# ENGIN MASAZADE


CONTACT INFORMATION

Yeditepe Universitesi,26 Agustos Kampusu,
Elektrik ve Elektronik Muhendisligi Bolumu,
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CITIZENSHIP

Turkey

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 )

- Thesis Topic: Resource Aware Distributed Detection and Estimation of Random Events in Wireless Sensor Networks
  - Advisors: Dr. Pramod K. Varshney and Dr. Mehmet Keskinoz

**Sabanci University**, Istanbul, Turkey

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

- Thesis Topic: Instantaneous bit error rate estimation based link adaptation and scheduling in Multiband OFDM based UWB WPANs
  - Advisor: Dr. Mehmet Keskinoz

**Istanbul Technical University**, Istanbul, Turkey

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

RESEARCH INTERESTS

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

## Research Projects

- *Principal Investigator*
  - 3501 TUBITAK Career Award, (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

- *Journal Papers*

1. 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*, in press.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. **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.
9. **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.
10. **E. Masazade**, R. Niu, P. K. Varshney, M. Keskinoz, "Energy Aware Iterative Source Localization Schemes for Wireless Sensor Networks", *IEEE Transactions on Signal Processing*, vol.58, no.9, pp.4824-4835, Sept. 2010.

11. **E. Masazade**, R. Rajagopalan, P. K. Varshney, C. K. Mohan, G. K. Sendur, M. Keskinoz, "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.
12. M. Keskinoz, 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.
13. **E. Masazade**, M. Keskinoz, "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.

- *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, in press.

- *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; $1^{st}$ 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. 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.
2. 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.
3. 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.

4. 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.
5. 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.
6. 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.
7. S. Liu, M. Fardad, **E. Masazade**, and P. K. Varshney, "On Optimal Sparse Sensor Scheduling for Field Estimation in Wireless Sensor Networks", $1^{st}$ IEEE Global Conference on Signal and Information Processing, Austin, TX, USA, December 2013.
8. 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.
9. 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.
10. **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.
11. 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.
12. 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.
13. 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.
14. **E. Masazade**, R. Niu, and P. K. Varshney, "An Approximate Dynamic Programming based Non-Myopic Sensor Selection Method for Target Tracking," *IEEE,* $46^{th}$ *Conference on Information Sciences and Systems (CISS'12)*, Princeton, NJ, March 2012.
15. 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,* $46^{th}$ *Conference on Information Sciences and Systems (CISS'12)*, Princeton, NJ, March 2012.
16. 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.
17. 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.

18. **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.
19. 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.
20. **E. Masazade**, R. Niu, P. K. Varshney, M. Keskinoz, "Channel aware iterative source localization for wireless sensor networks" *In Proc. International Conference on Information Fusion*, Edinburgh, UK, July, 2010.
21. **E. Masazade**, R. Niu, P. K. Varshney, M. Keskinoz, "A Probabilistic Transmission Scheme for Distributed Estimation in Wireless Sensor Networks" *IEEE Proc.* $44^{rd}$ *Conference on Information Sciences and Systems (CISS'10)*, Princeton, NJ, March 2010.
22. **E. Masazade**, R. Niu, P. K. Varshney, M. Keskinoz, "A Monte Carlo Based Energy Efficient Source Localization Method for Wireless Sensor Networks", *IEEE Proc.* $3^{rd}$ *International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, CAMSAP'09*, Aruba, Dutch Antilles, December 13-16 2009.
23. **E. Masazade**, R. Niu, P. K. Varshney, M. Keskinoz, "An Energy Efficient Iterative Method for Source Localization in Wireless Sensor Networks", *IEEE Proc.* $43^{rd}$ *Conference on Information Sciences and Systems (CISS'09)*, Baltimore, MD, March 2009.
24. **E. Masazade**, R. Rajagopalan, P. K. Varshney, G. K. Sendur, and M. Keskinoz, "Evaluation of local decision thresholds for distributed detection in wireless sensor networks using multi-objective optimization", *IEEE Proc.* $42^{nd}$ *Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, October 2008.
25. **E. Masazade**, M. Keskinoz, 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.

- *Conference Papers in Turkish*

1. 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 Siniflandirilmasi", Turkiye Otonom Robotlar Konferansi (TORK) 6-7 Kasim 2014 Ankara, Turkiye.
2. Y. Aypar, Y. Palaska, R. Gokay, **E. Masazade**, D. Erol-Barkana, "Robot Destekli Rehabilitasyon Sistemleri icin Farkli Zorluk Seviyeli Gorev Altinda Duygusal Durumlarin Siniflandirilmasi", Ulusal Otomatik Kontrol Konferans (TOK), 11-13 Eylul 2014, Kocaeli, Turkiye.
3. K. Eritmen, **E. Masazade**, M. Keskinoz,"Telsiz Duyarga Aglari icin Sonumlemeli Kanallarda Basitlestirilmis bir Paralel Daginik Sezim Yontemi" *IEEE Proc.* $15^{th}$ *Sinyal Isleme ve Iletisim Uygulamalari Kurultayi, (SIU*, 11-13 Haziran 2007 Page(s):1 - 4, Eskisehir, Turkiye.
4. **E. Masazade**, M. Keskinoz, O. Gurbuz; "MB-OFDM UWB Telsiz Kisisel Alan Aglari icin Uyarlamal Paket Boyu Secimi ve Orantl Zaman Cizelgeleme Yontemi"*IEEE Proc.* $14^{th}$ *Sinyal Isleme ve Iletisim Uygulamalari Kurultayi, (SIU)*, 17-19 Nisan 2006 Page(s):1 - 4, Antalya, Turkiye.

- *Poster Presentations*

1. 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. Thesis*

1. 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

- Technical Program Chair
  - 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 Sytems*, 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).

- Conference 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.

## Technical Skills

- Matlab
- *Engineering Tools*: OPNET Network Modeller, Systemview Elanix, MATLAB Simulink, LINGO;
- *Programmming Language*: C
- TEX, LATEX, Microsoft Office,

## Memberships

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

## Language Skills

- Turkish (native), English (fluent)