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#### International Researcher IDs

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ORCID: 0000-0002-1397-2146

Publons / Web Of Science ResearcherID: D-3270-2014

ScopusID: 35101325500

Yoksis Researcher ID: 145571

#### Education Information

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- I. Doctorate, Bogazici University, Institute Of Science, Bilgisayar Mühendisliği, Turkey 2009 - 2015
- II. Postgraduate, Bogazici University, Institute Of Science, Bilgisayar Mühendisliği, Turkey 2007 - 2009
- III. Undergraduate, Bogazici University, Faculty Of Engineering, Bilgisayar Mühendisliği, Turkey 1999 - 2004

#### Foreign Languages

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- I. English, C1 Advanced

#### Dissertations

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- I. Doctorate, Human activity recognition with wireless sensor networks using machine learning, Boğaziçi Üniversitesi, Bilgisayar Mühendisliği (Dr), 2015
- II. Postgraduate, RFID enhanced wireless sensor networks for healthcare monitoring, Boğaziçi Üniversitesi, Bilgisayar Mühendisliği (YI) (Tezli), 2009

#### Research Areas

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Computer Sciences, Artificial Intelligence, Computer Learning and Pattern Recognition, Engineering and Technology

#### Academic Titles / Tasks

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- I. Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2023 - Continues
- II. Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2018 - 2023
- III. Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2017 - 2018
- IV. Research Assistant, Bogazici University, Faculty Of Engineering, Department Of Computer Engineering, 2009 - 2015

## Academic and Administrative Experience

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- I. Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2022 - Continues

## Advising Theses

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- I. Alemdar H., Semi-automated image labeling framework for honeybee (*Apis mellifera*) detection and tracking in automated bee hive applications, Postgraduate, A.EMRE(Student), 2023
- II. Alemdar H., Enhancing the stability and quality assessment of visual explanations for thorax disease classification using deep learning, Doctorate, S.RAHIMIAGHDAM(Student), 2023
- III. Baran Ö. U., Alemdar H., Rapid lift and drag prediction tool with multi-layer perceptron model for supercritical airfoils, Postgraduate, C.ATLI(Student), 2023
- IV. ALEMDAR H., Explainable recommendations using extracted topics from item reviews and word matching, Postgraduate, M.TUNÇ(Student), 2022
- V. ALEMDAR H., Extraction of interpretable decision rules from black-box models for classification tasks, Postgraduate, E.BERK(Student), 2022
- VI. Baran Ö. U., Alemdar H., A deep learning methodology for the flow field prediction around airfoils, Doctorate, C.DURU(Student), 2021
- VII. Onur E., Alemdar H., Balanced Path Generation and Reliability Extension for In-band Network Telemetry, Postgraduate, G.ŞİMŞEK(Student), 2021
- VIII. Alemdar H., Base Station Power Optimization for Green Networks Using Reinforcement Learning, Postgraduate, S.AKTAŞ(Student), 2019
- IX. Alemdar H., ABSTRACTIVE TEXT SUMMARIZATION ON WIKIHOW DATASET USING SENTENCE EMBEDDINGS, Postgraduate, B.TOZYILMAZ(Student), 2019
- X. Alemdar H., Spatio-Temporal Cohesive Networks for Evaluating Team Behavior in Soccer, Postgraduate, E.KÜLAH(Student), 2019
- XI. Alemdar H., Covert channel detection using machine learning methods, Postgraduate, İ.GAMZE(Student), 2019
- XII. Alemdar H., Precise indoor positioning using Bluetooth Low Energy (BLE) technology, Postgraduate, A.KEREM(Student), 2019

## Designed Lessons

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- I. Alemdar H., BIG DATA ANALYTICS, Postgraduate, 2018 - 2019
- II. Alemdar H., SPECIAL TOPICS IN COMPUTER ENGINEERING: SOFTWARE CONSTRUCTION , Undergraduate, 2018 - 2019

## Published journal articles indexed by SCI, SSCI, and AHCI

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- I. **Autonomous tracking of honey bee behaviors over long-term periods with cooperating robots**  
Ulrich J., Stefanec M., Rekabi-Bana F., Fedotoff L. A., Roucek T., Guendeger B. Y., Saadat M., Blaha J., Janota J., Hofstadler D. N., et al.  
SCIENCE ROBOTICS, vol.9, no.95, 2024 (SCI-Expanded)
- II. **Evaluating the quality of visual explanations on chest X-ray images for thorax diseases classification**  
Rahimiaghdam S., ALEMDAR H.  
Neural Computing and Applications, vol.36, no.17, pp.10239-10255, 2024 (SCI-Expanded)

- III. **Effects of lithium on locomotor activity and circadian rhythm of honey bees**  
ERDEM B., ARSLAN O. C., SEVİN S., GÖZEN A. G., Agosto-Rivera J. L., Giray T., ALEMDAR H.  
Scientific Reports, vol.13, no.1, 2023 (SCI-Expanded)
- IV. **COVID-19 forecasting using shifted Gaussian Mixture Model with similarity-based estimation**  
Külah E., Çetinkaya Y. M., Özer A. G., Alemdar H.  
EXPERT SYSTEMS WITH APPLICATIONS, vol.214, 2023 (SCI-Expanded)
- V. **Towards 5G and beyond radio link diagnosis: Radio link failure prediction by using historical weather, link parameters**  
Aktas S., ALEMDAR H., Ergut S.  
COMPUTERS & ELECTRICAL ENGINEERING, vol.99, 2022 (SCI-Expanded)
- VI. **A deep learning approach for the transonic flow field predictions around airfoils**  
DURU C., ALEMDAR H., BARAN Ö. U.  
Computers and Fluids, vol.236, 2022 (SCI-Expanded)
- VII. **CNNFOIL: convolutional encoder decoder modeling for pressure fields around airfoils**  
DURU C., ALEMDAR H., BARAN Ö. U.  
Neural Computing and Applications, vol.33, no.12, pp.6835-6849, 2021 (SCI-Expanded)
- VIII. **Obstruction-Aware Signal-Loss-Tolerant Indoor Positioning Using Bluetooth Low Energy**  
Taskan A. K., ALEMDAR H.  
SENSORS, vol.21, no.3, pp.1-28, 2021 (SCI-Expanded)
- IX. **Quantifying the value of sprints in elite football using spatial cohesive networks**  
Külah E., Alemdar H.  
CHAOS SOLITONS & FRACTALS, vol.139, 2020 (SCI-Expanded)
- X. **How do soccer teams coordinate consecutive passes? A visual analytics system for analysing the complexity of passing sequences using soccer flow motifs**  
Malqui J. L. S., Romero N. M. L., Garcia R., Alemdar H., Comba J. L.  
COMPUTERS & GRAPHICS-UK, vol.84, pp.122-133, 2019 (SCI-Expanded)
- XI. **Multi-resident activity tracking and recognition in smart environments**  
Alemdar H., Ersoy C.  
JOURNAL OF AMBIENT INTELLIGENCE AND HUMANIZED COMPUTING, vol.8, no.4, pp.513-529, 2017 (SCI-Expanded)
- XII. **Efficient and Versatile FPGA Acceleration of Support Counting for Stream Mining of Sequences and Frequent Itemsets**  
PROSTBOUCLE A., PETROT F., LEROY V., ALEMDAR H.  
ACM Transactions on Reconfigurable Technology and Systems, vol.10, pp.1-25, 2017 (SCI-Expanded)
- XIII. **Active learning with uncertainty sampling for large scale activity recognition in smart homes**  
Alemdar H., VAN KASTEREN T. L. M., Ersoy C.  
JOURNAL OF AMBIENT INTELLIGENCE AND SMART ENVIRONMENTS, vol.9, no.2, pp.209-223, 2017 (SCI-Expanded)
- XIV. **Daily life behaviour monitoring for health assessment using machine learning: bridging the gap between domains**  
Alemdar H., Tunca C., Ersoy C.  
PERSONAL AND UBIQUITOUS COMPUTING, vol.19, no.2, pp.303-315, 2015 (SCI-Expanded)
- XV. **Multimodal Wireless Sensor Network-Based Ambient Assisted Living in Real Homes with Multiple Residents**  
Tunca C., Alemdar H., Ertan H., Incel O. D., Ersoy C.  
SENSORS, vol.14, no.6, pp.9692-9719, 2014 (SCI-Expanded)
- XVI. **Wireless sensor networks for healthcare: A survey**  
Alemdar H., Ersoy C.  
COMPUTER NETWORKS, vol.54, no.15, pp.2688-2710, 2010 (SCI-Expanded)
- XVII. **Wireless Healthcare Monitoring with RFID-Enhanced Video Sensor Networks**  
Alemdar H., Durmus Y., Ersoy C.

## Articles Published in Other Journals

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- I. **A Minimally Invasive Approach Towards "Ecosystem Hacking" With Honeybees**  
Stefanec M., Hofstadler D. N., Krajnik T., TURGUT A. E., ALEMDAR H., Lennox B., ŞAHİN E., Arvin F., Schmickl T.  
FRONTIERS IN ROBOTICS AND AI, vol.9, 2022 (ESCI)
- II. **Prediction of the Ball Location on the 2D Plane in Football Using Optical Tracking Data**  
Amirli A., Alemdar H.  
Academic Platform-Journal of Engineering and Science, vol.10, no.1, pp.1-8, 2022 (Peer-Reviewed Journal)
- III. **Base Station Power Optimization for Green Networks Using Reinforcement Learning**  
Aktaş S., Alemdar H.  
Sakarya University Journal of Computer and Information Sciences (Online), vol.4, no.2, pp.244-265, 2021 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

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- I. **Robotic Replicants for Improving Queen Bee Health and Persistence of the Honey Bee Colony**  
ALEMDAR H., Arslan O. C., Arvin F., Broughton G., Dvoracek D., Erdem B., GÖDELEK O., Güderer B. Y., Kara M. Y., Keyvan E. E., et al.  
47th APIMONDIA International Apicultural Congress, İstanbul, Turkey, 24 August 2022
- II. **The Effect of Loss Functions on the Deep Learning Modeling for the Flow Field Predictions Around Airfoils**  
Doğan A., Duru C., Alemdar H., Baran Ö. U.  
11th ANKARA INTERNATIONAL AEROSPACE CONFERENCE, Ankara, Turkey, 8 - 10 September 2021, pp.1-9
- III. **Covert Channel Detection Using Machine Learning**  
Cavusoglu I. G., ALEMDAR H., ONUR E.  
28th Signal Processing and Communications Applications Conference (SIU), ELECTR NETWORK, 5 - 07 October 2020
- IV. **DroPPPP: A P4 Approach to Mitigating DoS Attacks in SDN**  
Simsek G., BOSTAN H., Sarica A. K., Sarikaya E., KELEŞ A., ANGIN P., ALEMDAR H., ONUR E.  
20th World Conference on Information Security Applications, WISA 2019, Jeju Island, South Korea, 21 - 24 August 2019, pp.55-66
- V. **Multi-Connectivity Enabled User Association**  
Simsek G., Alemdar H., Onur E.  
30th IEEE Annual International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC 2019, İstanbul, Turkey, 8 - 11 September 2019
- VI. **Predicting soccer events from optical tracking data Optik takip verisinden futbol olaylarinin kestirimi**  
Özdemir E., ALEMDAR H.  
26th IEEE Signal Processing and Communications Applications Conference, SIU 2018, İzmir, Turkey, 2 - 05 May 2018, pp.1-4
- VII. **Scalable high-performance architecture for convolutional ternary neural networks on FPGA**  
Prost-Boucle A., BOURGE A., Petrot F., Alemdar H., CALDWELL N., Leroy V.  
27th International Conference on Field Programmable Logic and Applications, FPL 2017, Gent, Belgium, 4 - 06 September 2017
- VIII. **Ternary Neural Networks for Resource-Efficient AI Applications**  
Alemdar H., Leroy V., Prost-Boucle A., Petrot F.

International Joint Conference on Neural Networks (IJCNN), Alaska, United States Of America, 14 - 19 May 2017, pp.2547-2554

- IX. **Sleep Quality Monitoring with Ambient and Mobile Sensing**  
Kahveci A. Y., Alemdar H., Ersoy C.  
2015 23RD SIGNAL PROCESSING AND COMMUNICATIONS APPLICATIONS CONFERENCE (SIU), Malatya, Turkey, 16 - 19 May 2015
- X. **Multi-Resident human behaviour identification in ambient assisted living environments**  
Alemdar H.  
16th ACM International Conference on Multimodal Interaction, ICMI 2014, İstanbul, Turkey, 12 - 16 November 2014, pp.369-373
- XI. **A Unified Model for Human Behavior Modeling using a Hierarchy with a Variable Number of States**  
Alemdar H., van Kasteren T. L. M., Niessen M. E., MERENTİTİS A., Ersoy C.  
22nd International Conference on Pattern Recognition (ICPR), Stockholm, Sweden, 24 - 28 August 2014, pp.3804-3809
- XII. **ARAS Human Activity Datasets In Multiple Homes with Multiple Residents**  
Alemdar H., Ertan H., Incel O. D., Ersoy C.  
7th International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth), Venice, Italy, 5 - 08 May 2013, pp.232-235
- XIII. **A smart couch design for improving the quality of life of the patients with cognitive diseases Bilişsel rahatsızlıkları olan kişi lerin yaşam kalitesini artırmak için akıllı bir koltuk tasarımı**  
Ertan H., Alemdar H., Incel Ö. D., Ersoy C.  
2012 20th Signal Processing and Communications Applications Conference, SIU 2012, Fethiye, Mugla, Turkey, 18 - 20 April 2012
- XIV. **Using Active Learning to Allow Activity Recognition on a Large Scale**  
ALEMDAR H., van kasteren t., ERSOY C.  
AMBIENT INTELLIGENCE, Amsterdam, Netherlands, 16 - 18 November 2011, vol.7040, pp.105-114
- XV. **A robust multimodal fall detection method for ambient assisted living applications Ortam destekli yaşam uygulamaları için gürbüz düşme sezme yöntemi**  
Alemdar H., Kara Y. E., Özen M. O., Yavuz G. R., Incel Ö. D., Akarun L., Ersoy C.  
18th IEEE Signal Processing and Communications Applications Conference, SIU 2010, Diyarbakır, Turkey, 22 - 24 April 2010, pp.204-207
- XVI. **WeCare: Wireless enhanced healthcare**  
Alemdar H., Ersoy C.  
12th Mediterranean Conference on Medical and Biological Engineering and Computing, MEDICON 2010, Chalkidiki, Greece, 27 - 30 May 2010, vol.29, pp.855-858
- XVII. **Demo Abstract: Multi-modal Fall Detection within the WeCare Framework**  
Alemdar H., Yavuz G. R., Ozen M. O., Kara Y. E., Incel O. D., Akarun L., Ersoy C.  
9th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), Stockholm, Sweden, 12 - 16 April 2010, pp.436-437
- XVIII. **Using Wireless Sensor Network Technologies for Elder and Child Care: An Application Architecture Proposal**  
Alemdar H., Ersoy C.  
IEEE 17th Signal Processing and Communications Applications Conference, Antalya, Turkey, 9 - 11 April 2009, pp.930-933

## Supported Projects

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- I. Şahin E., Turgut A. E., Alemdar H., H2020 Project, ROBOTic Replicants for Optimizing the Yield by Augmenting Living Ecosystems, 2021 - 2026

- II. ALEMDAR H., KARA M. Y., Project Supported by Higher Education Institutions, Bal Arısı Kolonilerinin Bilgisayarlı Görü ve Çevresel Algılayıcılar ile Takibi ve Kovan Sağlığının Yapay Zeka ile Belirlenmesi, 2022 - 2024
- III. ALEMDAR H., ERDEM B., Project Supported by Higher Education Institutions, Kraliçe ile İşçi Arıların Davranışsal Etkileşimleri ve Beslenmesinin İncelenmesi ile Kraliçe Arı Sağlığı ve Gereksinimlerinin Belirlenmesi, 2021 - 2024
- IV. ALEMDAR H., Project Supported by Higher Education Institutions, Spor Uygulamalarında Yorumlanabilir Makine Öğrenmesi, 2018 - 2021
- V. Alemdar H., TUBITAK Project, Yorumlanabilir Makine Öğrenmesi ile İnsan-Makine Etkileşiminin Artırılması, 2018 - 2020
- VI. Alemdar H., TUBITAK Project, DERİN YAPAY SİNİR AĞLARI İÇİN ENERJİ VERİMLİ OTONOM DONANIM VE UYGULAMALARI , 2017 - 2018

## Scientific Refereeing

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- I. TUBITAK Project, 1512 - Progressive Support Program for Entrepreneurship, Middle East Technical University, Turkey, November 2021
- II. ACM TRANSACTIONS ON INTERNET TECHNOLOGY, Journal Indexed in SCI-E, August 2020
- III. JOURNAL OF AMBIENT INTELLIGENCE AND SMART ENVIRONMENTS, Journal Indexed in SCI-E, August 2019
- IV. IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, Journal Indexed in SCI-E, July 2019
- V. TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCI-E, June 2019
- VI. Project Supported by Higher Education Institutions, BAP Other, Middle East Technical University, Turkey, June 2019

## Metrics

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Publication: 38  
Citation (WoS): 1256  
Citation (Scopus): 1709  
H-Index (WoS): 12  
H-Index (Scopus): 12

## Non Academic Experience

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- I. Akbank
- II. Turkcell
- III. Telenity