

## ENGIN MASAZADE

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### CONTACT

#### INFORMATION

Yeditepe Universitesi, 26 Agustos Kampusu,  
Muhendislik Fakultesi, Elektrik ve Elektronik Muhendisligi Bolomu, A-602,  
Inonu Mah. Kayisdagi Cad., Atasehir 34755, Istanbul, Turkiye  
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### CITIZENSHIP

Turkey

### RESEARCH

#### INTERESTS

- Distributed detection, localization, and tracking for wireless sensor networks
- Wireless Communications
- Statistical signal processing
- Information Fusion and Machine Learning

### WORK

#### INFORMATION

**Yeditepe University**, Istanbul, Turkey

Assistant Professor, Department of Electrical and Electronics Engineering (2012 - present)

**Syracuse University**, Syracuse, New York, USA

Pre/Post Doctoral Research Associate, Department of Electrical Engineering and Computer Science (2008 - 2012)

### EDUCATION

**Sabanci University**, Istanbul, Turkey

PhD. , Department of Electronics Engineering (February 2006 - June 2010 )

**Sabanci University**, Istanbul, Turkey

M.Sc , Department of Electronics Engineering and Computer Science (September 2003 - January 2006)

**Istanbul Technical University**, Istanbul, Turkey

B.Sc , Electronics and Communication Engineering (September 1999 - June 2003)

### RESEARCH

#### PROJECTS

- *Principal Investigator*
  - 3501 TUBITAK Career Project, (Project Number: 113E220)
    - . Adaptive Resource Management in Wireless Sensor Networks.
    - . 01/09/2013 - 31/08/2016.
  - 1002 TUBITAK Short Term R&D Funding Program, (Project Number: 114E437)
    - . Feature extraction from physiological data for emotion recognition.
    - . 01/10/2014 - 30/06/2015.
- *Researcher*

- 1001 TUBITAK R&D Funding Program, (Project Number: 114E614)
- . Task difficulty level adaptation based on the individuals mental state for the Robot-assisted Rehabilitation System, RehabRoby.
- . 01/05/2015 - 31/10/2017.

## PUBLICATIONS

### - *Theses*

- Ph. D. Thesis: Resource Aware Distributed Detection and Estimation of Random Events in Wireless Sensor Networks, Advisors: Dr. Pramod K. Varshney and Dr. Mehmet Keskinöz, Sabanci University, June 2010.
- Msc. Thesis: Instantaneous bit error rate estimation based link adaptation and scheduling in Multiband OFDM based UWB WPANs, Advisor: Dr. Mehmet Keskinöz, Sabanci University, January 2006.

### - *Journal Papers*

1. E. Masazade, A. Kose, "A Proportional Time Allocation Algorithm to Transmit Binary Sensor Decisions for Target Tracking in a Wireless Sensor Network", *IEEE Transactions on Signal Processing*, in press.
2. P. Bhardwaj, A. Panwar, O. Ozdemir, E. Masazade, I. Kasperovich, A. L. Drozd, C. K. Mohan, P. K. Varshney, "Enhanced Dynamic Spectrum Access in Multiband Cognitive Radio Networks via Optimized Resource Allocation", *IEEE Transactions on Wireless Communications*, vol. 15, no. 12, pp. 8093-8106, Dec. 2016.
3. N. Cao, S. Choi, E. Masazade, P. K. Varshney, "Sensor Selection for Target Tracking in Wireless Sensor Networks with Uncertainty", *IEEE Transactions on Signal Processing*, vol. 64, no. 20, pp. 5191-5204, Oct. 2016.
4. S. Liu, S. Chepuri, M. Fardad, E. Masazade, G. Leus, P. K. Varshney, "Sensor Selection for Estimation with Correlated Measurement Noise," *IEEE Transactions on Signal Processing*, vol. 64, no. 13, pp. 3509-3522, Jul. 2016.
5. R. El Bardan, E. Masazade, O. Ozdemir, P. K. Varshney, Y. S. Han "Permutation Trellis Coded Multi-level FSK Signaling to Mitigate Primary User Interference in Cognitive Radio Networks", *IEEE Transactions on Communications*, vol. 64, no. 1, pp. 104-116, Jan. 2016.
6. S. Liu, A. Vempaty, M. Fardad, E. Masazade, and P. K. Varshney, "Energy-Aware Sensor Selection in Field Reconstruction", *IEEE Signal Processing Letters*, vol. 21, no. 12, pp. 1476-1480, December 2014.
7. S. Liu, M. Fardad, E. Masazade, and P. K. Varshney "Optimal Periodic Sensor Scheduling in Large Scale Dynamical Networks", *IEEE Transactions on Signal Processing*, vol.62, no.12, pp.3055-3068, June 2014.
8. X. Yang, R. Niu, E. Masazade, and P. K. Varshney "Channel-Aware Tracking in Multi-Hop Sensor Networks with Quantized Measurements", *IEEE Transactions on Aerospace and Electronic Systems*, vol. 49, no. 4, October, 2013.
9. E. Masazade, M. Fardad and P. K. Varshney, "Sparsity-Promoting Extended Kalman Filtering for Target Tracking in Wireless Sensor Networks", *IEEE Signal Processing Letters*, vol. 19, no.12, December 2012.
10. E. Masazade, R. Niu, P. K. Varshney, "Dynamic Bit Allocation for Object Tracking in Wireless Sensor Networks", *IEEE Transactions on Signal Processing*, vol.60, no.10, pp.5048-5063, Oct. 2012.

11. E. Masazade, R. Niu, P. K. Varshney, M. Keskinöz, “Energy Aware Iterative Source Localization Schemes for Wireless Sensor Networks”, *IEEE Transactions on Signal Processing*, vol.58, no.9, pp.4824-4835, Sept. 2010.
  12. E. Masazade, R. Rajagopalan, P. K. Varshney, C. K. Mohan, G. K. Sendur, M. Keskinöz, “A Multiobjective Optimization Approach to Obtain Decision Thresholds for Distributed Detection in Wireless Sensor Networks”, *IEEE Transactions on Systems, Man, and Cybernetics, Part B*, vol. 40, no. 2, pp. 444 - 457, 2010.
  13. M. Keskinöz, O. Gurbuz, E. Masazade, “Cross Layer Enhanced Time Scheduling for Multi-Band OFDM UWB Networks”, *Wireless Networks*, vol. 16, no. 3, pp. 863 - 873 , 2010.
  14. E. Masazade, M. Keskinöz, “An Efficient Realization Bit Error Rate Estimation Method for Multiband OFDM based UWB Systems”, *European Transactions on Telecommunications*, vol. 20, no. 6, pp. 617 - 624, 2009.
- *Book Chapters*
1. D. Erol-Barkana, E. Masazade, “Classification of the Emotional State of a Subject using Machine Learning Algorithms for RehabRoby”, *Handbook of Research on Advancements in Robotics and Mechatronics*, edited by Maki K. Habib, approved.
  2. P. K. Varshney, E. Masazade “Distributed Signal Detection”, *Academic Press Library in Signal Processing, Volume 3: Array and Statistical Signal Processing*, Academic Press; 1<sup>st</sup> edition, 2013.
  3. P. K. Varshney, E. Masazade, P. Ray and R. Niu “Distributed Detection in Wireless Sensor Networks”, *Distributed Data Fusion for Network-Centric Operations*, CRC Press, 2013.
  4. R. Niu, L. Zuo, E. Masazade, and P. K. Varshney, “Conditional posterior Cramér-Rao lower bound and its applications in adaptive sensor management”, *Distributed Video Sensor Networks*, Springer, 2011. ISBN 978-0-85729-126-4.
- *Conference Papers*
1. Y. Palaska, H. Erdogan, H. Ekenel, E. Masazade, D. Erol-Barkana, “Distinguishing Levels of Challenge from Physiological Signals for the Robot-Assisted Rehabilitation System, RehabRoby”, *The 30th Annual IEEE Canadian Conference on Electrical and Computer Engineering*, Windsor, Canada, April 2017.
  2. F. Ozkul, D. Erol-Barkana, E. Masazade, “Admittance Filter Parameter Adjustment of a Robot-Assisted Rehabilitation System (RehabRoby)”, *International Conference on Mechatronics and Robotics Engineering (ICMRE)*, Nice, France, February 2016.
  3. A. Kose, E. Masazade, “A Multiobjective Optimization Approach for Adaptive Binary Quantizer Design for Target Tracking in Wireless Sensor Networks”, *Proc. IEEE 2015 International Conference on Multisensor Fusion and Integration for Intelligent Systems*, San Diego, USA, September 2015.
  4. R. Gokay, E. Masazade, C. Aydin, D. Erol-Barkana “Emotional State and Cognitive Load Analysis using Features from BVP and SC Sensors”, *Proc. IEEE 2015 International Conference on Multisensor Fusion and Integration for Intelligent Systems*, San Diego, USA, September 2015.
  5. S. Liu, E. Masazade, M. Fardad, and P. K. Varshney, “Sensor Selection with Correlated Measurements for Target Tracking in Wireless Sensor Networks”, *International Conference on Acoustics, Speech, and Signal Processing, ICASSP*, Brisbane, Australia, April 2015.

6. A. Kose, E. Masazade, “Adaptive Sampling with Sensor Selection for Target Tracking in Wireless Sensor Networks”, 48th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA, Nov 2-5. 2014.
7. Y. Aypar, Y. Palaska, R. Gokay, E. Masazade, D. Erol-Barkana, N. Sarkar, “Clustering of Emotional States under Different Task Difficulty Levels for the Robot-Assisted Rehabilitation System-RehabRoby”, 11th International Conference on Informatics in Control, Automation and Robotics (ICINCO), Vienna, Austria, 1-3 September 2014.
8. S. Liu, E. Masazade, M. Fardad, and P. K. Varshney, “Sparsity Aware Field Estimation via Ordinary Kriging”, *International Conference on Acoustics, Speech, and Signal Processing*, ICASSP, Florence, Italy, May 2014.
9. S. Liu, M. Fardad, E. Masazade, and P. K. Varshney, “On Optimal Sparse Sensor Scheduling for Field Estimation in Wireless Sensor Networks”, 1<sup>st</sup> IEEE Global Conference on Signal and Information Processing, Austin, TX, USA, December 2013.
10. S. Liu, E. Masazade, X. Shen, P. K. Varshney, “Adaptive Non-myopic Quantizer Design for Target Tracking in Wireless Sensor Networks”, Asilomar Conference on Signals, Systems, and Computers, Monterey, CA, USA, Nov. 2013.
11. N. Cao, E. Masazade, P. K. Varshney, “A Multiobjective Optimization based Sensor Selection Method for Target Tracking in Wireless Sensor Networks”, *Proc. International Conference on Information Fusion*, Istanbul, Turkey, July 2013.
12. E. Masazade, P. K. Varshney, “A Market based Dynamic Bit Allocation Scheme for Target Tracking in Wireless Sensor Networks”, *International Conference on Acoustics, Speech, and Signal Processing*, ICASSP, Vancouver, Canada, May 2013.
13. S. Gogineni, O. Ozdemir, E. Masazade, C. K. Mohan, P. K. Varshney, “Cross-Layer Routing Protocol for Cognitive Radio Networks using Channel Activity Tracking,” *Asilomar Conference*, Monterey, CA, Nov. 2012.
14. S. Liu, E. Masazade, P. K. Varshney, “Temporally Staggered Sensors for Field Estimation with Quantized Data,” *IEEE Statistical Signal Processing Workshop*, Ann Arbor, MI, Aug. 2012.
15. R. El Bardan, E. Masazade, O. Ozdemir, P. K. Varshney, “Performance of Permutation Trellis Codes in Cognitive Radio Networks,” *IEEE Sarnoff Symposium*, New Jersey, May 2012.
16. E. Masazade, R. Niu, and P. K. Varshney, “An Approximate Dynamic Programming based Non-Myopic Sensor Selection Method for Target Tracking,” *IEEE, 46<sup>th</sup> Conference on Information Sciences and Systems (CISS’12)*, Princeton, NJ, March 2012.
17. A. Panwar, P. Bhardwaj, O. Ozdemir, E. Masazade, C. K. Mohan, P. K. Varshney, “On Optimization Algorithms for the Design of Multiband Cognitive Radio Networks,” *IEEE, 46<sup>th</sup> Conference on Information Sciences and Systems (CISS’12)*, Princeton, NJ, March 2012.
18. O. Ozdemir, E. Masazade, C. K. Mohan, P. K. Varshney, A. L. Drozd, I. Kasperovich, R. Loe, and S. Reichhar “Spectrum Shaping Challenges in Dynamic Spectrum Access Networks with Transmission Hyperspace”, International Waveform Diversity & Design Conference, Jan 22-27, 2012, Kauai, Hawaii.
19. O. Ozdemir, A. L. Drozd, E. Masazade, P. K. Varshney, “Successful Communications in a Cognitive Radio Network with Transmission Hyperspace,” *Proc. IEEE GLOBECOM 2011 - Cognitive Radio and Networks Symposium*, Houston, TX, USA, December 2011.

20. E. Masazade, R. Niu, and P. K. Varshney, "Dynamic Bandwidth Allocation for Target Tracking in Wireless Sensor Networks," *Proc. International Conference on Information Fusion*, Chicago, IL, USA, July 2011.
  21. X. Yang, R. Niu, E. Masazade, and P. K. Varshney, "Channel-Aware Target Tracking in Multi-Hop Wireless Sensor Networks," *Proc. International Conference on Information Fusion*, Chicago, IL, USA, July 2011.
  22. E. Masazade, R. Niu, P. K. Varshney, M. Keskinöz, "Channel aware iterative source localization for wireless sensor networks" *In Proc. International Conference on Information Fusion*, Edinburgh, UK, July, 2010.
  23. E. Masazade, R. Niu, P. K. Varshney, M. Keskinöz, "A Probabilistic Transmission Scheme for Distributed Estimation in Wireless Sensor Networks" *IEEE Proc. 44<sup>rd</sup> Conference on Information Sciences and Systems (CISS'10)*, Princeton, NJ, March 2010.
  24. E. Masazade, R. Niu, P. K. Varshney, M. Keskinöz, "A Monte Carlo Based Energy Efficient Source Localization Method for Wireless Sensor Networks", *IEEE Proc. 3<sup>rd</sup> International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, CAMSAP'09*, Aruba, Dutch Antilles, December 13-16 2009.
  25. E. Masazade, R. Niu, P. K. Varshney, M. Keskinöz, "An Energy Efficient Iterative Method for Source Localization in Wireless Sensor Networks", *IEEE Proc. 43<sup>rd</sup> Conference on Information Sciences and Systems (CISS'09)*, Baltimore, MD, March 2009.
  26. E. Masazade, R. Rajagopalan, P. K. Varshney, G. K. Sendur, and M. Keskinöz, "Evaluation of local decision thresholds for distributed detection in wireless sensor networks using multi-objective optimization", *IEEE Proc. 42<sup>nd</sup> Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, October 2008.
  27. E. Masazade, M. Keskinöz, O. Gurbuz, "Proportional Time Sharing with Frame Size Adaptation for MB-OFDM based UWB WPANs", *IEEE Proc. Long Island Systems, Applications and Technology Conference, 2006 (LISAT)*, 5 May 2006 Page(s):1 - 7.
- *Journal Papers in Turkish*
1. E. Masazade, A. Kose, "Evaluation of Adaptive Sensor Quantization Thresholds using Multiobjective Optimization for Target Tracking in a Wireless Sensor Network involving Multi-hop Transmissions", *Dokuz Eylul University, Journal of Science and Engineering*, vol. 20, no. 58-1, Jan. 2018.
  2. E. Masazade, V. T. Dogukan, V. Y. Akgun, "Developing a Wireless Sensor Network Testbed using MSP430G2553 and nRF24L01+ based Sensors", *Pamukkale University Journal of Engineering Sciences*, doi:10.5505/pajes.2016.67790, in press.
- *Conference Papers in Turkish*
1. V. Y. Akgun, E. Masazade, "Dusuk Guclu ve Dusuk Maliyetli Birimler kullanılarak Tasarlanan Duyargalar ile Alan Kestirimi Gerçekleştirilmesi", *IEEE Proc. 25<sup>th</sup> Sinyal Isleme ve Iletisim Uygulamalari Kurultayi, (SIU)*, 15-18 Mayıs 2017 Page(s):1 - 4, Antalya, Turkiye
  2. Y. Palaska, R. Gokay, F. Ozkul, E. Masazade, D. Erol-Barkana, "RehabRoby icin Farkli Zorluk Seviyeli Gorev Altinda Bulanik C-Ortalamalar Yontemi ile Duygusal Durumlarin Siniflandırılması", *Turkiye Otonom Robotlar Konferansi (TORK)* 6-7 Kasim 2014 Ankara, Turkiye.

3. Y. Aypar, Y. Palaska, R. Gokay, E. Masazade, D. Erol-Barkana, "Robot Destekli Rehabilitasyon Sistemleri icin Farkli Zorluk Seviyeli Gorev Altinda Duygusal Durumlarin Siniflandirilmesi", Ulusal Otomatik Kontrol Konferansi (TOK), 11-13 Eylul 2014, Kocaeli, Turkiye.
4. K. Eritmen, E. Masazade, M. Keskinoz, "Telsiz Duyurga Aglari icin Sonumlemeli Kanallarda Basitlestirilmis bir Paralel Dagitik Sezim Yontemi" *IEEE Proc. 15<sup>th</sup> Sinyal Isleme ve Iletisim Uygulamalari Kurultayi, (SIU)*, 11-13 Haziran 2007 Page(s):1 - 4, Eskisehir, Turkiye.
5. E. Masazade, M. Keskinoz, O. Gurbuz; "MB-OFDM UWB Telsiz Kisisel Alan Aglari icin Uyarlamali Paket Boyu Secimi ve Orantili Zaman Cizelgeleme Yontemi" *IEEE Proc. 14<sup>th</sup> Sinyal Isleme ve Iletisim Uygulamalari Kurultayi, (SIU)*, 17-19 Nisan 2006 Page(s):1 - 4, Antalya, Turkiye.

- *Poster Presentations*

1. V. Y. Akgun, E. Masazade, "Field Estimation in a Wireless Sensor Network Using Low Power and Low Cost Designed Sensors", Bozkirda Yapay Ogrenme Yaz Okulu - Bilgisayarli Goru ve Robotik, Hacettepe Univ., Ankara, 21-24 August 2017.
2. E. Zorlu, E. Masazade, "Implementation of NSGA-II Based Cognitive Radio Reconfiguration", 6G Communications Technologies and Applications Workshop, Medipol University, Istanbul, 01 August 2017.
3. Y. Aypar, Y. Palaska, R. Gokay, E. Masazade, D. Erol-Barkana, "Fuzzy Clustering of Emotional States for the Robot-Assisted Rehabilitation System-RehabRoby", Late Breaking Research Poster, 36th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS), Chicago, Illinois, USA, 26-30 August 2014.

GRADUATE  
STUDENTS

- *M.Sc. Theses*

1. Veysel Yaman Akgun, "Field Estimation in a Wireless Sensor Network using Low Power and Lost Cost Designed Sensors", Yeditepe University, July 2017.
2. Okan Kucuktopcu, "Real-Time System for Bird Sound Recognition", Yeditepe University, May 2017, Co-advisor.
3. Volkan Talha Dogukan, "Realization Of Source Localization With Sensor Selection In A Wireless Sensor Network Formed With Low Cost, Energy Efficient Sensors", Yeditepe University, December 2016.
4. Abdulkadir Kose, "Resource Aware Adaptive Binary Quantizer Design for Target Tracking in Wireless Sensor Networks", Yeditepe University, June 2016.

TEACHING  
EXPERIENCE

**Yeditepe University**, Atasehir, Istanbul, 34755, Turkey

- *Instructor - Undergraduate Level*

- *Introduction to Scientific Computing (MATLAB)*
- *Probability*
- *Signals and Systems*
- *Communication Systems*
- *Introduction to Coding and Information Theory*
- *Wireless Communications*

*Instructor - Graduate Level*

- *Random Signal Processing*
- *Digital Communications Theory*

**Sabanci University**, Tuzla, Istanbul, 34956, Turkey

- *Teaching Assistant*

- *Introduction to Probability and Statistics*
- *Digital Communications*
- *Discrete time signal processing*
- *Introduction to Communication Systems*
- *Wireless Communications*
- *Signals*
- *Differential Equations*
- *Calculus II*

## SERVICES

- Reviewer,

- International Conference on Information Fusion (FUSION), July 2016.
- Signal Processing and Communications Applications Conference (SIU), May 2016.
- International Conference on Information Fusion (FUSION), July 2015.
- Signal Processing and Communications Applications Conference (SIU), May 2015.
- International Conference on Information Fusion (FUSION), July 2014.
- Signal Processing and Communications Applications Conference (SIU), April 2014.
- International Conference on Information Fusion (FUSION), July 2013, Istanbul, Turkey,

- Tutorial Presentations,

- International Conference on International Conference on Multisensor Fusion and Integration for Intelligent Systems, September 2015, San Diego, USA.
  - \* Tutorial on *Controlled Sensing in Multi-Sensor Systems*, jointly organized with Ruixin Niu (Virginia Commonwealth University, USA).
- International Conference on Information Fusion (FUSION), July 2013, Istanbul, Turkey,
  - \* Tutorial on *Advances in Adaptive Sensor Management*, jointly organized with Ruixin Niu (Virginia Commonwealth University, USA).

- Session Chair,

- International Conference on International Conference on Multisensor Fusion and Integration for Intelligent Systems, September 2015, San Diego, USA.
  - \* Session co-chair *Tracking*.
- International Conference on Information Fusion (FUSION), July 2013, Istanbul, Turkey,
  - \* Chair: Special session on *Adaptive Sensor Management and Signal Processing in Wireless Sensor Networks*.

- Technical Paper Reviews

- *Journal Papers*

IEEE Transactions on Signal Processing, IEEE Transactions on Systems, Man, and Cybernetics - Part B, IET Radar, Sonar & Navigation, IEEE Transactions on

Aerospace and Electronic Systems, IEEE Transactions on Wireless Communications, IEEE Sensors Journal, IEEE Signal Processing Letters, EURASIP Journal on Advances in Signal Processing.

- *Conference Proceedings*

IEEE Workshop on Computational Advances in Multi-Sensor Adaptive Processing, IEEE Conference on Sensor and Ad Hoc Communications and Networks, International Workshop on Mobile Computing and Networking Technologies, Fusion Conference, IEEE Multisensor Fusion and Integration Conference.

#### MEMBERSHIPS

- IEEE (Student Member 2003 - 2010), (Member 2010 - present)
- IEEE Communications Society,
- IEEE Signal Processing Society

#### LANGUAGE SKILLS

- Turkish (native), English (fluent)