

Prof. ELİF UYSAL

Personal Information

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Education Information

Doctorate, Stanford University, Elektrik Muh Bil, United States Of America 1999 - 2003

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Energy Efficient Wireless Communication, Stanford University, Elektrik Muh Bil, 2003

Research Areas

Electrical and Electronics Engineering

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty Of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2006 - Continues

Advising Theses

- UYSAL BIYIKOĞLU E., Dynamic allocation of renewable energy through a stochastic knapsack problem formulation for an access point on the move, Post Graduate, E.TUĞÇE(Student), 2014
- UYSAL BIYIKOĞLU E., Optimizing the service policy of a mobile service provider through competitive online solutions to the 0/1 knapsack problem with dynamic capacity, Post Graduate, T.ERKILIÇ(Student), 2014
- UYSAL BIYIKOĞLU E., Optimization of feedback in a multiuser miso communication downlink with energy harvesting users, Post Graduate, M.SHAKIBA(Student), 2014
- UYSAL BIYIKOĞLU E., Design and optimization of a rate adaptation algorithm for energy harvesting transmitters, Post Graduate, C.EMRE(Student), 2014
- UYSAL BIYIKOĞLU E., A low-complexity, near-optimal scheduling policy for solving a restless multi-armed bandit problem occurring in a single-hop wireless network, Post Graduate, Ö.MELİH(Student), 2014
- UYSAL BIYIKOĞLU E., Optimal transmission scheduling for energy harvesting systems and implementation of energy efficient scheduling algorithms on software defined radio, Post Graduate, G.UÇTU(Student), 2014
- UYSAL BIYIKOĞLU E., Duty cycle optimization in energy harvesting sensor networks with application to bluetooth low energy, Post Graduate, B.AKGÜN(Student), 2014
- UYSAL BIYIKOĞLU E., Implementation of the HEED clustering protocol with sleep scheduling in TinyOS 2 on a wireless

sensor network testbed, Post Graduate, C.ÖZKAN(Student), 2013

UYSAL BIYIKOĞLU E., Efficient resource allocation in energy harvesting wireless networks, Doctorate, N.TEKBIYIK(Student), 2012

UYSAL BIYIKOĞLU E., Identification and localization on a wireless magnetic sensor network, Post Graduate, S.BAGHAEE(Student), 2012

UYSAL BIYIKOĞLU E., Optimal and implementable transmission schemes for energy harvesting networks, Post Graduate, F.MEHMET(Student), 2012

UYSAL BIYIKOĞLU E., SWIM: A new multicast routing algorithm for wireless networks, Post Graduate, A.SİNAN(Student), 2011

UYSAL BIYIKOĞLU E., Optimization of energy harvesting wireless communication systems, Post Graduate, H.ERKAL(Student), 2011

UYSAL BIYIKOĞLU E., A study on certain theoretical and practical problems in wireless networks, Post Graduate, M.AKİF(Student), 2010

UYSAL BIYIKOĞLU E., Optimal resource allocation algorithms for efficient operation of wireless networks, Post Graduate, Ö.ÖZEL(Student), 2009

YILMAZ A. Ö. , UYSAL BIYIKOĞLU E., Subcarrier allocation in OFDMA systems with time varying channel and packet arrivals, Post Graduate, E.TOKTAŞ(Student), 2008

UYSAL BIYIKOĞLU E., Energy-efficient routing to maximize network lifetime in wireless sensor networks, Post Graduate, A.ZENGİN(Student), 2007

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

- **Sampling of the Wiener Process for Remote Estimation Over a Channel With Random Delay**
Sun Y., Polyanskiy Y., UYSAL E.
IEEE TRANSACTIONS ON INFORMATION THEORY, vol.66, pp.1118-1135, 2020 (Journal Indexed in SCI)
- **Optimal Status Updating with a Finite-Battery Energy Harvesting Source**
Bacinoglu B. T. , Sun Y., UYSAL E., Mutlu V.
JOURNAL OF COMMUNICATIONS AND NETWORKS, vol.21, pp.280-294, 2019 (Journal Indexed in SCI)
- **Implementation of Energy-Neutral Operation on Vibration Energy Harvesting WSN**
Chamanian S., Baghaee S., Ulsan H., Zorlu O., UYSAL BIYIKOĞLU E., KÜLAH H.
IEEE SENSORS JOURNAL, vol.19, pp.3092-3099, 2019 (Journal Indexed in SCI)
- **Reliable Transmission of Short Packets Through Queues and Noisy Channels Under Latency and Peak-Age Violation Guarantees**
Devassy R., Durisi G., Ferrante G. C. , Simeone O., UYSAL BIYIKOĞLU E.
IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, vol.37, pp.721-734, 2019 (Journal Indexed in SCI)
- **Scheduling Policies for Minimizing Age of Information in Broadcast Wireless Networks**
Kadota I., Sinha A., UYSAL BIYIKOĞLU E., Singh R., Modiano E.
IEEE-ACM TRANSACTIONS ON NETWORKING, vol.26, pp.2637-2650, 2018 (Journal Indexed in SCI)
- **Update or Wait: How to Keep Your Data Fresh**
Sun Y., UYSAL BIYIKOĞLU E., Yates R. D. , Koksall C. E. , Shroff N. B.
IEEE TRANSACTIONS ON INFORMATION THEORY, vol.63, pp.7492-7508, 2017 (Journal Indexed in SCI)
- **Finite-Horizon Energy-Efficient Scheduling With Energy Harvesting Transmitters Over Fading Channels**
BACINOĞLU B. T. , UYSAL BIYIKOĞLU E., Koksall C. E.
IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, vol.16, pp.6105-6118, 2017 (Journal Indexed in SCI)
- **Optimal energy allocation policies for a high altitude flying wireless access point**
Ceran E. T. , Erkilic T., UYSAL BIYIKOĞLU E., GİRİCİ T., Leblebicioglu K.
TRANSACTIONS ON EMERGING TELECOMMUNICATIONS TECHNOLOGIES, vol.28, 2017 (Journal Indexed in SCI)
- **Wearable battery-less wireless sensor network with electromagnetic energy harvesting system**
Chamanian S., Ulsan H., Zorlu O., Baghaee S., UYSAL BIYIKOĞLU E., KÜLAH H.

- SENSORS AND ACTUATORS A-PHYSICAL, vol.249, pp.77-84, 2016 (Journal Indexed in SCI)
Implementation of an Enhanced Target Localization and Identification Algorithm on a Magnetic WSN
Baghaee S., GÜRBÜZ S. Z. , UYSAL BIYIKOĞLU E.
- IEICE TRANSACTIONS ON COMMUNICATIONS, pp.2022-2032, 2015 (Journal Indexed in SCI)
Powering-up Wireless Sensor Nodes Utilizing Rechargeable Batteries and an Electromagnetic Vibration Energy Harvesting System
Chamanian S., Baghaee S., Ulsan H., Zorlu O., KÜLAH H., UYSAL BIYIKOĞLU E.
- ENERGIES, vol.7, pp.6323-6339, 2014 (Journal Indexed in SCI)
Finite-Horizon Online Transmission Scheduling on an Energy Harvesting Communication Link with a Discrete Set of Rates
BACINOĞLU B. T. , UYSAL BIYIKOĞLU E.
- JOURNAL OF COMMUNICATIONS AND NETWORKS, vol.16, pp.293-300, 2014 (Journal Indexed in SCI)
Network-wide energy efficiency in wireless networks with multiple access points
Ozel O., UYSAL BIYIKOĞLU E.
- TRANSACTIONS ON EMERGING TELECOMMUNICATIONS TECHNOLOGIES, vol.24, pp.568-581, 2013 (Journal Indexed in SCI)
Optimal offline broadcast scheduling with an energy harvesting transmitter
Erkal H., Ozcelik F. M. , UYSAL BIYIKOĞLU E.
- EURASIP JOURNAL ON WIRELESS COMMUNICATIONS AND NETWORKING, 2013 (Journal Indexed in SCI)
Proportional Fair Resource Allocation on an Energy Harvesting Downlink
Tekbiyik N., GİRİCİ T., UYSAL BIYIKOĞLU E., Leblebicioglu K.
- IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, vol.12, pp.1699-1711, 2013 (Journal Indexed in SCI)
Minimization of Transmission Duration of Data Packets over an Energy Harvesting Fading Channel
Ozcelik F. M. , Uctu G., UYSAL BIYIKOĞLU E.
- IEEE COMMUNICATIONS LETTERS, vol.16, pp.1968-1971, 2012 (Journal Indexed in SCI)
A Greedy Link Scheduler for Wireless Networks With Gaussian Multiple-Access and Broadcast Channels
Sridharan A., Koksal C. E. , UYSAL BIYIKOĞLU E.
- IEEE-ACM TRANSACTIONS ON NETWORKING, vol.20, pp.100-113, 2012 (Journal Indexed in SCI)
Optimal Packet Scheduling on an Energy Harvesting Broadcast Link
Antepli M. A. , UYSAL BIYIKOĞLU E., Erkal H.
- IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, vol.29, pp.1721-1731, 2011 (Journal Indexed in SCI)
Energy efficient wireless unicast routing alternatives for machine-to-machine networks
Tekbiyik N., UYSAL BIYIKOĞLU E.
- JOURNAL OF NETWORK AND COMPUTER APPLICATIONS, vol.34, pp.1587-1614, 2011 (Journal Indexed in SCI)
A Depth-optimal Low-complexity Distributed Wireless Multicast Algorithm
Akyurek A. S. , UYSAL BIYIKOĞLU E.
- COMPUTER JOURNAL, vol.54, pp.988-1003, 2011 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- **Peak-Age Violation Guarantees for the Transmission of Short Packets over Fading Channels**
Ostman J., Devassy R., Durisi G., UYSAL E.
IEEE INFOCOM 2019 - IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPs), Paris, France, 29 April - 02 May 2019
- **Age Minimization of Multiple Flows using Reinforcement Learning**
beytur h. b. , UYSAL E.
2019 International Conference on Computing, Networking and Communications (ICNC), Honolulu, HI, USA, 18 - 21 February 2019, no.1
- **Measuring age of information on real-life connections**

Beytur H. B. , Baghaee S., UYSAL E.

27th Signal Processing and Communications Applications Conference, SIU 2019, Sivas, Turkey, 24 - 26 April 2019

Age-Optimal Channel Coding Blocklength for an M/G/1 Queue with HARQ

Sac H., Bacinoglu T., Uysal-Biyikoglu E., Durisi G.

19th IEEE International Workshop on Signal Processing Advances in Wireless Communications, SPAWC 2018, Kalamata, Greece, 25 - 28 June 2018

Optimizing age of information on real-life TCP/IP connections through reinforcement learning

Sert E., Sonmez C., Baghaee S., Uysal-Biyikoglu E.

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

Achieving the Age-Energy Tradeoff with a Finite-Battery Energy Harvesting Source

BACINOĞLU B. T. , Sun Y., UYSAL BIYIKOĞLU E., Mutlu V.

IEEE International Symposium on Information Theory (ISIT), Colorado, United States Of America, 17 - 22 June 2018, pp.876-880

Delay and Peak-Age Violation Probability in Short-Packet Transmissions

Devassy R., Durisi G., Ferrante G. C. , Simeone O., UYSAL BIYIKOĞLU E.

IEEE International Symposium on Information Theory (ISIT), Colorado, United States Of America, 17 - 22 June 2018, pp.2471-2475

Minimizing Age of Information for Multiple Flows

Beytur H. B. , UYSAL BIYIKOĞLU E.

IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom), Batumi, Georgia, 4 - 07 June 2018, pp.31-35

Age-of-Information in Practice: Status Age Measured over TCP/IP Connections through WiFi, Ethernet and LTE

Sonmez C., Baghaee S., Ergisi A., UYSAL BIYIKOĞLU E.

IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom), Batumi, Georgia, 4 - 07 June 2018, pp.76-80

Age-Optimal Updates of Multiple Information Flows

Sun Y., UYSAL BIYIKOĞLU E., Kompella S.

IEEE Conference on Computer Communications (IEEE INFOCOM), Hawaii, United States Of America, 15 - 19 April 2018, pp.136-141

Energy Efficient Transmission Scheduling for Channel-adaptive Wireless Energy Transfer

BACINOĞLU B. T. , Kaya O., UYSAL BIYIKOĞLU E.

IEEE Wireless Communications and Networking Conference (WCNC), Barcelona, Spain, 15 - 18 April 2018

Scheduling Status Updates from a Sensor to Minimize the Age of Information at the Destination

UYSAL BIYIKOĞLU E.

Dagstuhl Workshop on Fundamentals of Wireless Networking, Saarbrücken, Germany, 2 - 07 July 2017

Scheduling Status Updates to Minimize Age of Information with an Energy Harvesting Sensor

BACINOĞLU B. T. , UYSAL BIYIKOĞLU E.

IEEE International Symposium on Information Theory (ISIT), Aachen, Germany, 25 - 30 June 2017, pp.1122-1126

Remote estimation of the Wiener process over a channel with random delay

Sun Y., Polyanskiy Y., UYSAL BIYIKOĞLU E.

2017 IEEE International Symposium on Information Theory (ISIT), Aachen, Germany, Germany, 25 - 30 June 2017, pp.321-325

Enerji hasatçı ve batarya kısıtlı bir sensör ile en taze veri güncellemelerinin gönderilmesi

BACINOĞLU B. T. , UYSAL BIYIKOĞLU E.

2017 25th Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 15 - 18 May 2017

Age-Optimal Status Updating with an Energy Harvesting Sender

BACINOĞLU B. T. , UYSAL BIYIKOĞLU E.

Information Theory and Applications Workshop, San Diego, United States Of America, 11 - 15 February 2017

● **Minimizing the Age of Information in Broadcast Wireless Networks**

Kadota I., UYSAL BIYIKOĞLU E., Singh R., Modiano E.

54th Annual Allerton Conference on Communication, Control, and Computing (Allerton), Illinois, United States Of America, 27 - 30 September 2016, pp.844-851

● **Age of information Controlling the freshness of status updates under energy constraints Keynote Talk**

UYSAL BIYIKOĞLU E.

30th International Symposium on Computer and Information Sciences, Londrina, Brazil, 23 - 25 September 2015

● **Age of Information under Energy Replenishment Constraints**

BACINOĞLU B. T. , Ceran E. T. , UYSAL BIYIKOĞLU E.

Information Theory and Applications Workshop (ITA), California, United States Of America, 1 - 06 February 2015, pp.25-31

● **Finite Horizon Online Lazy Scheduling with Energy Harvesting Transmitters over Fading Channels**

BACINOĞLU B. T. , UYSAL BIYIKOĞLU E.

IEEE International Symposium on Information Theory (ISIT), Hawaii, United States Of America, 29 June - 04 July 2014, pp.1176-1180

● **Achieving Nearly 100% Throughput without Feedback in Energy Harvesting Wireless Networks**

GÜL Ö. M. , UYSAL BIYIKOĞLU E.

IEEE International Symposium on Information Theory (ISIT), Hawaii, United States Of America, 29 June - 04 July 2014, pp.1171-1175

● **Demonstration of Energy-Neutral Operation on a WSN Testbed Using Vibration Energy Harvesting**

Baghaee S., Uluşan H., Chamanian S., Zorlu Ö., Uysal Biyikoğlu E., Külah H.

20th European Wireless Conference, Barcelona, Spain, 14 - 16 May 2014, pp.1-4

● **Advertisement Scheduling in Bluetooth Low Energy Devices**

BACINOĞLU B. T. , Ozcelik F. M. , UYSAL BIYIKOĞLU E.

22nd IEEE Signal Processing and Communications Applications Conference (SIU), Trabzon, Turkey, 23 - 25 April 2014, pp.1575-1578

● **A Randomized Scheduling Algorithm for Energy Harvesting Wireless Sensor Networks Achieving Nearly 100% Throughput**

GÜL Ö. M. , UYSAL BIYIKOĞLU E.

IEEE Wireless Communications and Networking Conference (WCNC), İstanbul, Turkey, 6 - 09 April 2014, pp.2456-2461

● **Routing with Mutual Information Accumulation in Energy-Limited Wireless Networks**

Shakiba-Herfeh M., GİRİCİ T., UYSAL BIYIKOĞLU E.

24th Tyrrhenian International Workshop on Digital Communications - Green ICT (TIWDC), Genoa, Italy, 23 - 25 September 2013

● **Finite Horizon Online Packet Scheduling with Energy and Delay Constraints**

BACINOĞLU B. T. , UYSAL BIYIKOĞLU E.

1st International Black Sea Conference on Communications and Networking (BlackSeaCom), Batumi, Georgia, 3 - 05 July 2013, pp.191-195

● **Application and Modeling of a Magnetic WSN for Target Localization**

Baghaee S., GÜRBÜZ S. Z. , UYSAL BIYIKOĞLU E.

UKSim-AMSS 15th International Conference on Computer Modelling and Simulation (UKSim), Cambridge, Canada, 10 - 12 April 2013, pp.687-692

● **Kalman Prediction Based Proportional Fair Resource Allocation for a Solar Powered Base Station**

Tekbiyik-Ersoy N., Uysal-Biyikoglu E., Leblebicioglu K., Girici T.

21st Signal Processing and Communications Applications Conference (SIU), CYPRUS, 24 - 26 April 2013

● **Optimal Offline Packet Scheduling on an Energy Harvesting Broadcast Link**

Ozcelik F. M. , Erkal H. , UYSAL BIYIKOĞLU E.

IEEE International Symposium on Information Theory (ISIT), St Petersburg, Russia, 31 July - 05 August 2011, pp.2886-2890

- **Ferromagnetic Target Detection and Localization with a Wireless Sensor Network**
Antepli M. A. , Gurbuz S. Z. , UYSAL BIYIKOĞLU E.
MILCOM Military Communications Conference, San-Jose, Costa Rica, 31 October - 03 November 2010, pp.1068-1073
- **Buffer Sharing on an OFDMA Downlink**
GİRİCİ T., Ozel O., UYSAL BIYIKOĞLU E.
21st Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), İstanbul, Turkey, 26 - 30 September 2010, pp.1162-1167
- **A Greedy Link Scheduler for Wireless Networks with Gaussian Multiple Access and Broadcast Channels**
Sridharan A., Koksal C. E. , UYSAL BIYIKOĞLU E.
Conference on IEEE INFOCOM, California, United States Of America, 15 - 19 March 2010
- **Optimal Buffer Partitioning on a Multiuser Wireless Link**
Ozel O., UYSAL BIYIKOĞLU E., GİRİCİ T.
Information Theory and Applications Workshop (ITA), California, United States Of America, 31 January - 05 February 2010, pp.505-514
- **A Power Control Game with Smooth Reduction of SINR Objectives**
Ozel O., UYSAL BIYIKOĞLU E.
47th Annual Allerton Conference on Communication, Control, and Computing, Illinois, United States Of America, 30 September - 02 October 2009, pp.1187-1188
- **Distributed Power Control Using Non-monotonic Reaction Curves**
Ozel O., UYSAL BIYIKOĞLU E.
International Conference on Game Theory for Networks, İstanbul, Turkey, 13 - 15 May 2009, pp.60-67

Activities in Scientific Journals

IEEE-ACM Transactions On Networking, Editor, 2018 - Continues

Citations

Total Citations (WOS):696

h-index (WOS):11

Invited Talks

Minimizing Age of Information in the Finite Blocklength Regime, Conference, University Of California, San Diego, United States Of America, February 2019