

Personal Information

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Education Information

Doctorate, Imperial College Of Science, Technology And Medicine, Elektrik-Elektronik Mühendisliği, United Kingdom
1992 - 1995

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Underdetermined Recursive Least-Squares Adaptive Filtering, Imperial College Of Science, Technology And Medicine, Elektrik-Elektronik Mühendisliği, 1995

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2004 -
Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü,
1999 - 2003

Assistant Professor, Başkent Üniversitesi, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 1997 - 1999
Research Assistant, Imperial College Of Science, Technology And Medicine, Elektrik Ve Elektronik Mühendisliği, 1993 -
1997

Advising Theses

BAYKAL B., Comparison of EKF, EKF2 and UKF in a loosely coupled INS/GPS integration, Post Graduate,
H.JANE(Student), 2018

BAYKAL B., Investigation of energy efficient traffic adaptive MAC layer protocols for multi-hop Ad-Hoc networks, Post
Graduate, M.SENEM(Student), 2017

BAYKAL B., A scheduling method for sporadic traffics in industrial iot, Post Graduate, B.ÖZCEYLAN(Student), 2017

BAYKAL B., Vector tracking loop design for GPS receivers, Post Graduate, D.ÜZEL(Student), 2016

BAYKAL B., Evaluation of priority dependent and time scheduled mac layer protocols for Ad-Hoc networks, Post
Graduate, İ.ERDEĞER(Student), 2015

BAYKAL B., Topology control vector based forwarding algorithm for underwater acoustic networks, Post Graduate,
İ.YAZGI(Student), 2015

BAYKAL B., Development of the holistic work system framework (HWSF) with the aid of information systems research
design science guideline, Doctorate, E.ÖZALP(Student), 2014

BAYKAL B., Tracking of multiple ground targets in clutter with interacting multiple model estimator, Post Graduate,
Y.KORKMAZ(Student), 2013

BAYKAL B., Target localization methods for frequency-only MIMO radar, Doctorate, Y.KALKAN(Student), 2012

BAYKAL B., Yer hedeflerinin etkileşimli çoklu modelleme ile takibi, Post Graduate, D.ACAR(Student), 2011

BAYKAL B., SARANLI A., Tracker-aware detection: A theoretical and an experimental study, Doctorate,
M.ŞAMİL(Student), 2009

BAYKAL B., The feasibility, reliable communication and networking aspects of passive wireless sensor networks, Post Graduate, M.YAĞLI(Student), 2006

BAYKAL B., SARANLI A., On optimal resource allocation in phased array radar systems, Post Graduate, A.IRCI(Student), 2006

BAYKAL B., İçerik tabanlı sorgu ve tarama için yapısal ve anlamsal ses içerik analizi, Doctorate, M.SERT(Student), 2006

YILMAZ A. Ö. , BAYKAL B., Sub-graph approach in iterative sum-product algorithm, Post Graduate, M.FATİH(Student), 2005

BAYKAL B., GENÇER N. G. , Extraction of auditory evoked potentials from ongoing EEG, Doctorate, S.AYDIN(Student), 2005

BAYKAL B., Generalized random spreading performance analysis of CDMA code over GWSSUS fading channels, Doctorate, Ö.ERTUĞ(Student), 2005

BAYKAL B., Interception techniques for direct sequence spread spectrum signals, Post Graduate, U.KARADENİZ(Student), 2005

BAYKAL B., Block transmissions on orthogonal carriers, Post Graduate, A.YAZICI(Student), 2005

BAYKAL B., 2D correlated diffusion process for mobility modeling in mobile networks, Post Graduate, T.ÇAKIR(Student), 2004

BAYKAL B., Implementation of stanag 4285 HF modem software on TMS320C54X digital signal processor, Post Graduate, E.ÖRÜMLÜ(Student), 2004

BAYKAL B., Performance comparison of adaptive decision feedback equalizer and blind decision feedback equalizer, Post Graduate, S.ŞENOL(Student), 2004

BAYKAL B., A novel architecture proposal for multi-access management in IP-based future wireless networks, Post Graduate, S.ALTUNDAŞ(Student), 2003

BAYKAL B., A simulation study of scheduling algorithms for packet switching networks, Post Graduate, Ö.BABUR(Student), 2003

BAYKAL B., A statistical approach for examining internet traffic and delay characteristics of UDP packets, Post Graduate, C.SEVGİ(Student), 2003

BAYKAL B., Handover algorithms for mobile IPv6, Post Graduate, V.ÇAĞRI(Student), 2003

BAYKAL B., Real time video over IP transmission, Post Graduate, O.ÇINAR(Student), 2003

BAYKAL B., A turbo detection scheme for EGPRS, Post Graduate, Ü.GÜLMEZ(Student), 2003

BAYKAL B., Buffer and error management techniques in voice over IP, Post Graduate, S.CEYLAN(Student), 2002

BAYKAL B., Blind adaptive decision feedback equalization, Post Graduate, E.KURBAN(Student), 2002

BAYKAL B., Mobility management in wireless networks: Handover issue, Post Graduate, Ö.ESER(Student), 2001

BAYKAL B., 1200 bit/ sn hızlı bir düşük bit hızlı konuşma kodlayıcı tasarımı, Doctorate, S.ÖZAYDIN(Student), 2001

BAYKAL B., Pre-handoff messaging for qos-aware and reduced latency handoffs in cellular networks, Post Graduate, Ö.BARIŞ(Student), 2001

BAYKAL B., Real-time implementation of 2400 BPS melp with TMS320C3X, Post Graduate, İ.ÖZÇELİK(Student), 1999

BAYKAL B., Mobile agent based wireless ATM network management protocol, Post Graduate, K.ÖZBAŞ(Student), 1999

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

- **IPBM: an energy efficient reliable interference-aware periodic broadcast messaging protocol for MANETs**
ÜNÜLÜ B., Özceylan B., BAYKAL B.
WIRELESS NETWORKS, vol.25, pp.2769-2787, 2019 (Journal Indexed in SCI)
- **Multiple target localization & data association for frequency-only widely separated MIMO radar**
Kalkan Y., BAYKAL B.
DIGITAL SIGNAL PROCESSING, vol.25, pp.51-61, 2014 (Journal Indexed in SCI)
- **Frequency-based target localization methods for widely separated MIMO radar**
Kalkan Y., BAYKAL B.
RADIO SCIENCE, vol.49, pp.53-67, 2014 (Journal Indexed in SCI)
- **Study on Q-RAM and Feasible Directions Based Methods for Resource Management in Phased Array Radar Systems**
Irci A., SARANLI A., BAYKAL B.
IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, vol.46, pp.1848-1864, 2010 (Journal Indexed in SCI)

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- **Tracker-aware adaptive detection: An efficient closed-form solution for the Neyman-Pearson case**
Aslan M. S. , SARANLI A., BAYKAL B.
DIGITAL SIGNAL PROCESSING, vol.20, pp.1468-1481, 2010 (Journal Indexed in SCI)
- **Wireless Passive Sensor Networks**
Akan O. B. , Isik M. T. , BAYKAL B.
IEEE COMMUNICATIONS MAGAZINE, vol.47, pp.92-99, 2009 (Journal Indexed in SCI)
- **Structural and semantic modeling of audio for content-based querying and browsing**
Sert M., Baykal B., Yazici A.
FLEXIBLE QUERY ANSWERING SYSTEMS, PROCEEDINGS, vol.4027, pp.319-330, 2006 (Journal Indexed in SCI)
- **Real-time coordination and routing in wireless sensor and actor networks**
Shah G. A. , Bozyigit M., Akan O. B. , Baykal B.
NEXT GENERATION TELETRAFFIC AND WIRED/ WIRELESS ADVANCED NETWORKING, PROCEEDINGS, vol.4003, pp.365-383, 2006 (Journal Indexed in SCI)
- **Handoff performance improvement with latency reduction in next generation wireless networks**
Akan O., Baykal B.
WIRELESS NETWORKS, vol.11, pp.319-332, 2005 (Journal Indexed in SCI)
- **Mobile multi-access IP: a proposal for mobile multi-access management in future wireless IP networks**
Altuntas S., Baykal B.
COMPUTER NETWORKS, vol.47, pp.577-592, 2005 (Journal Indexed in SCI)
- **Joint spatial and temporal channel-shortening techniques for frequency selective fading MIMO channels**
Toker C., Lambotharan S., Chambers J., Baykal B.
IEE PROCEEDINGS-COMMUNICATIONS, vol.152, pp.89-94, 2005 (Journal Indexed in SCI)
- **Blind channel estimation via combining autocorrelation and blind phase estimation**
Baykal B.
IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS I-REGULAR PAPERS, vol.51, pp.1125-1131, 2004 (Journal Indexed in SCI)
- **Blind matched filter receiver**
Baykal B.
IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS I-REGULAR PAPERS, vol.51, pp.379-390, 2004 (Journal Indexed in SCI)
- **Matrix quantization and mixed excitation based linear predictive speech coding at very low bit rates**
Ozaydin S., Baykal B.
SPEECH COMMUNICATION, vol.41, pp.381-392, 2003 (Journal Indexed in SCI)
- **Matched filtering for CMA-based blind channel estimation**
Baykal B., Constantinides A.
ELECTRONICS LETTERS, vol.39, pp.1285-1287, 2003 (Journal Indexed in SCI)
- **Methodology for performance analysis of randomly-spread CDMA systems over multipath fading channels via crosscorrelation matrix non-asymptotic average eigenvalue densities**
Ertug O., Baykal B., Unal B.
ELECTRONICS LETTERS, vol.39, pp.1210-1212, 2003 (Journal Indexed in SCI)
- **Complexity reduction in radial basis function (RBF) networks by using radial B-spline functions**
Saranli A., Baykal B.
NEUROCOMPUTING, vol.18, pp.183-194, 1998 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- **An Energy Efficient Optimum Shared Cell Scheduling for TSCH Networks**
Ozceylan B., Unlu B., BAYKAL B.
13th IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), Rome, Italy, 9 - 11 October 2017, pp.395-402

- **Topology Control Vector Based Forwarding Algorithm for Underwater Acoustic Networks**
 Yazgi I., BAYKAL B.
 24th Signal Processing and Communication Application Conference (SIU), Zonguldak, Turkey, 16 - 19 May 2016, pp.1141-1144
- **A Holistic Work System Framework (HWSF) Development Using Systems Thinking**
 Ozalp E., BAYKAL B.
 Portland International Conference on Management of Engineering & Technology (PICMET), Kanazawa, Japan, 27 - 31 July 2014, pp.2056-2069
- **Track Loss versus Computation Time Dilemma in Multitarget Ground Target Tracking Performance**
 Korkmaz Y., BAYKAL B.
 16th International Conference on Information Fusion (FUSION), İstanbul, Turkey, 9 - 12 July 2013, pp.2168-2176
- **Ground Target Tracking of a Temporarily Invisible Target due to Topographic Constraints**
 Alat G., LEBLEBİCİOĞLU M. K. , BAYKAL B.
 21st Signal Processing and Communications Applications Conference (SIU), CYPRUS, 24 - 26 April 2013
- **Target Localization and Velocity Estimation Methods for Frequency-Only MIMO Radars**
 Kalkan Y., BAYKAL B.
 IEEE Radar Conference (RADAR), Missouri, United States Of America, 23 - 27 May 2011, pp.458-463
- **Fault Tree Analysis of a Fire Hazard of a Power Distribution Cabinet with Petri Nets**
 Pahsa A., Bayazit T. A. , Alat G., Baykal B., Havelsan A. S. , Binasi A.
 IEEE International Conference on Systems, Man and Cybernetics, İstanbul, Turkey, 10 - 13 October 2010
- **Target Localization Methods for Frequency-Only MIMO Radar**
 Kalkan Y., BAYKAL B.
 7th European Radar Conference (EURAD), Paris, France, 30 September - 01 October 2010, pp.396-399
- **MIMO Radar Target Localization by Using Doppler Shift Measurement**
 Kalkan Y., BAYKAL B.
 6th European Radar Conference, Rome, Italy, 30 September - 02 October 2009, pp.489-490
- **A Display Processing Software Application Framework for Mission Computer Systems**
 Kilinc I., Gezici G., Er E., Baykal B.
 24th International Symposium on Computer and Information Sciences, Güzelyurt, Cyprus (Kkct), 14 - 16 September 2009, pp.723-724
- **Using Continuous Integration and Automated Test Techniques for a Robust C4ISR System**
 Yuksel H. M. , Tuzun E., Gelirli E., Biyikli E., BAYKAL B.
 24th International Symposium on Computer and Information Sciences, Güzelyurt, Cyprus (Kkct), 14 - 16 September 2009, pp.741-742
- **A Buffer Zone Computation Algorithm for Corridor Rendering in GIS**
 Er E., Kilinc I., Gezici G., BAYKAL B.
 24th International Symposium on Computer and Information Sciences, Güzelyurt, Cyprus (Kkct), 14 - 16 September 2009, pp.431-432
- **A PRACTICAL POINT OF VIEW: PERFORMANCE OF NEYMAN-PEARSON DETECTOR FOR MIMO RADAR IN K-DISTRIBUTED CLUTTER**
 Yazici A., Hamurcu A. C. , BAYKAL B.
 15th IEEE/SP Workshop on Statistical Signal Processing, Cardiff, United Kingdom, 31 August - 03 September 2009, pp.273-276
- **Combining Structural Analysis and Computer Vision Techniques for Automatic Speech Summarization**
 SERT M., BAYKAL B., YAZICI A.
 IEEE International Symposium on Multimedia, California, United States Of America, 15 - 17 December 2008, pp.515-516
- **Block Transmissions on Orthogonal Carriers**
 Yazici A., BAYKAL B.
 64th IEEE Vehicular Technology Conference, Montreal, Canada, 25 - 28 September 2006, pp.852-856
- **Generating expressive summaries for speech and musical audio using self-similarity clues**
 Sert M., Baykal B., Yazici A.
 IEEE International Conference on Multimedia and Expo (ICME 2006), Toronto, Canada, 9 - 12 July 2006, pp.941-

- **A robust and time-efficient fingerprinting model for musical audio**
SERT M., BAYKAL B., YAZICI A.
10th IEEE International Symposium on Consumer Electronics (ISCE 2006), St Petersburg, Russia, 28 June - 01 July 2006, pp.628-629
- **On optimal resource allocation in multifunction radar systems**
Irci A., SARANLI A., BAYKAL B.
2006 IEEE Radar Conference, Verona, Italy, 24 - 27 April 2006, pp.684-685
- **A real-time optimal resource allocation approach in a radar system**
Irci A., Saranli A., BAYKAL B.
IEEE 14th Signal Processing and Communications Applications, Antalya, Turkey, 16 - 19 April 2006, pp.846-847
- **Maximum total ergodic spectral efficiency of randomly-spread coded-CDMA with linear multiuser receivers over multipath fading channels**
Ertug Z., Unal B., Baykal B., Yucel M.
IEEE Global Telecommunications Conference (GLOBECOM 03), San-Francisco, Costa Rica, 1 - 05 December 2003, pp.1568-1572
- **Comparison of methods for extracting of evoked potentials**
Kilic S., Gencer N., Baykal B.
25th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society, Cancun, Mexico, 17 - 21 September 2003, vol.25, pp.2495-2498
- **A new approach to unified performance analysis of randomly-spread CDMA systems over multipath fading channels via crosscorrelation matrix non-asymptotic average eigenvalue distributions**
Ertug O., Baykal B., Sayrac B.
14th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Beijing, China, 7 - 10 September 2003, pp.564-568
- **Total outage capacity of randomly-spread coded-CDMA with linear multiuser receivers over multipath fading channels**
Ertug O., Sayrac B., Baykal B., Yucel M.
8th IEEE International Symposium on Computers and Communication (ISCC 2003), Antalya, Turkey, 30 June - 03 July 2003, pp.913-918
- **A QoS-Aware handoff using RSVP in next generation wireless networks**
Baykal B., Akan O.
8th IEEE International Symposium on Computers and Communication (ISCC 2003), Antalya, Turkey, 30 June - 03 July 2003, pp.125-130
- **Dynamic SLA management in cellular DiffServ networks**
Akan O., Baykal B.
10th International Conference on Telecommunications (ICT 2003), Papeete, French Polynesia, 23 February - 01 March 2003, pp.330-333
- **An IP multicast handoff scheme with focus on IGMP sourced latency**
Baykal B., Akdemir O., Akan O.
5th IEEE International Conference on High Speed Networks and Multimedia Communications (HSNMC 2002), Jeju-Si, South Korea, 3 - 05 July 2002, pp.361-364
- **Space-time-frequency decorrelating decision-feedback multiuser detector over fast-fading multipath channels for synchronous DS-CDMA systems**
Ertug O., Baykal B., Unal B.
54th IEEE Vehicular Technology Conference (VTC 2001), New-Jersey, United States Of America, 7 - 11 October 2001, pp.328-332
- **Space-time-frequency multiuser detection over fast-fading multipath channels for synchronous DS-CDMA systems**
Ertug O., Baykal B.
53rd IEEE Vehicular Technology Conference (VTC), RHODES, Greece, 6 - 09 May 2001, pp.1503-1507
- **Time-frequency decorrelating decision-feedback multiuser detector over fast-fading multipath channels for synchronous DS-CDMA systems**

Ertug O., Baykal B.

3rd IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC 01), Taoyuan, Taiwan,
20 - 23 March 2001, pp.170-173

Citations

Total Citations (WOS):202

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