Tolga Esat Özkurt, PhD

Associate Professor

Director of Neurosignal Laboratory
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Middle East Technical University
Graduate School of Informatics

Department of Health Informatics
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Personal

Birth: Istanbul, 1980
Nationality: Turkish
Languages: Turkish (Native), English (Fluent), German (Elementary)
Military service: Completed (2009)
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Google Scholar:
https://scholar.google.com.tr/citations?hl=tr&user=2kxH0vcAAAAJ

Education

2005-2009 Ph.D. in Electrical and Computer Engineering
University of Pittsburgh, Pittsburgh, PA, USA

Thesis title: "Spatial filtering of Magnetoencephalographic Data in Spherical Harmonics Domain"

2002-2004 M.Sc. in Computer Science
Istanbul Technical University, Istanbul, Turkey

Thesis title: "Text-Independent Speaker Identification Using Bispectrum Slice"

1998-2002 B.Sc. in Electronics and Communications Engineering
Istanbul Technical University, Istanbul, Turkey

Work Experience

2014– Associate professor (Doçentlik, Signal processing)
Graduate School of Informatics
Middle East Technical University, Ankara, Turkey

2019–2020 Honorary Research Fellow
The Wellcome Centre for Human Neuroimaging
Institute of Neurology, UCL, London, UK

2012–2014 Assistant professor
Graduate School of Informatics
Middle East Technical University, Ankara, Turkey

2011–2012 Postdoctoral researcher with TUBITAK back-to-home scholarship
Electronics and Electronics and Communication Engineering
Istanbul Technical University, Istanbul, Turkey

2009–2011 Postdoctoral researcher
Institute for Medical Psychology and Clinical Neuroscience
Heinrich Heine University, Düsseldorf, Germany

2005–2009 Research assistant
Laboratory for Computational Neuroscience
University of Pittsburgh, Pittsburgh, PA, USA

2002-2005 Research assistant
Institute of Informatics, Computer Science
Istanbul Technical University, Istanbul, Turkey

Administrative Experience

2016 – 2018 Assistant to the Director of "METU Informatics Institute"

Research Interests

Biomedical signal processing
Neuroimaging and neurostimulation
Neural oscillations (EEG, LFP, MEG)

Philosophy of Science and Mind
Causality

Statistical signal processing
Self-similar signals and 1/f processes
Neural networks
Pattern recognition
Machine learning
Speech processing

Projects involved

METU BAP-07-04-2017-005	Coordinator	Determination of tactile and auditory rhythmic parameters to increase memory performance	01.01.17 - 31.12.17
TÜBİTAK 3501 Career Grant	Coordinator	Brain Oscillatory Analysis of Short Term Auditory and Visual False Memories	01.04.13 – 01.10.15
METU BAP-08-11-2012-123	Coordinator	Quantification of Verbal Memory Performance and Its Frontal Projection	01.08.12 - 31.12.14

TÜBİTAK BİDEB 2232 Geri Dönüş (back-to-home)	Researcher	Marmara denizi sualtı verilerinin bağlaşım karakteristiği	01.06.11 - 31.05.12
ERANET-Neuron PhysiolDBS (Neuron-48-013)	Researcher	Physiological mechanisms of Deep Brain Stimulation in Parkinson's disease	01.03.09 - 31.05.11

Thesis supervised

Yankı Tandırcıoğlu (MSc, METU, Biology, co-supervised with Can Bilgin), The Effect of Apihouse Experience on Human Brain Electrical Activity and Anxiety Levels, 2023.

Anıl Berk Delikaya (MSc, METU, Medical Informatics), *Neuromodulatory Effect of Bilateral Rhythmic Tactile Stimulation on Recognition Memory*, 2022.

Reza Yahyei (MSc, METU, Medical Informatics), *Fast EEG based biometrics via mean curve length*, 2022.

Igor Mapelli (PhD, METU, Medical Informatics), *Brain Oscillatory Analysis of Visual Working Memory Errors*, 2019.

Ahmet Levent Kandemir (MSc, METU, Medical Informatics), *Resting State Brain Connectivity via Bicoherence and Coherence*, 2018.

Uğur Acar (MSc, METU, Cognitive Science, co-supervised with Annette Hohenberger), *Cognitive Aspects of Brain-Computer Communication: An Implementation and Extension of the P300 Speller Paradigm*, 2018.

Gizem Göktepe (MSc, METU, Medical Informatics), *Effect of Bilateral Somatosensory Stimulus on Oscillatory Brain Activity and Long Term Memory*, 2017.

Ece Çağlayan (MSc, METU, Medical Informatics), *Classification of Emotions in Vocal Responses*, 2017.

Natalia Melnik (MSc, METU, Cognitive Science), *Suppression of Semantic Interference During an Auditory Working Memory Task: An EEG Study*, 2015.

Given courses

Brain dynamics and neuronal oscillations (Fall 2011, Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Fall 2020, Fall 2021, Fall 2022, Fall 2023)
Biological signal analysis (Fall 2012, Spring 2013, Spring 2014, Fall 2014, Fall 2015, Fall 2016; Fall 2017, Fall 2018, Fall 2021, Spring 2021, Spring 2022, Spring 2023)

Bio-inspired and Classical Optimization (Fall 2013, Fall 2015, Fall 2018)
Neural networks for biomedical applications (Fall 2012, Fall 2013, Spring 2014, Spring 2015, Spring 2016)
Introduction to Medical Informatics (Spring 2020)
A brief introduction to Neurophilosophy (A month-length short course Fall 2018)
Methodology and Philosophy of Neuroscience (Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023)
Graduate seminar (Spring 2012, Spring 2013, Spring 2020, Spring 2023)

List of Publications

Journals (SCI-E):

T. E Özkurt, "Abnormally low sensorimotor alpha band nonlinearity serves as an effective EEG biomarker of Parkinson's Disease", submitted to (in minor revision) *Journal of Neurophysiology*, 2023.

A. Oswal, B. Abdi-Sargezeh, T.E. Özkurt, S. Taulu, N. Sarangmat, A.L Green, V. Litvak, "Robust estimation of brain stimulation evoked responses using magnetoencephalography", submitted to (in minor revision) *Human Brain Mapping*, BioRxiv, https://doi.org/10.1101/2023.06.25.546459, 2023.

R. Yahyaei, T.E. Özkurt, "Mean curve length: An efficient feature for brainwave biometrics", *Biomedical Signal Processing and Control*, 2022. https://doi.org/10.1016/j.bspc.2022.103664

T.E. Özkurt, "A Basic Nietzschean Model in Lieu of the Causal Maxim", *Philosophia*, 2021.https://doi.org/10.1007/s11406-021-00430-7

T.E. Özkurt, H. Akram, L. Zrinzo, P. Limousin, T. Foltynie, A. Oswal, V. Litvak, "Identification of nonlinear features in cortical and subcortical signals of Parkinson's disease patients", *Neuroimage*, 2020.

H. Duzcu, T.E. Özkurt, I. Mapelli, A. Hohenberger, "N1 - P2: Neural markers of temporal expectation and response discrimination in interval timing", *Acta Neurobiologiae Experimentali*, vol. 79, 193-204, 2019.

I. Mapelli, T.E. Özkurt, "Brain oscillatory correlates of visual short-term memory errors", *Frontiers in Human Neuroscience*, vol. 13 (33), 2019.

O. Abbasi, J. Hirschmann, Storzer L., T.E. Özkurt, S. Elben, J. Vesper, L. Wojtecki, G. Schmitz, A. Schnitzler, M. Butz, "Unilateral deep brain stimulation suppresses alpha and beta oscillations in sensorimotor cortices", *Neuroimage*, vol. 174, no:207, 2018.

N. Melnik, I. Mapelli, T. E. Özkurt, "Modulation of alpha oscillations is required for the suppression of semantic interference to avoid false memories in short-term", *Neurobiology of Learning and Memory*, vol. 144, pp. 11-18, 2017.

T. E. Özkurt, "Estimation of nonlinear neural source interactions via sliced bicoherence", *Biomedical Signal Processing and Control*, 2016, vol. 30, pp. 43-52, 2016.

J. Hirschmann, M. Butz, C. J. Hartmann, N. Hoogenboom, T. E. Özkurt, J. Vesper, L. Wojtecki, A. Schnitzler, "Parkinsonian rest tremor is associated with modulations of subthalamic high-frequency oscillations", *Movement Disorders*, vol. 31(10), pp. 1551-1559, 2016.

J. Hirschmann, C. J. Hartmann, M. Butz, N. Hoogenboom, T. E. Özkurt, S. Elben, J. Vesper, L. Wojtecki, A. Schnitzler, "A direct relationship between oscillatory subthalamic nucleus-cortex coupling and rest tremor in Parkinson's disease", *Brain*, vol. 136(12), pp. 3659-3670, 2013.

J. Hirschmann, T. E. Özkurt, M. Butz, M. Homburger, S. Elben, C. J. Hartmann, J. Vesper, L. Wojtecki, A. Schnitzler, "Differential modulation of STN-cortical and cortico-muscular coherence by movement and levodopa in Parkinson's disease", *Neuroimage*, vol. 68, pp. 203-213, 2013.

T. E. Özkurt, "Statistically reliable and fast direct estimation of phase-amplitude cross-frequency coupling", *IEEE Transactions on Biomedical Engineering*, vol. 59. no. 7, pp. 1943-1950, 2012.

T. E. Özkurt, A. Schnitzler, "A critical note on the definition of phase-amplitude cross-frequency coupling", *Journal of Neuroscience Methods*, vol. 201, no. 2, pp. 438-443, 2011.

T. E. Özkurt, M. Butz, M. Homburger, S. Elben, J. Vesper, L. Wojtecki, A. Schnitzler, "High frequency oscillations in the subthalamic nucleus: A neurophysiological marker of the motor state in Parkinson's disease", *Experimental Neurology*, vol. 229, no. 2, pp. 324-331, 2011.

J. Hirschmann, T. E. Özkurt, M. Butz, M. Homburger, S. Elben, C. J. Hartmann, J. Vesper, L. Wojtecki, A. Schnitzler, "Distinct oscillatory STN-cortical loops revealed by simultaneous MEG and local field potential recordings in patients with Parkinson's disease", *Neuroimage*, vol. 55, no. 3, pp. 1159-1168, 2011.

T. E. Özkurt, M. Sun, W. Jia, R. Sclabassi, "Spatial filtering of MEG signals for user-specified spherical regions", *IEEE Transactions on Biomedical Engineering*, vol. 56, no. 10, pp. 2429-2438, October 2009.

T. E. Özkurt, M. Sun, R. Sclabassi, "Decomposition of Magnetoencephalographic Data into Components Corresponding to Deep and Superficial Sources ", *IEEE Transactions on Biomedical Engineering*, vol. 55, no. 6, pp. 1716-1727, June 2008.

Book Chapter:

T. E. Özkurt, M. Sun, R. Sclabassi, "Modified Beamspace Method for the Spatial Filtering of Magnetoencephalographic Data", edited by: Nilmini Wickramasinghe, Illinois Institute of Technology, USA; Eliezer Geisler, Illinois Institute of Technology, USA, *Encyclopedia of Healthcare Information Systems*, IGI Publishing, July 2008.

International Conferences:

E. K. Özay, T. E. Özkurt, "Efficient and Accurate Neural Fingerprints Obtained via Mean Curve Length of High Dimensional Model Representation of EEG Signals", *Proc. European Signal Processing Conference (EUSIPCO)*, Helsinki, Finland, September 4-8, 2023.

A. L. Kandemir, T. E. Özkurt, "On the Most Informative Slice of Bicoherence that Characterizes Resting State Brain Activity", *Proc. European Signal Processing Conference (EUSIPCO)*, Rome, Italy, September 3-7, 2018.

T. E. Özkurt, M. Butz, J. Hirschmann, A. Schnitzler, "Adaptive Identification of Oscillatory Bands from Subcortical Neural Data", *Proc. European Signal Processing Conference (EUSIPCO)*, Nice, France, pp. 2586-2590, August 31 - September 4, 2015.

E. Y. Kanal, M. Sun, T. E. Özkurt, W. Jia, R. Sclabassi, "Magnetoencephalographic imaging of deep corticostriatal network activity during a rewards paradigm", *Proc. International Conference of the IEEE Engineering in Medicine and Biology Society*, Minneapolis, MN, pp. 2915-2918, September 3-6, 2009.

E. Y. Kanal, T. E. Özkurt, R. Sclabassi, M. Sun, "Detecting Granger causality in the corticostriatal learning and rewards network using MEG", *Proc. IEEE 35th Annual Northeast Biomedical Conference*, Boston, USA, April 3-5, 2009.

T. E. Özkurt, M. Sun, R. Sclabassi, "Spatial Filtering of MEG Signals for Spherical Regions in the Source Space", *Proc. IEEE 34th Annual Northeast Biomedical Conference*, Providence, Rhodes Island, USA, April 4-6, 2008.

U. Ulug, T. E. Özkurt, T. Akgül, "Bispectrum Mel-frequency Cepstrum Coefficients for Robust Speaker Identification", *Proc. Nonlinear Speech Processing (NOLISP) Workshop*, Paris, France, May 22-25, 2007.

T. E. Özkurt, M. Sun, R. Sclabassi, "Decomposition of MEG Signals with Sparse Representations", *Proc. IEEE 33rd Annual Northeast Biomedical Conference*, Long Island, New York, USA, March 10-11, 2007.

T. E. Özkurt, M. Sun, R. Sclabassi, "Beamspace Magnetoencephalographic Signal Decomposition in Spherical Harmonics Domain", *Proc. International Conference of the IEEE Engineering in*

Medicine and Biology Society, New York, USA, August 30 - September 3, 2006.

T. E. Özkurt, M. Sun, T. Akgül, R. Sclabassi, "Optimal Feature Selection for Seizure Detection: A Subspace Based Approach" , *Proc. International Conference of the IEEE Engineering in Medicine and Biology Society*, New York, USA, August 30 - September 3, 2006.

T. E.Özkurt, T. Akgül, S. Baykut, "Principal Component Analysis of the Fractional Brownian Motion for 0 < H < 0.5", *Proc. IEEE ICASSP 2006*, Toulosse, France, May 14-19, 2006.

J. Wenyan, R. Sclabassi, E. Kanal, T. E. Özkurt, M. Scheuer, M. Sun, "An intelligent userinterface system for diagnosis of epilepsy", *Proc. IEEE 32nd Annual Northeast Biomedical Conference*, Easton, PA, USA, April 01-02, 2006.

T. E. Özkurt, T. Akgül, "Is PCA Reliable for The Analysis of Fractional Brownian Motion?", *Proc. European Signal Processing Conference (EUSIPCO)*, Antalya, Turkey, 2005.

S. Baykut, T. E. Özkurt, M. Erol, T. Akgül, "The Influence of a Single Tone Sinusoid over Hurst Estimators", Proc*. European Signal Processing Conference (EUSIPCO)*, Antalya, Turkey, 2005.

T. E. Özkurt, T. Akgül, "Analysis of 1/f Nature of Sea-Wave Noise Data", *Proc. 3rd Int. Conf. on Signal Processing, Computational Geometry & Artificial Vision (ISCGAV)*, Rhodes Island, Greece, 2003.

National Conferences (Turkish):

E. Çağlayan, T. E. Özkurt, "Spectral features of heart rate variability obtained from a video camera",Proc. 23rd IEEE Signal Processing and Communication Applications Conference (SIU 2015), Malatya, Turkey, 2015.

I. Mapelli, T. E. Özkurt, "Classification of living and non-living objects from MEG recordings", Proc. 21st IEEE Signal Processing and Communication Applications Conference (SIU 2013), Northern Cyprus, 2013.

T. E. Özkurt, M. Butz, A. Schnitzler, "Adaptive Determination of Brain Oscillatory Activity", *Proc. 20th IEEE Signal Processing and Communication Applications Conference (SIU 2012)*, Muğla, Turkey, 2012.

T. E. Özkurt, T. Akgül, "Cross-frequency Coupling Behavior of Underwater Data (in Turkish)", *Proc. 20th IEEE Signal Processing and Communication Applications Conference (SIU 2012)*, Muğla, Turkey, 2012.

S. Baykut, M. Erol, T. E. Özkurt, T. Akgül, "A Comparative Study on the Estimation of Hurst Parameter of Fractional Brownian Motion (in Turkish)", *Proc. 13th IEEE Signal Processing and Communication Applications Conference (SIU 2005)*, Kayseri, Turkey, 2005.

T. E. Özkurt, T. Akgül, "Robust Text-Independent Speaker Identification Using Bispectrum Slice (in Turkish)", *Proc. 12th IEEE Signal Processing and Communication Applications Conference (SIU 2004)*, Kusadasi, Aydin, Turkey, pp. 418-421, 2004.

T. E. Özkurt, N. S. Sengör, "Time Series Predicting by Radial Basis Functions Neural Networks (in Turkish)", *Proc. 11th IEEE Signal Processing and Communication Applications Conference (SIU 2003)*, Sariyer, Istanbul, Turkey, pp. 664-668, 2003.

Abstracts:

A. Oswal, S. Taulu, R. Seymour, P. Brown, T. E. Özkurt, V. Litvak, "Spatio-temporal signal separation approaches for artefact suppression and source leakage correction", *Live MEEG*, October 5-9, 2020.

T. E. Özkurt, "Neural oscillations, circular causality and the implications for nature", *Causality in Neuro- and Psychological Sciences*, Antwerp, Belgium, September 19-21, 2018.

V. A. Özkan, T. E. Özkurt, "Modeling deep brain stimulation effects on amplitude and coupling behavior of beta and high-frequency oscillations", *Coupling and Causality in Complex Systems*, Cologne, Germany, September 25-27, 2017.

T. E. Özkurt, J. Hirschmann, M. Butz, A. Schnitzler, "Sliced cross-channel bicoherence between local field potentials for patients with Parkinson's disease", *Coupling and Causality in Complex Systems*, Cologne, Germany, September 25-27, 2017.

G. Göktepe, I. Mapelli, T. E. Özkurt, "Would somatosensory stimuli increase LTM performance? A preliminary EEG study", *International Conference for Cognitive Neuroscience*, August 5-8, Amsterdam, Netherlands, 2017.

I. Mapelli, T. E. Özkurt, Alpha synchronization between occipital and frontal regions distinguishes errors in a visual working memory task", *BIOMAG 2016 - 20th International Conference on Biomagnetism*, October 1-6, Seul, Korea, 2016.

O. Abbasi, J. Hirschmann, L. Storzer, T. E. Özkurt, S. Elben, J. Vesper, L. Wojtecki, G. Schmitz, A. Schnitzler, M. Butz, "Deep Brain Stimulation Both at 130 Hz and 340 Hz Suppresses Cortical Alpha and Beta Band Activity", *Human Brain Mapping Annual Meeting*, June 26-30, Geneva, Switzerland, 2016.

J. Hirschmann, M. Butz, C. J. Hartmann, N. Hoogenboom, T. E. Özkurt, J. Vesper, L. Wojtecki, A. Schnitzler, "DBS electrode recordings reveal distinct changes of STN high frequency oscillations during parkinsonian rest tremor", *19th NANS Annual Meeting*, December 10-14, Las Vegas, NV, 2015.

I. Mapelli, N. Melnik, T. E. Özkurt, "Alpha Activity in the Posterior Regions Distinguishes Visual False Memories and Other Memory

Errors", *Human Brain Mapping Annual Meeting*, Honolulu, Hawaii, USA, 2015.

N. Melnik, I. Mapelli, T. E. Özkurt, "Alpha activity reflects semantic interference resolution in an auditory working memory task", *Human Brain Mapping Annual Meeting*, Honolulu, Hawaii, USA, 2015.

I. Mapelli, S. Özer, T. E. Özkurt, "Brain oscillatory analysis of gist-based short-term false memory for visual stimuli: a preliminary study", *1st Joint Turkish-German Symposium on Human Neuroscience*, Berlin, Germany, 2014.

I. Mapelli, T. E. Özkurt, "A Feature Extraction and Selection Procedure for an Efficient Classification of MEG Recordings", *Frontiers Neuroinformatics Conference*, Stockholm, Sweden, August 27-29, 2013.

T. E. Özkurt, I. Mapelli, A. Schnitzler, "Efficient estimation of cross-frequency coupling from Parkinson's disease recordings", *BIOMAG 2012 - 18th International Conference on Biomagnetism*, Paris, France, August 26-30, 2012

M. Butz, T. E. Özkurt, J. Hirschmann, S. Elben, M. Homburger, C. J. Vesper, L. Wojtecki, A. Schnitzler, "Simultaneous MEG-LFP recordings in PD patients treated with DBS", *Aarhus MEG Workshop*, Denmark, 2012.

T. E. Özkurt, M. Butz, M. Homburger, S. Elben, C. J. Vesper, L. Wojtecki, A. Schnitzler, "High frequency oscillations in the subthalamic nucleus: A neurophysiological marker of the motor state in Parkinson's disease", *15th International Conference on Parkinson's Disease and Movement Disorders*, Toronto, Canada, 2011.

T. E. Özkurt, M. Butz, A. Schnitzler, "Identifying Oscillatory Activity in Parkinson's Disease LFP and MEG Data by Adaptive Decomposition", *Human Brain Mapping Annual Meeting*, Quebec City, Canada, 2011.

M. Butz, T. E. Özkurt, M. Homburger, S. Elben, C. J. Vesper, L. Wojtecki, A. Schnitzler, "High Frequency Oscillations - a Neurophysiological

Marker of the Motor State in Parkinson's Disease", *Human Brain Mapping Annual Meeting*, Quebec City, Canada, 2011.

J. Hirschmann, T. E. Özkurt, M. Homburger, S. Elben, C. J. Hartmann, J. Vesper, L. Wojtecki, A. Schnitzler, "Lokalisation oszillatorischer Kopplungen zwischen STN und Kortex bei Parkinson-Patienten", *Klinische Neurophysiologie*, 42 - A5, 2011. (doi: 10.1055/s-0031-1272658)

E. Y. Kanal, T. E. Özkurt, M. Sun, R. Sclabassi, "MEG imaging of prefrontal and striatal activity during a gambling task", *Neuroscience Meeting Planner*, Washington, DC, Society for Neuroscience, 2008.

Abstracts (National in Turkish):

T. E. Özkurt, "Ampirik ve/ya hazır EEG kayıtlarının kullanımına dair bir tartışma", *1. Nörogörüntüleme Konferansı*, Ankara, 2023.

A. B. Delikaya, T. E. Özkurt, "Bilateral tactile stimulation modulates recognition memory and electrophysiological brain activity", *Turkish Neuroscience Congress* (USK), İstanbul, 2022.

R. Elibol, T. E. Özkurt, "A Wilson-Cowan model describing the time–frequency character of local field potentials in Parkinson's Disease", *Turkish Neuroscience Congress* (USK), İstanbul, 2022.

S. G. Yaşar, T. E. Özkurt, "How to define qualia neuroscientifically", *Turkish Neuroscience Congress* (USK), İstanbul, 2022.

G. Göktepe, T. E. Özkurt, "Bilateral somatosensory stimuli elicit alpha activity while modifying long term memory performance", *Turkish Neuroscience Congress* (USK), Ankara, 2020.

T. E. Özkurt, J. Hirschmann, M. Butz, A. Schnitzler, "Parkinson Hastalığı'nın Gürbüz Bir Belirteci Olarak: Yüksek Frekanslı Salınımlar", *Ulusal Sinirbilim Kongresi*, İstanbul, 2018.

H. Duzcu, T. E. Özkurt, I. Mapelli, A. Hohenberger, "Doğru zamanlama başlangıcının nörofizyolojik işareti", *Ulusal Sinirbilim Kongresi*, İstanbul, 2018.

T. E. Özkurt, "Nöroelektrofizyolojik verilerde salınımsal bantların uyarlamalı belirlenimi", *Ulusal Sinirbilim Kongresi*, İstanbul, 2014.

Articles and essays (in Turkish):

T. E. Özkurt, "Günümüz nörobiliminin epistemolojik limitleri", *Düşünbil*, Ocak 2018.

T. E. Özkurt, "Beyinde karmaşık bir süreç olarak mizah ve gülme", *Bilim ve Gelecek*, Şubat 2018.

T. E. Özkurt, "Beyin osilasyonlarının diyalektiği", *Bilim ve Gelecek*, Kasım 2018.

İ. E. Deveci, M. Küskü, T. E. Özkurt, "Makinenin beni ve ötekisi", *Pasajlar Sosyal Bilimler Dergisi*, Eylül 2021.

Theses and technical reports:

"Spatial Filtering of Magnetoencephalographic Data in Spherical Harmonics Domain ", Ph.D. Dissertation, Electrical and Computer Engineering, University of Pittsburgh, Pittsburgh, PA, 2009.

"Text-Independent Speaker Identification Using Bispectrum Slice", Master's Thesis, Institute of Informatics, Computer Science, Istanbul Technical University, Istanbul, Turkey, 2004.

"A Way of Comparison for Methods That Extract Statistical Self-similarity Parameters and Determining Their Sensitivities to Short

Samples", Master's Project Report, Institute of Informatics, Computer Science, Istanbul Technical University, Istanbul, Turkey, 2003.

Given talks, seminars and lectures

"Ampirik ve/ya hazır EEG kayıtlarının kullanımına dair bir tartışma" (davetli konuşma), Nörogörüntüleme Konferansı, September 8, 2023.

"Oscillatory Communication and Causality in Brain", Bogazici University Institute of Biomedical Engineering, January 10, 2023.

"Nedensellik ve Beyin", CogIST Yaz Okulu, July 14, 2022.

"Bilinçli makineler mümkün müdür?", ODTÜ Siyaset Bilimi ve Kamu Yönetimi Bölümü, April 27, 2022.

"The Role of Alpha Band Activity in Visual and Auditory Memory Errors and Enhancement" (Keynote speaker), COGSCI Days, Yeditepe University, Istanbul, September 3, 2021.

"Nörobilim ve Felsefe Bakış Açısıyla Bilinç", Türk Tabipler Birliği Ali Özyurt Zihin Sempozyumu, May 23, 2021.

"The Problems of Neurocentrism", 19th International Symposium on Disordered Systems: Theory and Its Applications, İstanbul, November 16, 2019.

"Zihin ve Gerçeklik", Felsefe Seminerleri, İstanbul Tabip Odası, İstanbul, October 31, 2019.

"What are we measuring with M/EEG?" (Invited lecturer), Statistical Parameter Mapping (SPM) for MEG / EEG Course, UCL Department of Neurology, London, UK, May 20, 2019.

"Beyinde ilintisel ve nedensel ilişkiler", Logos Seminerleri, Şirince, İzmir, April 20, 2019.

"Parkinson Hastalığı'nın Gürbüz Bir Belirteci Olarak: Yüksek Frekanslı Salınımlar", 16. Ulusal Sinirbilim Kongresi, İstanbul Teknik Üniversitesi, İstanbul, May 22, 2018.

"Günlük Yaşamda Sahte Bellek ve Beyin", (Davetli konuşma), Karakutu Derneği, StudioX, Beyoğlu, İstanbul, April 19, 2018.

"Günümüz nörobiliminin epistemolojik limitleri", (Davetli konuşma), Ankara Üniversitesi, Beyin Araştırmaları Uygulama ve Araştırma Merkezi, Ankara, January 26, 2018.

"Brain oscillatory signatures of memory errors" (Keynote lecture), OHBM Turkish Human Brain Mapping Meeting, November 21, 2017.

"Gülme – mizah; zihin – beyin", Logos Seminerleri, Şirince, İzmir, October 26, 2017.

"Nörobilimin Limitleri", Düşünbil 4. Zihin Sempozyumu, Raymar Otel, Ankara, March 25, 2017.

"Kısa süreli yanılsamalı bellek ve elektrofizyolojik iz düşümü", (Davetli konuşma), Ankara Üniversitesi, Beyin Araştırmaları Uygulama ve Araştırma Merkezi, Ankara, April,2015.

"Nöroelektrofizyolojik verilerde salınımsal bantların uyarlamalı belirlenimi", (Davetli konuşma) Hacettepe Üniversitesi, Nörolojik Bilimler ve Psikiyatri Enstitüsü, Ankara, December 1, 2014.

"Nöroelektrofizyolojik verilerde salınımsal bantların uyarlamalı belirlenimi", 12. Ulusal Sinirbilim Kongresi, Bahçeşehir Üniversitesi, İstanbul, May 31, 2014.

"Oscillatory markers obtained from Parkinson's disease patients" (Invited talk), The Berlin School of Mind and Brain, Berlin, Germany, June 12, 2013.

"Brain Oscillations and Connectivity", METU Neuroscience Days, February 16, 2013.

"Efficient estimation of phase-amplitude coupling from brain recordings", (Invited talk by Department of Neurology), Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, June 26, 2012.

"Investigation of Parkinson's Disease via High Frequency Components in EEG", 7th International Symposium on Health Informatics and Bioinformatics, Cappadocia, Turkey, April 21, 2012.

"High frequency oscillations in the subthalamic nucleus in Parkinson's Disease", Informatics Festival, Informatics Institute, Middle East Technical University (METU), Ankara, Turkey, June 10, 2011.

"High frequency oscillations in the subthalamic nucleus in Parkinson's Disease", Heinrich Heine University, 3rd ERANET (European Research Project) Consortium Meeting DBS-Physiology, Düsseldorf, Germany, May 27, 2011.

"Magnetoencephalographic Signal Processing and Revealing the Pathways in Parkinson's Disease", Yeditepe University, Department of Biomedical Engineering, Istanbul, Turkey, December 29, 2010.

Spatial Filtering of Magnetoencephalographic Data in Spherical Harmonics Domain, Seminar at the University of Pittsburgh, Electrical and Computer Engineering, Pittsburgh, PA, September 24, 2008.

Manyetoensefalografi Verilerini Küresel Harmonik Ortamda Uzamsal Süzgeçleme (in Turkish), Seminar at Department of Electronics and Communications Engineering, Istanbul Technical University, Istanbul, Turkey, September 12, 2008.

Principles of MEG Modeling and Signal Processing, (Invited lecturer for the Multimodal Neuroimaging Training Program MNTP at the University of Pittsburgh, in collaboration with Carnegie Mellon University), Pittsburgh, PA, June 24, 2008.

Lecture: Basic Principles of MEG Signal Processing, (Invited lecturer as part of the graduate Course titled "Neuroimaging" at the University of Pittsburgh, Department of Bioengineering), Pittsburgh, PA , November 30, 2007.

Brief Academic visits

Visiting scientist (Marie Curie project secondment), INOVA Technology, Lisbon, Portugal, July 12 - August 12, 2017.

Visiting scientist (Marie Curie project secondment), INOVA Technology, Lisbon, Portugal, January 16 - February 15, 2017.

Visiting scientist, Department of Psychology, University of Glasgow, Glasgow, Scotland, UK, November 11-14, 2009.

Attended workshops, meetings and lectures

MEG UK Conference, Cardiff, Wales, UK, April 15 – 17, 2019.

BMZF Meeting "Brain networks: Challenges and perspectives", Düsseldorf, Germany, December 4-5, 2014.

Third ERANET (European Research Project) Consortium Meeting DBS-Physiology, Düsseldorf, Germany, May 27-28, 2011.

International Symposium of the Clinical Research Group: Basal-Ganglia-Cortex Loops - Pathological Interaction and Therapeutic Modulation, Uniklinik Köln, Cologne, Germany, May 26, 2011.

Second ERANET (European Research Project) Consortium Meeting DBS-Physiology, Gargnano, Garda Lake, Italy, April 15-17, 2010.

First ERANET (European Research Project) Consortium Meeting DBS-Physiology, Kiel, Germany, September 17-18, 2009.

Advanced data analysis and source modelling of EEG and MEG data, Centre for Cognitive Neuroimaging, Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, the Netherlands, May 4-7, 2009.

Fourth International Workshop – Statistical Analysis of Neuronal Data, Pittsburgh PA, May 29-31 2008.

Sparse Representations and High Dimensional Geometry, University of California (UCLA), Institute for Pure & Applied Mathematics, Los Angeles, CA, May 30-June 1, 2007. (with a scholarship from UCLA IPAM)

Other stuff

Reviewer Editor for *Frontiers in Human Neuroscience*

Reviewer for the following journals

IEEE Transactions on Biomedical Engineering
Medical Engineering & Physics
Neuroimage
Neuroimage Clinical
Journal of Neuroscience Methods
Frontiers in Human Neuroscience
Frontiers in Computational Neuroscience
Clinical Neurophysiology
Parkinson's Disease
Cerebral Cortex
Human Brain Mapping
Movement Disorders
Imaging Neuroscience

Listed in the *2010 Edition of Marquis Who's Who in America*

SIU (Sinyal İşleme Kurultayı), Bilim Kurulu, 2023, 2024.