systems, SCI Journal, May 2017

Proceedings of IEEE Signal Processing and Communication Applications Conference, National Scientific Refreed Journal, March 2017

Proceedings of IEEE Signal Processing and Communication Applications Conference, National Scientific Refreed Journal, March 2017

Proceedings of IEEE Signal Processing and Communication Applications Conference, National Scientific Refreed Journal, March 2017

Knowledge and Information Systems, SCI Journal, October 2016

Academic Platform Journal of Engineering and Science, Other journals, October 2016

Knowledge and Information Systems, SCI Journal, July 2016

Turkish Journal of Electrical Engineering and Computer Sciences, SCI Journal, June 2016

Knowledge and Information Systems, SCI Journal, May 2016

Gazi Üniversitesi Mühendislik-Mimarlık Fakültesi Dergisi, National Scientific Refreed Journal, January 2016

TURKISH JOURNAL OF ELECTRICAL ENGINEERING & COMPUTER SCIENCES , SCI Journal, November 2015

Knowledge and Information Systems, SCI Journal, May 2015

TURKISH JOURNAL OF ELECTRICAL ENGINEERING & COMPUTER SCIENCES , SCI Journal, March 2015

## **Edit Congress and Symposium Activities**

DARPA Prometheus Program Kickoff, Attendee, Virginia, United States Of America, 2017

RECOMB/ISCB Conference on Regulatory & Systems Genomics with DREAM Challenges & Cytoscape Workshop, Attendee, Arizona, United States Of America, 2016

## **Citations**

Total Citations (WOS):27

h-index (WOS):3