

Assoc. Prof. BERKAN DÜLEK

Personal Information

Office Phone: [+90 312 297 7014](tel:+903122977014)

Fax Phone: [+90 312 299 2125](tel:+903122992125)

Email: bdulek@hacettepe.edu.tr

Web: <http://www.ee.hacettepe.edu.tr/~berkan/>

Address: Hacettepe Üniversitesi Elektrik ve Elektronik Mühendisliği Bölümü Beytepe Kampüsü, 06800, Ankara

Education Information

Post Doctorate, Syracuse University, College Of Engineering And Computer Science, Electrical Engineering And Computer Science, United States Of America 2012 - 2013

Doctorate, İhsan Doğramacı Bilkent Üniversitesi, Mühendislik Fakültesi, Elektrik Ve Elektronik Mühendisliği, Turkey 2009 - 2012

Postgraduate, İhsan Doğramacı Bilkent Üniversitesi, Mühendislik Fakültesi, Elektrik Ve Elektronik Mühendisliği, Turkey 2004 - 2006

Undergraduate, İhsan Doğramacı Bilkent Üniversitesi, Mühendislik Fakültesi, Elektrik Ve Elektronik Mühendisliği, Turkey 1999 - 2003

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Optimal stochastic approaches for signal detection and estimation under inequality constraints, Bilkent Üniversitesi, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2012

Postgraduate, Signal and image processing algorithms for agricultural applications, Bilkent Üniversitesi, Mühendislik Ve Fen Bilimleri Enstitüsü, Elektrik Ve Elektronik Mühendisliği (YI) (Tezli), 2006

Research Areas

Information Systems, Communication and Control Engineering, Communication Engineering, Information Theory, Communication Networks, Communication System Theory, Error Corrector Codes, Wireless Communication, Modulation Methods, Radar Theory, Radionavigation and Direction Finding, Telecommunication Applications, Sattelite Communication, Legislation, Frequency Allocation and Spectrum Pollution, Signal Processing, Signal Processing for Sensor Sequences, Multi-mode Signal Processing, Multimedia, Image and Video Processing, Signal Processing for Communication, Speech Analysis and Processing Techniques, Pattern Recognition and Analysis, Signal Processing Theory and Methods, Engineering and Technology

Academic Titles / Tasks

Associate Professor, Hacettepe Üniversitesi, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2015 -

Continues

Assistant Professor, Hacettepe Üniversitesi, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2014 - 2015

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

- I. **Online EM-Based Ensemble Classification With Correlated Agents**
Efendi E., DÜLEK B.
IEEE SIGNAL PROCESSING LETTERS, vol.28, pp.294-298, 2021 (Journal Indexed in SCI)
- II. **A Sparse Approach for Identification of Signal Constellations Over Additive Noise Channels**
DÜLEK B.
IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, vol.56, no.1, pp.817-822, 2020 (Journal Indexed in SCI)
- III. **Optimal Decision Rules for Simple Hypothesis Testing Under General Criterion Involving Error Probabilities**
DÜLEK B., Ozturk C., Gezici S.
IEEE SIGNAL PROCESSING LETTERS, vol.27, pp.261-265, 2020 (Journal Indexed in SCI)
- IV. **Sensor Selection and Design for Binary Hypothesis Testing in the Presence of a Cost Constraint**
Oymak B., DÜLEK B., Gezici S.
IEEE TRANSACTIONS ON SIGNAL AND INFORMATION PROCESSING OVER NETWORKS, vol.6, pp.617-632, 2020 (Journal Indexed in SCI)
- V. **Automatic classification of linear modulations using multiple receivers in the presence of symbol timing uncertainty**
Efendi E., DÜLEK B.
ELECTRONICS LETTERS, vol.55, no.18, pp.994-996, 2019 (Journal Indexed in SCI)
- VI. **Optimal Joint Modulation Classification and Symbol Decoding**
Kazikli E., DÜLEK B., Gezici S.
IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, vol.18, no.5, pp.2623-2638, 2019 (Journal Indexed in SCI)
- VII. **Comment on 'Bayesian MMSE Estimation of a Gaussian Source in the Presence of Bursty Impulsive Noise'**
DÜLEK B.
IEEE Communications Letters, vol.23, no.4, pp.772, 2019 (Journal Indexed in SCI)
- VIII. **Optimal Stochastic Signaling Under Average Power and Bit Rate Constraints**
Goken C., DÜLEK B., GEZİCİ S.
IEEE TRANSACTIONS ON COMMUNICATIONS, vol.66, no.12, pp.6028-6039, 2018 (Journal Indexed in SCI)
- IX. **Convexity Properties of Detection Probability for Noncoherent Detection of a Modulated Sinusoidal Carrier**
Ozturk C., DÜLEK B., GEZİCİ S.
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, vol.67, no.12, pp.12410-12415, 2018 (Journal Indexed in SCI)
- X. **A Restricted Bayes Approach to Joint Detection and Estimation Under Prior Uncertainty**
DÜLEK B.
IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, vol.54, no.4, pp.1767-1782, 2018 (Journal Indexed in SCI)
- XI. **Empirical Bayes Deconvolution Based Modulation Discovery Under Additive Noise**
DÜLEK B.
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, vol.67, no.7, pp.6668-6672, 2018 (Journal Indexed in SCI)
- XII. **On the Efficiency of SNR Estimation via Birnbaum's Method**
DÜLEK B.
IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, vol.53, no.6, pp.3159-3164, 2017 (Journal Indexed in SCI)
- XIII. **Online Hybrid Likelihood Based Modulation Classification Using Multiple Sensors**

- DÜLEK B.
IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, vol.16, no.8, pp.4984-5000, 2017 (Journal Indexed in SCI)
- XIV. **An Online and Distributed Approach for Modulation Classification Using Wireless Sensor Networks**
DÜLEK B.
IEEE SENSORS JOURNAL, vol.17, no.6, pp.1781-1787, 2017 (Journal Indexed in SCI)
- XV. **Optimal Power Allocation for Average Detection Probability Criterion Over Flat Fading Channels**
Saritas S., DÜLEK B., Sezer A. D. , Gezici S., YUKSEL S.
IEEE TRANSACTIONS ON SIGNAL PROCESSING, vol.65, no.6, pp.1383-1398, 2017 (Journal Indexed in SCI)
- XVI. **Characteristic Function-Based Lower Bounds for Fisher Information Under Arbitrary Parametrization**
DÜLEK B.
IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, vol.53, no.1, pp.501-512, 2017 (Journal Indexed in SCI)
- XVII. **Joint Detection and Decoding in the Presence of Prior Information With Uncertainty**
Bayram S., DÜLEK B., Gezici S.
IEEE SIGNAL PROCESSING LETTERS, vol.23, no.11, pp.1602-1606, 2016 (Journal Indexed in SCI)
- XVIII. **ML modulation classification in presence of unreliable observations**
DÜLEK B.
ELECTRONICS LETTERS, vol.52, no.18, pp.1569-1570, 2016 (Journal Indexed in SCI)
- XIX. **Asynchronous Linear Modulation Classification With Multiple Sensors via Generalized EM Algorithm**
Özdemir O., Wimalajeewa T., DÜLEK B., Varshney P. K. , Su W.
IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, vol.14, no.11, pp.6389-6400, 2015 (Journal Indexed in SCI)
- XX. **Distributed Detection in Tree Networks: Byzantines and Mitigation Techniques**
Kailkhura B., Brahma S., DÜLEK B., HAN Y. S. , Varshney P. K.
IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY, vol.10, no.7, pp.1499-1512, 2015 (Journal Indexed in SCI)
- XXI. **Distributed Maximum Likelihood Classification of Linear Modulations Over Nonidentical Flat Block-Fading Gaussian Channels**
DÜLEK B., Özdemir O., Varshney P. K. , Su W.
IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, vol.14, no.2, pp.724-737, 2015 (Journal Indexed in SCI)
- XXII. **Power Adaptation for Cognitive Radio Systems Under an Average SINR Loss Constraint in the Absence of Path Loss Information**
Dulek B., Gezici S., Sawai R., Kimura R.
WIRELESS PERSONAL COMMUNICATIONS, vol.77, no.1, pp.151-172, 2014 (Journal Indexed in SCI)
- XXIII. **Modulation Discovery Over Arbitrary Additive Noise Channels Based on the Richardson-Lucy Algorithm**
Dulek B., Ozdemir O., Varshney P. K. , Su W.
IEEE SIGNAL PROCESSING LETTERS, vol.21, no.6, pp.756-760, 2014 (Journal Indexed in SCI)
- XXIV. **Bounds on symbol error rate for additive isotropic generalised Gaussian noise channels**
Dulek B.
ELECTRONICS LETTERS, vol.50, no.10, pp.777-778, 2014 (Journal Indexed in SCI)
- XXV. **A novel approach to dictionary construction for automatic modulation classification**
DÜLEK B., Ozdemir O., Varshney P. K. , Su W.
JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS, vol.351, no.5, pp.2991-3012, 2014 (Journal Indexed in SCI)
- XXVI. **Universal Bounds on the Derivatives of the Symbol Error Rate for Arbitrary Constellations**
Dulek B.
IEEE TRANSACTIONS ON SIGNAL PROCESSING, vol.62, no.5, pp.1070-1077, 2014 (Journal Indexed in SCI)
- XXVII. **Optimal signaling and detector design for M-ary communication systems in the presence of multiple additive noise channels**

- Dulek B., Tutay M. E., Gezici S., Varshney P. K.
DIGITAL SIGNAL PROCESSING, vol.26, pp.153-168, 2014 (Journal Indexed in SCI)
- XXVIII. **Comments on "A Representation for the Symbol Error Rate Using Completely Monotone Functions"**
Dulek B.
IEEE TRANSACTIONS ON INFORMATION THEORY, vol.60, no.2, pp.1367-1370, 2014 (Journal Indexed in SCI)
- XXIX. **Optimum Power Randomization for the Minimization of Outage Probability**
Dulek B., Vanli N. D., Gezici S., Varshney P. K.
IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, vol.12, no.9, pp.4627-4637, 2013 (Journal Indexed in SCI)
- XXX. **Convexity Properties of Detection Probability Under Additive Gaussian Noise: Optimal Signaling and Jamming Strategies**
Dulek B., Gezici S., Arikan O.
IEEE TRANSACTIONS ON SIGNAL PROCESSING, vol.61, no.13, pp.3303-3310, 2013 (Journal Indexed in SCI)
- XXXI. **Cost minimization of measurement devices under estimation accuracy constraints in the presence of Gaussian noise**
Dulek B., Gezici S.
DIGITAL SIGNAL PROCESSING, vol.22, no.5, pp.828-840, 2012 (Journal Indexed in SCI)
- XXXII. **Optimum Power Allocation for Average Power Constrained Jammers in the Presence of Non-Gaussian Noise**
Bayram S., Vanli N. D., Dulek B., Sezer I., Gezici S.
IEEE COMMUNICATIONS LETTERS, vol.16, no.8, pp.1153-1156, 2012 (Journal Indexed in SCI)
- XXXIII. **Detector Randomization and Stochastic Signaling for Minimum Probability of Error Receivers**
Dulek B., Gezici S.
IEEE TRANSACTIONS ON COMMUNICATIONS, vol.60, no.4, pp.923-928, 2012 (Journal Indexed in SCI)
- XXXIV. **Average Fisher information maximisation in presence of cost-constrained measurements**
Dulek B., Gezici S.
ELECTRONICS LETTERS, vol.47, no.11, pp.655-656, 2011 (Journal Indexed in SCI)
- XXXV. **Computer vision-based image analysis for the estimation of acrylamide concentrations of potato chips and french fries**
Gokmen V., Senyuva H. Z., Dulek B., Cetin A. E.
FOOD CHEMISTRY, vol.101, no.2, pp.791-798, 2007 (Journal Indexed in SCI)
- XXXVI. **Computer vision based analysis of potato chips - A tool for rapid detection of acrylamide level**
Gokmen V., Senyuva H. Z., Dulek B., Cetin E.
MOLECULAR NUTRITION & FOOD RESEARCH, vol.50, no.9, pp.805-810, 2006 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- I. **Performance Analysis of TV, FM and WiFi signals in backscatter communication networks Geri Saçilim Haberleşme Ağlarında TV, FM ve WiFi Sinyallerinin Başarım Analizi**
ONAY M. Y., DÜLEK B.
27th Signal Processing and Communications Applications Conference, SIU 2019, Sivas, Turkey, 24 - 26 April 2019
- II. **Performance Analysis of TV, FM and WiFi Signals in Backscatter Communication Networks**
ONAY M. Y., DÜLEK B.
27th Signal Processing and Communications Applications Conference (SIU), Sivas, Turkey, 24 - 26 April 2019
- III. **Optimal signaling for a given constellation under average symbol energy and bit rate constraints**
DÜLEK B.
17th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Bilbao, Spain, 18 - 20 December 2017, pp.112-116
- IV. **Can signal randomization enhance detection performance in additive Gaussian noise under false alarm and average power constraints**
DÜLEK B., GEZİCİ S., ARIKAN O.

8th World Congress in Probability and Statistics, 9 - 14 July 2012

V. OPTIMAL STOCHASTIC SIGNAL DESIGN AND DETECTOR RANDOMIZATION IN THE NEYMAN-PEARSON FRAMEWORK

Dulek B., Gezici S.

IEEE International Conference on Acoustics, Speech and Signal Processing, Kyoto, Japan, 25 - 30 March 2012, pp.3025-3028

VI. A CONFIDENCE ELLIPSOID APPROACH FOR MEASUREMENT COST MINIMIZATION UNDER GAUSSIAN NOISE

Dulek B., Gezici S.

13th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Cesme, Turkey, 17 - 20 June 2012, pp.339-343

VII. Human face detection in video using-edge projections

Turkan M., Dulek B., Onaran I., Cetin A. E.

Conference on Visual Information Processing XV, Florida, United States Of America, 18 - 19 April 2006, vol.6246

VIII. Relation between color and acrylamide in roasted coffee Spectrometric measurement and computer vision based image analysis approaches

Şenyuva H. Z. , GÖKMEN V., DÜLEK B., ÇETİN A. E.

2nd International Symposium on Recent Advances in Food Analysis, Prag, 2 - 04 November 2005

IX. Correlation between surface color and acrylamide in potato chips Machine vision based approach as a rapid detection too

Şenyuva H., GÖKMEN V., DÜLEK B., ÇETİN A. E.

COST Action 927 – Thermally processed Foods: Possible Health Implications, III. Workshop, Hamburg, Germany, 23 - 24 September 2005

Supported Projects

DÜLEK B., Project Supported by Higher Education Institutions, Belirli bir sinyal yıldız kümesi için ortalama sembol enerjisi ve bit hızı kısıtı altında optimum işaretleme, 2017 - 2018

DÜLEK B., Project Supported by Higher Education Institutions, Çoklu sensörler ile hibrit olabilirlik tabanlı çevrimiçi kipleme sınıflandırma, 2017 - 2017

DÜLEK B., Project Supported by Higher Education Institutions, Önsel Olasılık Bilgisi Belirsizliği Altında Müşterek Sezim ve Sembol Çözümleme, 2016 - 2017

DÜLEK B., Project Supported by Higher Education Institutions, Düz Sönümlü Toplanır Beyaz Gauss Gürültü Kanallarında Ortalama Sezim Olasılığının Maksimizasyonu için Optimal Güç Tahsisi, 2016 - 2016

DÜLEK B., Project Supported by Higher Education Institutions, Sinyal İşleme ve İletişimde Yenilikçi Yaklaşımların Araştırılması, 2016 - 2016

DÜLEK B., Project Supported by Higher Education Institutions, Veri kayıpları altında en büyük olabilirlik tabanlı modülasyon sınıflandırması, 2016 - 2016

DÜLEK B., Project Supported by Higher Education Institutions, Otomatik Kipleme Sınıflandırması, 2015 - 2015

DÜLEK B., Other Supported Projects, Zaman uyumsuz ağ işaret işleme ve sınıflandırma teknikleri, 2012 - 2013

DÜLEK B., Other Supported Projects, Bilişsel radyoda spektrum algılama ve girişim yönetimi, 2011 - 2012

Citations

Total Citations (WOS):224

h-index (WOS):9

Awards

Dülek B., BİLİM TEŞVİK ÖDÜLÜ, Hacettepe Üniversitesi, October 2019