

## Prof. Reda ALHAJJ

### Personal Information

**Email:** ralhajj@medipol.edu.tr

**Web:** <https://avesis.medipol.edu.tr/ralhajj>

### International Researcher IDs

ORCID: 0000-0001-6657-9738

Yoksis Researcher ID: 296913

### Education Information

Doctorate, Ihsan Dogramaci Bilkent University, Mühendislik Fakültesi, Bilgisayar Mühendisliği Bölümü, Turkey 1990 - 1993

Postgraduate, Ihsan Dogramaci Bilkent University, Mühendislik Fakültesi, Bilgisayar Mühendisliği Bölümü, Turkey 1988 - 1990

Undergraduate, Middle East Technical University, Mühendislik Fakültesi, Bilgisayar Mühendisliği Bölümü, Turkey 1984 - 1988

### Dissertations

Doctorate, Query algebra and model for object-oriented databases, Ihsan Dogramaci Bilkent University, Mühendislik Fakültesi, Bilgisayar Mühendisliği Bölümü, 1993

Postgraduate, Storage and indexing model for object-oriented databases, Ihsan Dogramaci Bilkent University, Mühendislik Fakültesi, Bilgisayar Mühendisliği Bölümü, 1990

### Academic Titles / Tasks

Ihsan Dogramaci Bilkent University, İktisadi Ve İdari Bilimler Fakültesi, 1996 - 1997

Research Assistant, Ihsan Dogramaci Bilkent University, Mühendislik Fakültesi, Bilgisayar Mühendisliği Bölümü, 1988 - 1993

### Advising Theses

Reda A., Detection of multistage Alzheimer from 4D FMRI data using deep learning, Postgraduate, N.ALI(Student), 2022

Reda A., Parallelized cyber reconnaissance automation: A real-time and scheduled security scanner, Postgraduate, M.MALKAWI(Student), 2022

Reda A., Intelligent Data Analysis for Early Warning: From Multiple Sources to Multiple Perspectives ,, Doctorate, S.Afra(Student), 2019

Reda A., Emotion and Sentiment Analysis from Twitter Text, Doctorate, K.Sailunaz(Student), 2018

Reda A., Integrating Text Mining, Data Mining, and Network Analysis to Analyze Biomarker Trends in Prostate Cancer and Breast Cancer ,, Postgraduate, G.Jurca(Student), 2018

Reda A., Tailored Ensemble Approach for Stock Price Prediction, Postgraduate, M.Dhaliwal(Student), 2018

Reda A., A Unified Hybrid Evolutionary Multi-Objective Optimization Algorithm for Decision Making ,, Doctorate, P.Xiufeng(Student), 2017

Reda A., A multi-objective recommendation system, Doctorate, M.GÜLÇİN(Student), 2016

Reda A., Flexible and Scalable Routing Approach for Mobile Ad Hoc Networks by Function Approximation of Q-Learning, Postgraduate, M.Elzohbi(Student), 2016

Reda A., Semantically Formalized Logging and Advanced Analytics for Enhanced Monitoring and Management of Large-scale Applications, Doctorate, M.Omair(Student), 2015

Reda A., Community Structure, Inference and Network-Based Markers, Doctorate, S.Gao(Student), 2014

Reda A., Biological Network-based Approaches to The Functional Analysis of miRNAs in Prostate Cancer, Doctorate, M.Alshalalfa(Student), 2013

Reda A., Fuzzy Query Model, Doctorate, K.Kianmehr(Student), 2012

Reda A., Efficient partially observable markov decision process based formulation of gene regulatory network control problem, Doctorate, U.ERDOĞDU(Student), 2012

Reda A., Induction and control of large scale gene regulatory networks, Doctorate, M.TAN(Student), 2009

Reda A., Controlling discrete genetic regulatory networks, Doctorate, O.ABUL(Student), 2005

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

- I. **LSTM-driven drug design using SELFIES for target-focused de novo generation of HIV-1 protease inhibitor candidates for AIDS treatment**  
Albrijawi M. T., ALHAJJ R.  
PLoS ONE, vol.19, no.6 June, 2024 (SCI-Expanded)
- II. **Exploring The Prognostic Significance of SET-Domain Containing 2 (SETD2) Expression in Advanced and Castrate-Resistant Prostate Cancer**  
Gamallat Y., Felipe Lima J., Seyedi S., Li Q., Rokne J. G., Alhajj R., Ghosh S., Bismar T. A.  
Cancers, vol.16, no.7, 2024 (SCI-Expanded)
- III. **CNN-Transformer based emotion classification from facial expressions and body gestures**  
Karatay B., Beştepe D., Sailunaz K., Özyer T., Alhajj R.  
Multimedia Tools and Applications, vol.83, no.8, pp.23129-23171, 2024 (SCI-Expanded)
- IV. **Enhancing ICU Management and Addressing Challenges in Turkey through AI-Powered Patient Classification and Increased Usability with ICU Placement Software**  
Hakverdi Y., Gumus M. U., TAŞTEKİN A., İDİN K., KANĞIN M., Ozyer T., ALHAJJ R.  
IEEE Access, 2024 (SCI-Expanded)
- V. **A survey on brain tumor image analysis**  
Sailunaz K., Alhajj S., Özyer T., Rokne J., Alhajj R.  
Medical and Biological Engineering and Computing, vol.62, no.1, pp.1-45, 2024 (SCI-Expanded)
- VI. **Studying the connection between SF3B1 and four types of cancer by analyzing networks constructed based on published research**  
Samy A., ÖZDEMİR M. K., ALHAJJ R.  
Scientific Reports, vol.13, no.1, 2023 (SCI-Expanded)
- VII. **Genomic Biomarker Discovery in Disease Progression and Therapy Response in Bladder Cancer Utilizing Machine Learning**  
Liosis K. C., Marouf A. A., Rokne J. G., Ghosh S., Bismar T. A., Alhajj R.  
Cancers, vol.15, no.19, 2023 (SCI-Expanded)
- VIII. **A survey of machine learning-based methods for COVID-19 medical image analysis**  
Sailunaz K., Özyer T., Rokne J., Alhajj R.  
MEDICAL & BIOLOGICAL ENGINEERING & COMPUTING, vol.61, no.6, pp.1257-1297, 2023 (SCI-Expanded)
- IX. **Serrate RNA Effector Molecule (SRRT) Is Associated with Prostate Cancer Progression and Is a Predictor of Poor Prognosis in Lethal Prostate Cancer**  
Gamallat Y., Choudhry M., Li Q., Rokne J. G., Alhajj R., Abdelsalam R., Ghosh S., Arbet J., Boutros P. C., Bismar T. A.  
Cancers, vol.15, no.10, 2023 (SCI-Expanded)
- X. **Causes of Higher Ecological Footprint in Pakistan: Does Energy Consumption Contribute? Evidence**

**from the Non-Linear ARDL Model**

Asghar N., Amjad M. A., Rehman H. u., Munir M., ALHAJJ R.  
Sustainability (Switzerland), vol.15, no.4, 2023 (SCI-Expanded)

- XI. **A Comparative Study of Different Pre-Trained DeepLearning Models and Custom CNN for Pancreatic Tumor Detection**  
Zavalsız M. T., Alhadj S., Sailunaz K., Ozyer T., Alhadj R.  
International Arab Journal of Information Technology, vol.20, no.3 Special Issue, pp.515-526, 2023 (SCI-Expanded)
- XII. **Moderation of Services' EKC through Transportation Competitiveness: PQR Model in Global Prospective**  
Sardar M. S., Asghar N., Munir M., ALHAJJ R., Rehman H. u.  
International Journal of Environmental Research and Public Health, vol.20, no.1, 2023 (SCI-Expanded)
- XIII. **MCNN-LSTM: Combining CNN and LSTM to Classify Multi-Class Text in Imbalanced News Data**  
Hasib K. M., Azam S., Karim A., Marouf A. A., Shamrat F. M. J. M., Montaha S., Yeo K. C., Jonkman M., Alhadj R., Rokne J. G.  
IEEE Access, vol.11, pp.93048-93063, 2023 (SCI-Expanded)
- XIV. **The Role of Machine Learning in Identifying Students At-Risk and Minimizing Failure**  
Pek R. Z., Ozyer S. T., Elhage T., Ozyer T., ALHAJJ R.  
IEEE Access, vol.11, pp.1224-1243, 2023 (SCI-Expanded)
- XV. **An Efficient Approach to Predict Eye Diseases from Symptoms Using Machine Learning and Ranker-Based Feature Selection Methods**  
Marouf A. A., Mottalib M. M., Alhadj R., Rokne J., Jafarullah O.  
BIOENGINEERING-BASEL, vol.10, no.1, 2023 (SCI-Expanded)
- XVI. **Interactive framework for Covid-19 detection and segmentation with feedback facility for dynamically improved accuracy and trust**  
Sailunaz K., Bestepe D., Özyer T., Rokne J., Alhadj R.  
PLoS ONE, vol.17, no.12 December, 2022 (SCI-Expanded)
- XVII. **Explainable artificial intelligence through graph theory by generalized social network analysis-based classifier**  
Ucer S., Ozyer T., Alhadj R.  
Scientific Reports, vol.12, no.1, 2022 (SCI-Expanded)
- XVIII. **Entropy-based financial asset pricing: Evidence from Pakistan**  
Wang S., Khan S. A., Munir M., ALHAJJ R., Khan Y. A.  
PLoS ONE, vol.17, no.12 December, 2022 (SCI-Expanded)
- XIX. **Achieving sustainable development resilience: Poverty reduction through affordable access to electricity in developing economies**  
Asghar N., Amjad M. A., Rehman H. u., Munir M., ALHAJJ R.  
Journal of Cleaner Production, vol.376, 2022 (SCI-Expanded)
- XX. **Tweet and user validation with supervised feature ranking and rumor classification**  
Sailunaz K., Kawash J., Alhadj R.  
Multimedia Tools and Applications, vol.81, no.22, pp.31907-31927, 2022 (SCI-Expanded)
- XXI. **SNF-NN: computational method to predict drug-disease interactions using similarity network fusion and neural networks**  
Jarada T. N., Rokne J. G., Alhadj R.  
BMC Bioinformatics, vol.22, no.1, 2021 (SCI-Expanded)
- XXII. **Human action recognition approaches with video datasets—A survey**  
Özyer T., Ak D. S., Alhadj R.  
Knowledge-Based Systems, vol.222, 2021 (SCI-Expanded)
- XXIII. **Integrated framework for criminal network extraction from Web**  
Afra S., Alhadj R.  
Journal of Information Science, vol.47, no.2, pp.206-226, 2021 (SCI-Expanded)
- XXIV. **SNF-CVAE: Computational method to predict drug-disease interactions using similarity network**

### **fusion and collective variational autoencoder**

Jarada T. N., Rokne J. G., Alhajj R.

Knowledge-Based Systems, vol.212, 2021 (SCI-Expanded)

- XXV. **Identifying side effects of commonly used drugs in the treatment of Covid 19**  
Aygün İ., Kaya M., Alhajj R.  
Scientific Reports, vol.10, no.1, 2020 (SCI-Expanded)
- XXVI. **A review of computational drug repositioning: Strategies, approaches, opportunities, challenges, and directions**  
Jarada T. N., Rokne J. G., Alhajj R.  
Journal of Cheminformatics, vol.12, no.1, 2020 (SCI-Expanded)
- XXVII. **Analysis and prediction in sparse and high dimensional text data: The case of Dow Jones stock market**  
Sert O. C., Şahin S. D., Özyer T., Alhajj R.  
Physica A: Statistical Mechanics and its Applications, vol.545, 2020 (SCI-Expanded)
- XXVIII. **Early warning system: From face recognition by surveillance cameras to social media analysis to detecting suspicious people**  
Afra S., Alhajj R.  
Physica A: Statistical Mechanics and its Applications, vol.540, 2020 (SCI-Expanded)
- XXIX. **CutESC: Cutting edge spatial clustering technique based on proximity graphs**  
Aksac A., Özyer T., Alhajj R.  
Pattern Recognition, vol.96, 2019 (SCI-Expanded)
- XXX. **Glaucoma detection using image processing techniques: A literature review**  
Sarhan A., Rokne J., Alhajj R.  
Computerized Medical Imaging and Graphics, vol.78, 2019 (SCI-Expanded)
- XXXI. **Emotion and sentiment analysis from Twitter text**  
Sailunaz K., Alhajj R.  
Journal of Computational Science, vol.36, 2019 (SCI-Expanded)
- XXXII. **Human behavior modeling for simulating evacuation of buildings during emergencies**  
Şahin C., Rokne J., Alhajj R.  
Physica A: Statistical Mechanics and its Applications, vol.528, 2019 (SCI-Expanded)
- XXXIII. **Effective induction of gene regulatory networks using a novel recommendation method**  
Ozsoy M. G., POLAT F., Alhajj R.  
International Journal of Data Mining and Bioinformatics, vol.22, no.2, pp.91-112, 2019 (SCI-Expanded)

### **Articles Published in Other Journals**

- I. **Twitter analysis in emergency management: recent research and trends**  
Arvandi A., Rokne J., ALHAJJ R.  
Social Network Analysis and Mining, vol.14, no.1, 2024 (ESCI)
- II. **A survey of artificial intelligence/machine learning-based trends for prostate cancer analysis**  
Sailunaz K., Beştepe D., Alhajj L., Özyer T., Rokne J., Alhajj R.  
Network Modeling Analysis in Health Informatics and Bioinformatics, vol.13, no.1, 2024 (ESCI)
- III. **Recent advances in crack detection technologies for structures: a survey of 2022-2023 literature**  
Kaveh H., ALHAJJ R.  
Frontiers in Built Environment, vol.10, 2024 (ESCI)
- IV. **Detecting and Understanding Sentiment Trends and Emotion Patterns of Twitter Users—A Study on the Demise of a Bollywood Celebrity**  
Marouf A. A., Rokne J. G., Alhajj R.  
Big Data and Cognitive Computing, vol.6, no.4, 2022 (ESCI)
- V. **Global human obesity and political globalization; asymmetric relationship through world human**

### **development levels**

Munir M., Zakaria Z. A., ALHAJJ R., Mohamad M. B., Baig A. A., Arshed N.  
Nutrition and Health, 2022 (Scopus)

- VI. **Global impact on human obesity – A robust non-linear panel data analysis**  
Munir M., Zakaria Z. A., Baig A. A., Mohamad M. B., Arshed N., ALHAJJ R.  
Nutrition and Health, 2022 (Scopus)
- VII. **CACTUS: Cancer image annotating, calibrating, testing, understanding and sharing in breast cancer histopathology**  
Aksac A., Ozyer T., Demetrick D. J., Alhajj R.  
BMC Research Notes, vol.13, no.1, 2020 (Scopus)
- VIII. **BreCaHAD: A dataset for breast cancer histopathological annotation and diagnosis**  
Aksac A., Demetrick D. J., Ozyer T., Alhajj R.  
BMC Research Notes, vol.12, no.1, 2019 (Scopus)
- IX. **Fuzzy classification methods based diagnosis of parkinson's disease from speech test cases**  
Dastjerd N. K., Sert O. C., Ozyer T., Alhajj R.  
Current Aging Science, vol.12, no.2, pp.100-120, 2019 (Scopus)
- X. **Effective mining of fuzzy multi-cross-level weighted association rules**  
KAYA M., ALHAJJ R.  
LECTURE NOTES IN ARTIFICIAL INTELLIGENCE, vol.4203, no.null, pp.399-408, 2006 (Peer-Reviewed Journal)

### **Books & Book Chapters**

- I. **Parallelized Cyber Reconnaissance Automation: A Real-Time and Scheduled Security Scanner**  
MALKAWI M. J. A., ALHAJJ R.  
in: Cyber Security and Social Media Applications, Tariyan Özyer Sibel, Kaya Buket, Editor, Springer, Cham, pp.29-54, 2023

### **Refereed Congress / Symposium Publications in Proceedings**

- I. **Exploring Gene Expression and Clinical Data for Identifying Prostate Cancer Severity Levels using Machine Learning Methods**  
Marouf A. A., Alhajj R., Rokne J. G., Ghose S., Bismar T. A.  
2023 IEEE Canadian Conference on Electrical and Computer Engineering, CCECE 2023, Regina, Canada, 24 - 27 September 2023, vol.2023-September, pp.186-191
- II. **Real-time web-based International Flight Tickets Recommendation System via Apache Spark**  
Malkawi M. J. A., ALHAJJ R.  
24th IEEE International Conference on Information Reuse and Integration for Data Science, IRI 2023, Washington, United States Of America, 4 - 06 August 2023, pp.279-282
- III. **A Multi-Modal Emotion Recognition System Based on CNN-Transformer Deep Learning Technique**  
Karatay B., Bestepe D., Sailunaz K., Ozyer T., Alhajj R.  
7th International Conference on Data Science and Machine Learning Applications, CDMA 2022, Riyadh, Saudi Arabia, 1 - 03 March 2022, pp.145-150
- IV. **Pancreatic Tumor Detection by Convolutional Neural Networks**  
Zavalsiz M. T., Alhajj S., Sailunaz K., Ozyer T., ALHAJJ R.  
23rd International Arab Conference on Information Technology, ACIT 2022, Abu Dhabi, United Arab Emirates, 22 - 24 November 2022
- V. **A Prediction Approach for the Functional Effects of Non-Coding Gene Variants**  
Yurtdas G., Aslan K., Ozyer S. T., Ozyer T., Kaya M., ALHAJJ R.  
23rd International Arab Conference on Information Technology, ACIT 2022, Abu Dhabi, United Arab Emirates, 22 -

24 November 2022

- VI. **Convex Hull in Brain Tumor Segmentation**  
Sailunaz K., Bestepe D., Alhadj S., Özyer T., Rokne J., Alhadj R.  
15th International Conference on Brain Informatics, BI 2022, Virtual, Online, 15 - 17 July 2022, vol.13406 LNAI, pp.210-225
- VII. **Hot topic detection and evaluation of multi-relation effects**  
Zirbilek N. E., Erakin M., Özyer T., Alhadj R.  
13th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2021, Virtual, Online, Netherlands, 08 November 2021, pp.416-422
- VIII. **Automation of active reconnaissance phase: An automated API-based port and vulnerability scanner**  
Malkawi M. J. A., Özyer T., ALHAJJ R.  
13th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2021, Virtual, Online, Netherlands, 08 November 2021, pp.622-629
- IX. **Predictions of drug metabolism pathways through CYP 3A4 enzyme by analysing drug-target interactions network graph**  
Albrijawi M. T., Ibrahim A. H., Alhadj R.  
13th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2021, Virtual, Online, Netherlands, 08 November 2021, pp.495-501
- X. **Detecting spam tweets using machine learning and effective preprocessing**  
Kardaş B., Bayar I. E., Özyer T., Alhadj R.  
13th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2021, Virtual, Online, Netherlands, 08 November 2021, pp.393-398
- XI. **Driver drowsiness detection by employing CNN and DLIB**  
Ali N., Hasan I., Özyer T., ALHAJJ R.  
22nd International Arab Conference on Information Technology, ACIT 2021, Muscat, Oman, 21 - 23 December 2021
- XII. **Matching applicants with positions for better allocation of employees in the job market**  
Elgammal Z., Barmu A., Hassan H., Elgammal K. W. M. A., Özyer T., ALHAJJ R.  
22nd International Arab Conference on Information Technology, ACIT 2021, Muscat, Oman, 21 - 23 December 2021
- XIII. **Utilizing Transfer Learning and a Customized Loss Function for Optic Disc Segmentation from Retinal Images**  
Sarhan A., Al-Khaz'aly A., Gorner A., Swift A., Rokne J., Alhadj R., Crichton A.  
15th Asian Conference on Computer Vision, ACCV 2020, Virtual, Online, 30 November - 04 December 2020, vol.12626 LNCS, pp.687-703
- XIV. **Utilizing Digitized Surveys for Data Collection: The Case of Developing Countries**  
Sarhan A., Addam O., Rokne J., Alhadj R.  
Future Technologies Conference, FTC 2020, San Francisco, United States Of America, 5 - 06 November 2020, vol.1290, pp.160-179
- XV. **H-OCS: A Hybrid Optic Cup Segmentation of Retinal Images**  
Sarhan A., Rokne J., Alhadj R.  
19th International Conference on Computer Analysis of Images and Patterns, CAIP 2021, Virtual, Online, 28 - 30 September 2021, vol.13052 LNCS, pp.123-134
- XVI. **Transfer learning through weighted loss function and group normalization for vessel segmentation from retinal images**  
Sarhan A., Rokne J., Alhadj R., Crichton A.  
25th International Conference on Pattern Recognition, ICPR 2020, Virtual, Milan, Italy, 10 - 15 January 2021, pp.9211-9218
- XVII. **A model based on random walk with restart to predict circRNA-disease associations on heterogeneous network**  
Vural H., Kaya M., ALHAJJ R.

11th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2019, Vancouver, Canada, 27 - 30 August 2019, pp.929-932

**XVIII. A clustering algorithm with genetically optimized membership functions for fuzzy association rules mining**

KAYA M., ALHAJJ R.

PROCEEDINGS OF THE 12TH IEEE INTERNATIONAL CONFERENCE ON FUZZY SYSTEMS, VOLS 1 AND 2, ST LOUIS, 25 - 28 May 2003, pp.881-886