

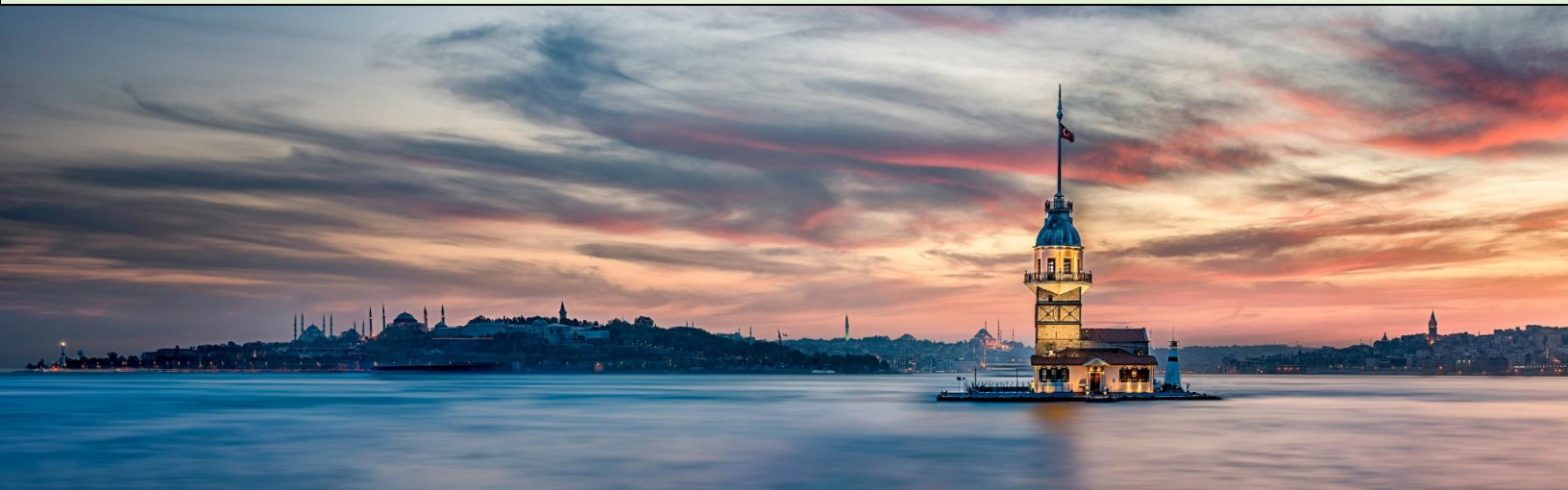
February 19-20, 2021  
Istanbul, Turkey

# ICMI-2021



1<sup>st</sup> INTERNATIONAL CONFERENCE ON  
COMPUTING AND MACHINE INTELLIGENCE

**BOOK OF  
PROCEEDINGS 2021**



## Organized by

Department of Computer Engineering,  
Istanbul, Sabahattin Zaim University,  
Istanbul, Turkey.  
<https://izu.edu.tr>



---

## Partners

AIPLUS  
308 Daisyfield Centre, Appleby Street  
Blackburn Lancashire BB1 3BL,  
United Kingdom  
<https://www.aiplustech.org/>



# **BOOK OF PROCEEDINGS OF**

**1st International Conference on Computing and Machine Intelligence**

**(ICMI-2021)**

**February 19-20, 2021,**

**Istanbul, Turkey**

## **Editorial Board**

Dr. Akhtar JAMIL

Dr. Alaa Ali HAMEED

**ISBN: 978-605-06675-7-8**

**Istanbul Sabahattin Zaim University Yayınları; No. 57.**

Istanbul Sabahattin Zaim University  
Halkalı Cad. No:2 Küçükçekmece/Istanbul  
Tel: 0212 692 96 00  
Faks: 0212 693 82 29  
[www.izu.edu.tr](http://www.izu.edu.tr)

## Copyright © 2021

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except under the terms of the Copyright.

The individual contributions in this publication and any liabilities arising from them remain the responsibility of the authors. The publisher is not responsible for possible damages, which could be a result of content derived from this publication

[info@aiplustech.org](mailto:info@aiplustech.org)

<https://icmi.aiplustech.org>

## Keynote Speakers

**Prof. Dr. Samee Ullah Khan**

Mississippi State University,  
United States of America

**Prof. Dr. Ge Wang**

Biomedical Imaging Center  
Rensselaer Polytechnic Institute  
United States of America,

**Associate Prof. Dr. Alfredo Vellido**

Polytechnic University of Catalonia (BarcelonaTech)  
Spain.

## Committees and Scientific Boards

### General Chairs

Dr. Ismail Kuçuk, Istanbul Sabahattin Zaim University, Turkey.

Dr. Hasan Kömürcügil, Eastern Mediterranean University, Turkey.

Dr. Akhtar Jamil, Istanbul Sabahattin Zaim University, Turkey.

### Technical Program Chairs

Dr. Naim Ajlouni Musleh , Istanbul Aydin University, Turkey.

Dr. Alaa Ali Hameed, Istanbul Sabahattin Zaim University, Turkey.

Dr. Fadi Al-Turjman ,Near East University, Turkey.

Dr. Bulent Bayram, Yildiz Technical University, Turkey.

Dr. Dursun Zafer Seker, Istanbul Technical University, Turkey.

Dr. Chawki Djeddi, University of Rouen, France.

Dr. Nadeem Iqbal, Abdul Wali Khan University Mardan, Pakistan.

Dr. Luca Romeo, Istituto Italiano di Tecnologia, Italy.

Dr. Paulo Batista, University of Évora, Portugal.

### Publication Chairs

Dr. Imran Ahmed Siddiqi, Department of Computer Science, Bahria University, Pakistan.

Dr. Amani Yahyaoui, Istanbul Sabahattin Zaim University, Turkey.

Dr. Vijayakumar Varadarajan, The University of New South Wales, Sydney, Australia.

### Registration Committee

Dr. Aydın Tarık Zengin, Istanbul Sabahattin Zaim University, Turkey.

Dr. Jawad Rasheed , Istanbul Sabahattin Zaim University, Turkey.

### Publicity Committee

Erdal Alimovski , Istanbul Sabahattin Zaim University, Turkey.

Hasibe Büşra Doğru, Istanbul Sabahattin Zaim University, Turkey.

Sahra Tilki , Istanbul Sabahattin Zaim University, Turkey

Ayşenur Gençdoğmuş, Istanbul Sabahattin Zaim University, Turkey

Mirsat Yeşiltepe, Yıldız Technical University, Turkey

Enes Albay, Istanbul Technical University, Turkey

### **Program Committee**

Dr. Abdullah Sönmez, Department of Computer Engineering, Istanbul Sabahattin Zaim University, Turkey.

Dr. Abdullahi Abdu Ibrahim, Department of Computer Engineering, Altinbas University, Turkey.

Dr. Adem Ozyavaş, Department of Computer Engineering, Istanbul Aydin University, Turkey.

Dr. Aftab Ahmed Khan, Department of Computer Sciences, Karakoram International University, Pakistan.

Dr. Ahmad Din, Department of Computer Engineering, Comsats University Islamabad, Pakistan.

Dr. Ahmet Gürhanli, Department of Computer Engineering, Istanbul Aydin University, Turkey.

Dr. Alaa Sheta, Department of Computer Sciences, Southern Connecticut State University, USA.

Dr. Ameer Bensefia, Computer & Information Sciences Division, Higher Colleges of Technology, Abu Dhabi, United Arab Emirates.

Dr. Atta Ur Rehman, College of Engineering and IT, Ajman University, United Arab Emirates.

Dr. Azeem Hafeez, Department of Electrical and Computer Engineering, University of Michigan, USA.

Dr. Chawki Djeddi, Laboratoire d'informatique de traitement de l'information et des systemes (LITIS), University of Rouen, France.

Dr. Dostdar Hussain, Department of Computer Sciences, Karakoram International University, Pakistan.

Dr. Fadi Al-Turjman, Research center for AI and IoT, Near East University, Turkey.

Dr. Fatma Bozyiğit, Department of Computer Engineering, İzmir Bakırçay University, Turkey.

Dr. Gabriella Casalino, Department of Informatics, Università degli Studi di Bari Aldo Moro Bari, Italy .

Dr. Hakan Gençoğlu , Department of Computer Engineering, Istanbul Sabahattin Zaim University, Turkey.

- Dr. Hayder Al-Kashoash, Department of Computer Engineering, Southern Technical University, Iraq.
- Dr. Huda Algayyim, Department of Computer Engineering, Southern Technical University, Iraq.
- Dr. Imene Yahyaoui, Universidad Rey Juan Carlos, Applied Mathematics Materials Science and Engineering and Electronic Technology, Spain.
- Dr. Ismail Duru, Department of Computer Engineering , Istanbul Sabahattin Zaim University, Turkey.
- Dr. Jafar Alzubi, Department of Computer Engineering, Al-Balqa Applied University, Jordan.
- Dr. Kevser Nur Çoğalmış , Department of Computer Engineering, Istanbul Sabahattin Zaim University, Turkey.
- Dr. Korhan Cengiz, Department of Electrical-Electronics Engineering, Trakya University, Turkey.
- Dr. M. Basel Bazbouz, The Nanoscience Centre Department of Engineering, University of Cambridge, UK.
- Dr. Mehmet Fatih Amasyali , Yildiz Technical University, Turkey
- Dr. Meryem Uzun-Per, Department of Biomedical Informatics, Wake Forest University, USA
- Dr. Muhammad Abdul Basit, Montana Technological University, Butte Montana, USA.
- Dr. Muhammad Fahim , Institute of Information security and cyberphysical systems, Innopolis University, Russia.
- Dr. Muhammad Ilyas, Department of Electrical and Electronics Eng., Altinbas University, Turkey.
- Dr. Muhammed Davud , Department of Computer Engineering, Istanbul Sabahattin Zaim University, Turkey
- Dr. Nadeem Iqbal, Department of Computer Science, Abdul Wali Khan University Mardan, Pakistan.
- Dr. Naim Ajlouni, Department of Software Engineering, Istanbul Aydin University, Turkey.
- Dr. Prateek Agrawal, Department of Computer Science, University of Klagenfurt, Austria.
- Dr. Sadeq Alhamouz, Department of Computer Sciences, WISE University, Jordan.
- Dr. Sibel Senan, Department of Computer Engineering, Istanbul University, Turkey.
- Dr. Sobhan Sarkar, Management Science Division of Business School, University of Edinburgh, UK.
- Dr. Syed Attique Shah , Balochistan University of Information Technology Engineering and Management Sciences, Pakistan
- Dr. Vira V. Shendryk, Department of Computer Sciences, Sumy State University, Ukraine.
- Dr. Zahra Elmi, Department of Computer Engineering, Istanbul Sabahattin Zaim University, Turkey.
- Dr. Zeynep Orman, Department of Computer Engineering, Istanbul University, Turkey.

## CONTENTS

S.No.	Title / Authors	Page
1	Design and Implementation of a Genetic Framework for Project Scheduling Problem <a href="#">Anum Kaleem, Saima Jawad and Urooj Rafiq</a>	1
2	Design and Implementation of a Convolutional Artificial Neural Network Based Mask Detection System <a href="#">Sonay Duman and Mehmet Ali Aktaş</a>	6
3	Automatic insulin delivery: Artificial pancreas controlled by machine learning trained algorithm compared to other therapies for diabetes treatment <a href="#">Joan Carles Peiro-Ruiz</a>	10
4	Classification of Fruits by Sample-based Image Processing <a href="#">Hasibe Busra Dogru, Yahya Sirin, Sahra Tilki, Mirsat Yesiltepe, Akhtar Jamil and Alaa Ali Hameed</a>	15
5	Indoor Localization Technique for Small Cell Networks <a href="#">Muhammad Ilyas and Oguz Bayat</a>	20
6	An Integrated Real-Time Water Quality and Usage Monitoring and Control System <a href="#">Argho Das and Abdur Rahman Rubayet</a>	24
7	A Brief Survey on Deep Learning based Recommender Systems and Applications <a href="#">Muhammad Sanwal and Alper Özcan</a>	29
8	Design and Implementation of a Snake-like Robot with Amplitude-Controlled Phase Oscillator-based Motion Control <a href="#">Serkan Karacol, Deniz Korkmaz and Gonca Ozmen Koca</a>	34
9	Performance Analysis of XGBoost Classifier with Missing Data <a href="#">Zeliha Ergul Aydin and Zehra Kamisli Ozturk</a>	39

10	Using Machine Learning Methods for Detecting Phishing Websites (A Comparative Analysis) <a href="#">Hamdullah Karamollaoğlu and Ahmet Albayrak</a>	44
11	Big Data Interoperability Measurements and Decision Making <a href="#">Weiam S. Elsaghair and Dogu Cagdas Atilla</a>	49
12	The Real-Time Detection of Red Californian Worm Eggs <a href="#">Ali Çelik and Sinan Uğuz</a>	54
13	The Influence of Quality and Size of the Training Dataset on the Performance of the Support Vector Machine Algorithm. <a href="#">Evan Kurpiewski and Ilya Samokhvalov</a>	59
14	Evaluating the Performance of Agents for Deceptive Levels <a href="#">Noor Us Sabah and Adeel Zafar</a>	64
15	Clustering Performance Analysis of Traditional and New-Generation Meta-Heuristic Algorithms <a href="#">Şüheda Semih Açmalı and Yasin Ortakci</a>	70
16	Computer Vision and Artificial Intelligence For Assessing Plant Diseases In Data-Driven Agriculture: A Case Study Of Downy Mildew In Grapevine <a href="#">Javier Tardaguila, Ines Hernandez, Salvador Gutierrez, Ignacio Barrio, Ruben Iñiguez, Fernando Palacios and María P. Diago</a>	76
17	Computer Vision for Assessing Downy Mildew In Grapevine Leaves Under Laboratory Conditions <a href="#">Ines Hernandez, Salvador Gutierrez, Sara Ceballos, Ruben Iñiguez, Ignacio Barrio, Fernando Palacios, Silvia L Toffolatti, Giuliana Maddalena, María P. Diago, Javier Tardaguila</a>	81
18	Application of Deep Learning And Computer Vision For Grapevine Flower Counting in Digital Viticulture <a href="#">Fernando Palacios, Gloria Bueno, Jesús Salido, María P. Diago, Ruben Iñiguez, Javier Tardaguila</a>	85

19	Determining Covid-19 with Relieff-Based Machine Learning Algorithms Using Biochemistry Parameters <a href="#">Çağla Danacı, Seda Arslan Tuncer, Hakan Ayyıldız and Mehmet Kalaycı</a>	89
20	Data Science Concept, Scope and Technological Development: A Review <a href="#">Ahmet Albayrak and Hamdullah Karamollaoğlu</a>	93
21	Comparative Analysis of Modified-P&O and Modified-PSO Based MPPTs for Partial Shading Conditions <a href="#">Semih Cam, Haluk Gozde and Mustafa Aktas</a>	98
22	Analysis of Cracks in Photovoltaic Module Cells From Electroluminescence Images by Deep Learning <a href="#">Miktat Aktaş, Ferdi Doğan and İbrahim Türkoğlu</a>	103
23	A Study on Automatic Counting of Steel Bars with Image Processing <a href="#">Ali Apalı, Ahmet Yavuz, Murat Demirtaş and Burcu Ceren Sarıoğlu</a>	108
24	Machine Learning Methods for Land Cover Classification from Multi-Spectral Images <a href="#">Fatma Kiraç, Akhtar Jamil, Alaa Ali Hameed, Jawad Rasheed, Mirsat Yesiltepe and Bulent Bayram</a>	112
25	Smart Home Automation System Design Based on IoT Device Cloud <a href="#">Muhammad Ilyas, Osman Nuri Uçan and Yehya El Mohamad</a>	116
26	Recyclable Material Detection in Video Streams using Neural Networks <a href="#">Enes Bayturk, Abdullah Agca, Halil Balamur, Levent Kutlucan and Ulas Vural</a>	124
27	Tuberculosis and Lung Cancer Prediction Using Support Vector Machines and Artificial Neural Network <a href="#">Amani Yahyaoui, Amir Karaj, Merve Hamzaoglu, Akhtar Jamil and Nejat Yumuşak</a>	128

28	A Recipe for Social Media Analysis <a href="#">Shahid Alam and Juvariya Khan</a>	132
29	Self HARMing Malware - An Adaptive IoT Honeypot for Automated, Repetitive Malware <a href="#">Seamus Dowling</a>	137
30	Predict the Match Outcome in One Day International Cricket Matches Using Machine Learning <a href="#">Zia Ur Rehman, Muhammad Munawar Iqbal and Hamza Safwan</a>	143
31	Rumor Detection Based on Temporal Dimensions <a href="#">Arfa Hussain and Saira Karim</a>	150
32	ARM Based Development of Embedded System for an Energy and Harmonic Analyzer <a href="#">Ugur Polat and Ergün Erçelebi</a>	155
33	New Geometric Based Features for Facial Expression Recognition <a href="#">Nuri Özbey and Mehmet Bilginer Gülmezoğlu</a>	160
34	Spectrogram Images Based Identification of Bird Species Using Convolutional Neural Networks <a href="#">Jutyar Awrahman and Hakan Kutucu</a>	165
35	Analysis and Investigation of Malicious DNS Queries Using CIRA-CIC-DoHBrw-2020 Dataset <a href="#">Muosa Tayseer Jafar, Mohammad Al-Fawa'Reh, Zaid Al-Hrahsheh and Shifa Tayseer Jafar</a>	170
36	Deep-Immune-Network Model for Vulnerable Clone Detection <a href="#">Canan Batur Şahin</a>	175
37	Perspectives of Big Data Analytics and Explainable Machine Learning in Identification of Probable Biomarkers of Alzheimer's Disease <a href="#">Afreen Khan, Swaleha Zubair and Samreen Khan</a>	180

38	Identification of Medical Forum Posts on Hypertension and Cholesterol Based on Machine Learning <a href="#">Mansur Alp Toçođlu and Aytuđ Onan</a>	185
39	Towards a Privacy Preserving Machine Learning-based Access Control for the Internet of Things <a href="#">Aissam Outchakoucht, Hamza Es-Samaali, Oussama Mounnan, Anas Abou El Kalam and Siham Benhadou</a>	190
40	Evaluation of Outlier Algorithms for Anomaly Detection <a href="#">Pınar Ersoy, Mustafa Erřahin and Deniz Kılınç</a>	196
41	Link Analysis and Web Search: A review <a href="#">Badaruddin, Ali Raza and Abdul Aziz</a>	202
42	A Real-Life Predictive Maintenance: A Case Study from Industry <a href="#">İlknur Kurban, Mehmet Tekeli, Özgür Selmanođlu, Onur Tekir, Murat řahin and Deniz Kılınç</a>	206
43	Assessment of Current Computational Intelligence Methods on Benchmark Functions <a href="#">Soner Kızıloluk, Umit Can and Bilal Alatas</a>	210
44	Comparative Analysis Of Machine Learning Algorithms For Mapping Of Debris Covered Glacier Through Remote Sensing Data: A Case Study Of Hunza Basin <a href="#">Rahila Parveen, Aftab Ahmed Khan and Dostdar Hussain</a>	214
45	Landslide Hazard Assessment for KKH (Karakorum Highway) Using Machine Learning and Deep Learning Approaches <a href="#">Wajid Hussain, Aftab Ahmed Khan and Israr Hussain</a>	221
46	Music Makam Recognition by Using Convolutional Neural Network <a href="#">Yucel Cimtay</a>	226
47	A Comparison of Obstacle Dependent Gaussian and Hybrid Potential Field Methods for Collision Avoidance in Multi-Agent Systems <a href="#">Fethi Candan, Yusheng Peng and Lyudmila Mihaylova</a>	230

48	Nonholonomic Path Planning for A Mobile Robot Based On Voronoi And Q-Learning Algorithm <a href="#">Mustafa Al-Hassow, Oguz Ata and Doğu Çağdaş Atilla</a>	236
49	Classification of Power Quality Events Using Deep Learning <a href="#">Hammad Khalid and Abdulfetah Shobole</a>	240
50	Improving Sentiment Analysis Based on Gated Recurrent Unit Model by Using Feature Selection <a href="#">Mohammed Hussein Abdalla and Fatih Özyurt</a>	245
51	Real Time Emotion Recognition Using Convolutional Neural Network <a href="#">Abdoulaye Bah</a>	250
52	Decov-CNN: A Simple CNN Model for Detection Of COVID-19 Using Chest X-Rays <a href="#">S Suba and Nita Parekh</a>	256
53	Firefly Algorithm Based Maximum Power Point Tracking for Photovoltaic System Under Partial Shading Condition <a href="#">Hasan Basri Karakaya and O. Fatih Kececioglu</a>	261
54	Developing A Protective – Preventive and Machine Learning Based Model on Child Abuse <a href="#">Fatih Mert, Muhammed Ali Aydın and Abdul Halim Zaim</a>	265
55	Automated Biometrical Fingerprint Recognition Scheme Using Synthesized Images <a href="#">Erdal Alimovski and Jawad Rasheed</a>	272
56	Remedial Directed Topic Map on Personalized Scaffolding Adaptive Learning Management System <a href="#">Yulia Wahyuningsih, Arif Djunaidy and Daniel Oranova Siahaan</a>	277
57	Application of Machine Learning methods for Prediction and Diagnosis of Urology Diseases <a href="#">Yasemin Hande Sitki, Erhan Gokcay and Yusuf Şevki Günaydın</a>	282

58	Impact of Local Histogram Equalization on Deep Learning Architectures for Diagnosis Of COVID-19 On Chest X-Rays <a href="#">Suleyman Serhan Narli and Gokhan Altan</a>	287
59	Hybridizing A Conceptual Hydrological Model with Neural Networks to Enhance Runoff Prediction <a href="#">Zeynep Beril Ersoy, Umut Okkan and Okan Fıstıkoğlu</a>	292
60	Development of A Weighted Ensemble Approach for Prediction of Blood Glucose Levels <a href="#">Shashank Bhargav, Shruti Kaushik, Abhinav Choudhury and Varun Dutt</a>	297
61	Underlying Concepts and Understanding of Internet of Things (IoT): Case Study <a href="#">Md Sarwar Morshedul Haque, Md Rafiul Hassan, Mohammad Kamal Hossain, Sk Md Mizanur Rahman and Md Arifuzzaman</a>	302
62	Controlling Driver Behavior in ADAS With Emotions Recognition System <a href="#">Oleg Evstafev Vladimir Bespalov, Sergey Shavetov and Mikhail Kakanov</a>	311
63	Comparative Analysis of Deep Learning and Traditional Machine Learning Models for Turkish Text Classification <a href="#">Hasibe Busra Dogru, Sahra Tilki, Alaa Ali Hameed and Akhtar Jamil</a>	316
64	Comparative Analysis of Different Algorithms for Image Denoising <a href="#">Mohammad Ikhsan Zakaria</a>	323
65	Skin Lesions Segmentation and Classification for Medical Diagnosis <a href="#">Merve Gün, Alaa Ali Hameed, Mirsat Yesiltepe and Akhtar Jamil</a>	327
66	Gender Classification Using Deep Learning Techniques <a href="#">Sahra Tilki, Hasibe Busra Dogru, Alaa Ali Hameed, Akhtar Jamil, Jawad Rasheed and Erdal Alimovski</a>	332
67	A Comparative Study of Multi Label Classification Methods with Unlabeled Data <a href="#">Oumaima Stitini, Soulaïmane Kaloun and Omar Bencharef</a>	337

68	Adaptive Neuro Fuzzy Inference System Based Control of a Wind Turbine and Validation of the Real-time Dataset <a href="#">Meer Abdul Mateen Khan, Mohammad Kamal Hossain and Md Sarwar Haque</a>	342
69	Determining of Alzheimer from DNA Sequences with One-Dimensional Capsule Networks <a href="#">Suat Toraman and Bihter Daş</a>	347
70	Artificial Neural Networks Based Survival Prediction of Heart Failure Using Only Serum Creatinine and Ejection Fraction <a href="#">Zehra Karapinar Senturk</a>	351
71	Using Data Science to Detect Software Aging <a href="#">Fatma Bozyigit, Kadir Sert, Murat Şahin, Dursun Dinçer and Deniz Kılınc</a>	356
72	Hypermeters Optimization in Recurrent Neural Networks-LSTM Approach for Human Activity Recognition <a href="#">Ayşenur Topbaş, Alaa Ali Hameed and Akhtar Jamil</a>	360
73	COVID-19 Detection from Chest X-ray Images using CNN <a href="#">Elif Aşıcı, Alaa Ali Hameed, Akhtar Jamil, Jawad Rasheed, Sahra Tilki and Hasibe Büşra Doğru</a>	366
74	Electricity Loss and Fraud Prediction with Deep Learning for Dicle Region <a href="#">Orçun Kitapcı, Alaa Ali Hameed and Akhtar Jamil</a>	371
75	Radiological Medical Reports Classification <a href="#">Alda Kika and Suela Maxhelaku</a>	376
76	A Survey of Artificial Intelligence Driven Blockchain Technology: Blockchain Intelligence <a href="#">Naim Ajlouni, Adem Özyavaş and Mustafa Takaoğlu</a>	380
77	Developing a Clinical Decision Support System by Classification of Melanoma using Machine Learning Techniques <a href="#">Betül Kara, Şeyma Büyücek, Mehmet Gamsızkan and Pakize Erdoğan</a>	387

78	Implementation of One Stop Shop model for Government Services <a href="#">Ina Hyseni and Endri Xhina</a>	391
79	Identifying Pneumonia in SARS-CoV-2 Disease from Images using Deep Learning <a href="#">Abdulkadir Şahiner, Alaa Ali Hameed and Akhtar Jamil</a>	397
80	Weather Forecasting Using Back Propagation Feed Forward Neural Network and Multiple Linear Regression <a href="#">Doğancan Ulutaş, Alaa Ali Hameed and Erdal Alimovski</a>	404
81	Augmented Fake News Detection using LSTM and Particle Swarm Optimization <a href="#">Ghulam Mustafa, Shahid Alam, Muhammd Asif Khan and Basit Shahzad</a>	410