

# **2020 30th International Conference on Computer Theory and Applications (ICCTA 2020)**

**Alexandria, Egypt  
12 – 14 December 2020**



**IEEE Catalog Number: CFP2069T-POD  
ISBN: 978-1-6654-3039-5**

**Copyright © 2020 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP2069T-POD
ISBN (Print-On-Demand):	978-1-6654-3039-5
ISBN (Online):	978-1-6654-1517-0

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

*Day 1*

*Saturday December 12<sup>th</sup>, 2020*

**DAY 1 - Saturday, December 12<sup>th</sup>, 2020**  
Venue: AASTMT Presidency Building, AbuQir

**12:00 Opening Session**

**12:30 Keynote Speech**

**“Use of ICT to Combat COVID-19” .....2**

***H.E. Prof. Dr. Yousry El Gamal***  
Former Minister of Education President,  
Computer Scientific Society

**13:30 Keynote Speech**

**“AI-Enabled Deployment of Connected and Autonomous Electric Vehicles  
in Smart Cities” .....3**

***Prof. Dr. Hussein Mouffah***  
Tier 1 Canada Research Chair and  
Distinguished University Professor

School of Electrical Engineering and Computer Science  
University of Ottawa, Ottawa, Ontario, Canada

**14:30 Keynote Speech**

**“Intelligence Science for Smart Detection and Diagnosis of Corona Virus” .....4**

***Prof. Dr. Abdel-Badeeh M. Salem***  
Professor of Computer Science  
Founder & Head of Artificial Intelligence and  
Knowledge Engineering Research Labs

Faculty of Computer and Information Sciences  
Ain Shams University, Cairo, Egypt

**15:30 Lunch**

---

**End of Day 1 Activities - ICCTA 2020**

*Day 2*

*Sunday, December 13<sup>th</sup>, 2020*

**DAY 2 - Sunday, December 13<sup>th</sup>, 2020**

Venue: *Online*

9:30 - 12:00

<b>Session I</b> <b>Computer Networks, Internet, and Security</b>	
<b><i>Chairs: Prof. Dr. Ayman Abdel-Hamid and Prof. Dr. Ahmed Abou Elfarg</i></b>	
Bounded-Error Subset Selection for Sparse Channel Estimation.....5	
<b>Sara Osama Abd El Aziz (Alexandria Higher Institute of Engineering and Technology, Egypt), Karim Banawan and Masoud Alghoniemy (Alexandria University, Egypt)</b>	
Modeling Cyber-Attribution Using Machine Learning Techniques.....10	
<b>Maimonah Alkaabi and Sunday Olatunji (Imam Abdulrahman Bin Faisal University, Saudi Arabia)</b>	
Genetic-Voronoi Algorithm for Coverage of IoT Data Collection Networks.....16	
<b>Wajih Abdallah (University of Toulouse, France and University of Gafsa, Tunisia), Sami Mnasri (University of Toulouse, France and University of Tabuk, Saudi Arabia), and Thierry Val (University of Toulouse, France)</b>	
Centralized Sink Clustering Protocol using Genetic Algorithm for Lifetime Extension in WSNs.....23	
<b>Ahmed Mabrouk (Higher Institute of Engineering, Egypt), Mohamed Shehata, Safa Gasser, and Mohamed El-Mahallawy (Arab Academy for Science, Technology and Maritime Transport, Egypt)</b>	
Web of Things Interoperability Using JSON-LD.....31	
<b>Kareem Elsayed and Mohamed Elgamel (Arab Academy for Science, Technology and Maritime Transport, Egypt)</b>	
Lightweight Algorithm for Preventing Malicious Fork in the Bitcoin Environment.....36	
<b>Ahmed Madkour, Hatem Abdelkader, and Asmaa Elsaid (Menoufia University, Egypt)</b>	

12:30 - 15:00

<b>Session II Intelligent Computing</b>	
<b><i>Chairs: Prof. Dr. Ossama Badawy and Prof. Dr. Mohamed Kholief</i></b>	
Early Detection of Cercospora Cotton Plant Disease by Using Machine Learning Technique.....44	<b>Wajeeha Shakeel, Mudassar Ahmad, and Nasir Mahmood (National Textile University, Pakistan)</b>
Research Trend Analysis of Artificial Intelligence.....49	<b>Ayesha Muarraf, Haseeb Ahmad, Waqar Ahmad, Nadeem Faisal, and Mudassar Ahmad (National Textile University, Pakistan)</b>
Comparing Different Pre-Trained Models Based on Transfer Learning Technique in Classifying Mammogram Masses.....54	<b>Neveen Abd-Elsalam (Cairo University, Egypt), Sahar Fawzi (Nile University, Egypt), and Ahmed Kandil (Cairo University, Egypt)</b>
Pneumonia Detection by Analyzing Xray Images Using MobileNET, ResNET Architecture and Long Short Term Memory.....60	<b>Shahriar Hossain, Rafeed Rahman, Md. Sabbir Ahmed, and Md. Saiful Islam (Brac University, Bangladesh)</b>
An Intelligent Mobile App for Fall Detection.....65	<b>Mohammad Salama and Khaled Eskaf (Arab Academy for Science, Technology and Maritime Transport, Egypt)</b>

---

**End of Day 2 Activities - ICCTA 2020**

*Day 3*

*Monday, December 14<sup>th</sup>, 2020*



**DAY 3-Monday December 14<sup>th</sup>, 2020**

Venue: *Online*

**9:30 - 12:00**

<b>Session III</b> <b>Communications, Robotics, and Energy Informatics</b>	
<b><i>Chairs: Prof. Dr. Mohamed Elhabrouk</i></b>	
Adaptive Dominant Resource Allocation in LiFi OFDMA Systems.....72	
<b>Hamis Hesham, M. Saeed Darweesh (Nile University, Egypt), and Tawfik Ismail (Nile University and Cairo University, Egypt)</b>	
Computational Study of a Face Mask for Treating Sinus Disease.....76	
<b>Persis Rofail, Rola Afify (Arab Academy for Science, Technology and Maritime Transport, Egypt), and Hassan El-Gamal (Alexandria University, Egypt)</b>	
Design and Development of a Biologically Inspired Robotic Cat for Research and Education.....82	
<b>Murad Mehrab Abrar and Raian Islam (Ahsanullah University of Science and Technology, Bangladesh)</b>	
New Time Horizon Based Classification of PV Power Generation Forecasting Techniques.....88	
<b>Ola Hassan (Zewail City of Science, Technology and Innovation, Egypt) and Ahmed Abdelsalam (Arab Academy for Science, Technology and Maritime Transport, Egypt)</b>	
Design and Development of Path Planning and Obstacle Avoidance System for Driverless Pod Using Artificial Neural Network.....96	
<b>Mohamed Elshall (Arab Academy for Science, Technology and Maritime Transport, Egypt), Soheir Rezek (Alexandria University, Egypt), Iham Zidane (Arab Academy for Science, Technology and Maritime Transport, Egypt), and Ahmed Onsy (University of Central Lancashire, UK)</b>	
Fast Convergence Modified Cuckoo Search Algorithm to Pursue String PV Modules Maximum Power Point under Partial Shading Conditions.....101	
<b>Ahmed Hossam-Eldin (Alexandria University, Egypt), Ahmed Abdelsalam (Arab Academy for Science, Technology and Maritime Transport, Egypt), Karim Youssef, and Ehab Ali (Alexandria University, Egypt)</b>	

12:30 - 14:30

<b>Session IV Image Processing and Information Systems</b>	
<i>Chairs: Prof. Dr. Khaled Mahar and Prof. Dr. Mohamed Shaheen</i>	
Extraction of Temporal Event's Frequency from Online News Channels.....109	
<b>Ain-ul-noor Fatima, Haseeb Ahmad, Mudassar Ahmad, Waqar Ahmad, and Nadeem Faisal (National Textile University, Pakistan)</b>	
The Influence of Applying Mobile Customer Relationship Management (M-CRM) in the Service Sector on Employee's Performance in Egypt.....117	
<b>Sara Beshir, Ashraf Labib, and Samar Elkhoully (Arab Academy for Science, Technology and Maritime Transport, Egypt)</b>	
Enhancing Medical Images using Altered Differential Evolution Approach.....123	
<b>Meera Ramadas (University College of Bahrain, Kingdom of Bahrain) and Ajith Abraham (Machine Intelligence Research Lab, USA)</b>	
An Efficient Detection Framework for Linear Skin Lesions with Pigmentary Disorders.....128	
<b>Hassan Ayad (Cairo University) and Tawfik Ismail (Nile University and Cairo University, Egypt)</b>	

---

**End of ICCTA 2020 Activities**