Tuna Çakar

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PROFESSIONAL SUMMARY

Dr. Tuna Çakar is a seasoned researcher and assistant professor specializing in the intersection of cognitive science, artificial intelligence, and data science, with a focus on applications across various interdisciplinary fields. He holds a Ph.D. in Cognitive Science and has developed a robust research agenda centered around cognitive neuroscience, machine learning, and brain-computer interfaces (BCI). His research aims to enhance understanding of high-order cognitive processes, particularly decision-making, reasoning, and problem-solving, which he explores using neuroimaging techniques such as functional near-infrared spectroscopy (fNIRS), EEG/ERP and eye-tracking. At MEF University, Dr. Çakar has been instrumental in advancing the Department of Computer Engineering's academic and research profile. His contributions include pioneering sector-oriented research initiatives, such as predictive modeling for consumer behavior, neural mechanisms underlying financial decision-making, and applications of deep learning in healthcare. Dr. Çakar has led collaborations with industry partners and participated in government-funded projects to bridge academic research with practical applications in areas like healthcare, finance, and educational technology. His expertise spans the design and validation of data-driven models, with particular strengths in analytical segmentation, data-driven churn models, recommendation systems, and neural network-based algorithms. Dr. Çakar's work also delves into the integration of machine learning and IoT for enhancing real-time, data-intensive systems. Committed to advancing the field of AI and cognitive science, he contributes actively to MEF University's research community by leading the Brain Dynamics Laboratory and AI Dynamics Lab, where he mentors students and fosters interdisciplinary collaboration.

SKILLS

- Machine Learning and Deep Learning
- Data-Driven Model Development and Model Validation
- Customer Segmentation via ML/DL Models
- Brain-Computer Interface (BCI) Development
- Programming: Python, MATLAB, R, Java, C/C++
- R&D Project Development and Management
- Data Analysis, Data Visualization, and Storytelling
- Recommendation Engines for E-Commerce and Other Domains
- Quantum Machine Learning
- Neuromarketing and Consumer Behavior Analysis
- Optical Brain Imaging (fNIRS), EEG/ERP and Eye-tracking

WORK HISTORY

RESEARCH ENGINEER
12/2021 to CURRENT

TAM Finans Inc.

ASSISTANT PROFESSOR
01/2018 to CURRENT

MEF University

RESEARCH ENGINEER
09/2015 to 02/2017

Neurolize Applied Neuroscience Ltd. Co.

LECTURER
01/2015 to 01/2017

Acıbadem University

EDUCATION

Ph.D. | Cognitive Science *01/2015*

Middle East Technical University, Ankara

M.S. | Cognitive Science *01/2009*

Bosphorus University, İstanbul

B.S. | Biological Sciences & Bioengineering *01/2004*

Sabancı University, İstanbul

CERTIFICATION & TRAININGS

- Data Science and Engineering (Yemeksepeti)
- Data Science and Applications (Hesapkurdu)
- Data Analytics and Visualization (UP School & Ford)
- Data Analytics, Visualization, and Storytelling (UP School & Hepsiburada)
- Data Science Expertise Training (YetGen & Akbank)
- Artificial Intelligence First Developer (UP School & Ford)
- Deep Learning Expertise (UP School & Google Inc.)
- Data Science Training (Bursa Coşkunöz Eğitim Vakfı)
- Data Science & Engineering (Bursa Coşkunöz Eğitim Vakfı & BEBKA)
- Optical Brain Imaging (fNIRS) Training for Neuromarketing (TN Market Research Inc.)

PROJECT MANAGER

Pedi@ktivite - TÜBİTAK 1001 Project,
Lead role in developing a pediatric physical activity tracking platform using IoT and AI to enhance health monitoring.
Brain-Computer Interface (BCI) Development Project - MEF University Research Grants,
Collaborator on the integration of deep reinforcement learning for BCI to enable interaction for disabled users via brain signals.
Consumer Loan Evaluation Project,
A study analyzing neural activations related to loan decisions using fNIRS,

integrating machine learning for consumer behavior predictions.

RESEARCHINTERESTS

- Cognitive Neuroscience (Decision-making, problem-solving)
- Brain-Computer Interfaces (BCI) via Deep Learning Approaches
- Machine Learning and Data Science for Applications in Social & Health Sciences

PUBLICATIONS

- Çakar, T., Son-Turan, S., Girişken, Y., Sayar, A., Ertuğrul, S., Filiz, G., & Tuna, E. (2024). Unlocking the neural mechanisms of consumer loan evaluations: an fNIRS and ML-based consumer neuroscience study. Frontiers in Human Neuroscience, 18.
- Çakar, T., & Filiz, G. (2023). Unraveling neural pathways of political engagement: bridging neuromarketing and political science for understanding voter behavior and political leader perception. Frontiers in Human Neuroscience, 17. Yağan, M., Musellim, S., Arslan, S. S., Çakar, T. , Alp, N., Özkan, H. (2023) A New Benchmark Dataset Towards Ubiquitous P300 ERP-based BCI Applications. *Digital Signal Processing* .
- Cedden, G., Eken, A., Çakar, T. (2022). Extracting, computing, coordination: what does a triphasic ERP pattern say about language processing? *Language, Cognition and Neuroscience 37 (4),* 403-419.
- Nural, Ş., Nesi, H., Çakar, T. (2022). Warning notes in a learner's dictionary: A study of the effectiveness of different formats. *International Journal of Lexicography* , 1-19.
- Çakır, M. P., Çakar, T., Girişken, Y., Yurdakul, D. (2018). An Investigation of the Neural Correlates of Purchase Behavior through fNIRS. *European Journal of Marketing*
- *Neuromarketing Special Issue 52 (1/2), 1271-1284.* (SSCI, Q2) Ulman, Y.I., Çakar, T., Yıldız, G. (2015). Ethical Issues in Neuromarketing: ”I Consume, Therefore I am!”. *Science and Engineering Ethics Volume 21, Issue 5, pp 1271–1284* (DOI 10.1007/s11948-014-9581-5). (SCI, Q1).