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website: https://mloey.github.io

Google scholar

MOHAMED LOEY RAMADAN IBRAHIM

Curriculum Vitae **Associate Professor**

Computer Science Department Faculty of Computers and Artificial Intelligence Benha University, Egypt

RESEARCH OVERVIEW

My research concentrates on the development of hybrid machine learning and deep learning models for the resolution of nonlinear problems in numerous disciplines (medicine, agriculture, etc.). The objective of my research is to assist a wide range of high-integrity applications with safe and effective autonomous systems. The following are my primary areas of future research:

- 1. **Design** complex non-linear/hyper-linear systems: Developing systems that are guaranteed to be fast, reliable, and satisfy high specifications is an immense challenge.
- 2. Build a safety and robustness certification of neural networks based on control theory and formal methods to provide verification and certifiable trusts in autonomous systems.
- 3. **Develop** a real-time, open-source and lightweight toolkit that enables advanced perception and cognition capabilities for core robotic functionalities through the use of machine and deep learning.
- Listed in World's Top 2% Scientists in 2022,2023,2024 released by Stanford **University and Scopus**

ACADEMIC CERTIFICATES

PhD in Computer Science

Sept. 2011 - May 2017

Faculty of Computers and Artificial Intelligence Benha University, Qalyubia, Egypt

- Thesis: A Pen Based Intelligent System for Educating Arabic Handwriting
- Developed and evaluated an intelligent tutor system to recognize and diagnose Arabic children handwritten characters and digits mistakes via deep learning architectures

Master in Information Technology

Sept. 2007 – Aug. 2010

Faculty of Computers and Artificial Intelligence

Cairo University, Cairo, Egypt

- Thesis: Improving the Performance of Anti-GPS Signal
- Designed and simulated GPS jamming signal using new technology of iamming.

B.Sc. in Information Technology Faculty of Computers and Artificial Intelligence Sept. 2002 - Jul. 2006

Cairo University, Cairo, Egypt

Very good with honors

ACADEMIC POSITIONS

Industry and Energy Technology College, New Cairo Technological University, Cairo, Egypt

- Head and Coordinator of Information Technology
 Sep. 2021 Feb. 2022
 Program
- Head of Technology of Production, Processing and Transport of Petroleum Program Control

Faculty of Computers and Artificial Intelligence, Benha University, Egypt

- Member of the Computer Science Department Council
 - Oct. 2019 Feb. 2022

Head of third year Control

Oct. 2018 - Feb. 2020

Sep. 2024 - Now

UNIVERSITY MISSIONS

College of Engineering, A'Sharqiyah University, Oman (Cybersecurity program)

Full Time

- Forensic Fundamentals and Investigations
- Cyber Ethics

- Cyber Forensics
- Biometric Authentication
- Data Backup and Recovery

Buraydah Collages, Buraydah, Al-Qassim, Saudi Arabia (Cybersecurity program) Full Time

- Ethical Hacking
- Project Management for IT
- Database management system
- Network Security
- Security Architecture and System Administration
- Computer Programming 1
- Information Risk Management
- Health Information Technology
- Database security
- Internet Security and Deliberations

Part Time

- Network Security
- Security Architecture and System Administration
- Internet Security and Deliberations

Sep. 2021 - Jan. 2022

Feb. 2022 - Jun. 2024

- Special Topics in Computer Engineering 1
- Software Project Management
- IT Project Management

Industry and Energy Technology College, New Cairo Technological University, Cairo, Egypt

Full Time (Ministry of Higher Education)

Oct. 2021 - Feb. 2022

- Computer Graphics
- Advanced Java Programming
- Computer Skills

High Institute for Computers and Management Information Systems, Cairo, Egypt Part Time March 2021 – July 2021

- Fundamental of Structural Programming
- Computer Applications for Reports Preparations
- Cloud Computing Security

Higher Technological Institute, 10th of Ramadan City, Egypt Part Time Mai

March 2021 - July 2021

- Distributed Systems
- Neural Network

ACADEMIC EXPERIENCE

Associate Professor

Jun. 2022 - Present

Computer Science, Faculty of Computers and Artificial Intelligence,

Benha University, Qalyubia, Egypt

Assistant Professor

May. 2017 – Jun. 2022

Computer Science, Faculty of Computers and Artificial Intelligence,

Benha University, Qalyubia, Egypt

Assistant Lecturer

Jan. 2011 - May. 2017

Computer Science, Faculty of Computers and Artificial Intelligence,

Benha *University*, Qalyubia, Egypt

Assistant Lecturer – Demonstrator

Sept. 2008 - Jan. 2011

Computer Science, Sinai University, Sinai, Egypt

TEACHING COURSES (Benha University)

o Ph.D. degree

Advanced Multi-Agents Systems

Master's degree

Advanced Artificial Intelligence

Advanced Topics in Computer Science - 2 (Deep Learning)

Master's degree (Faculty of Science -Benha University)

Computer Security and Network

Advanced database

Bachelor's degree

Computer Graphics

Computer Security and

Network

Analysis and Design of

Algorithms

Artificial Intelligence

 Project Management Professional

Programming Language using C++

Modeling and Simulation

Data Structure

Algorithms

Web Programming

Report Writing

Computer Vision

Logic Design

Multimedia

Wireless Network

EXPERIENCE

Technical Skills

- PhD of Computer Science in machine learning and deep learning using python
- 10+ years experience in academic teaching
- 7+ years experience in academic control
- Gained expertise in machine and deep learning tools such as keras and tensorflow using python

Teamwork Skills

 Strong collaboration skills by working with teams of more than 5 members for 5 years

- Member of the Library Committee at faculty of computer and artificial intelligence – Benha university
- Member in Graduation project Committee computer science department Benha University

Leadership Skills

- Head and Coordinator of Information Technology Program, New Cairo Technological University, New Cairo, Egypt (2021-2022)
- Head of Technology of Production, Processing and Transport of Petroleum Program control, New Cairo Technological University, New Cairo, Egypt (2021-2022)
- Head of the third year control at faculty of computers and artificial intelligence
 Benha university (2017-2018)
- Assistant department head of the computer science at faculty of computers and artificial intelligence – Benha university (2017-2018)
- Chairman of the committee of library to purchase books from the Book Fairs (2017-2018)

Academic Skills

- Published over 30 publications with **over 4100** citations.
- Reviewer in more than 20 international journal.
- Supervised many postgraduate researchers with the following titles:
 - An Intelligent System for Plant Diseases Detection
 - Design of an Intelligent System for Improving Classification of Cancer Diseases
 - An Automated Detection System for Diagnosing of Leukemia Cancer in Blood Cells
 - Improve Face Synthesis based on Deep Learning
 - Enhancement Text to Image Synthesis Using Deep Learning
- Instructed lectures of more than 700 students to understand programming and algorithms concept through real world examples
- Teaching PhD and master students
- Member on judgement commission for Benha university student competition
- Teacher and interviewer at next technology leaders (NTL) responsible for deep learning nanodegree, python for everybody specialization, into to programming, front-end and full stack web developer nanodegree
 - Website: http://techleaders.eg

ACADEMIC PUBLISHING

- Listed in World's Top 2% Scientists in 2022,2023,2024 released by Stanford University and Scopus
 - Ioannidis, John P.A. (2024), "August 2024 data-update for "Updated science-wide author databases of standardized citation indicators", Elsevier Data Repository, V7, doi: 10.17632/btchxktzyw.7
 - Ioannidis, John P.A. (2023), "October 2023 data-update for "Updated science-wide author databases of standardized citation indicators", Elsevier Data Repository, V6, doi: 10.17632/btchxktzyw.6
 - ❖ Ioannidis, John P.A. (2022), "September 2022 data-update for "Updated science-wide author databases of standardized citation indicators", Mendeley Data, V4, doi: 10.17632/btchxktzyw.4

SCIENTIFIC IMPACT CITATION INDICES

• Citations: over 4188

h-index: 19i10-index: 26

• **Source**: scholar.google.com/citations?hl=en&user=_kRSr78AAAAJ

• Accessed: 24-11-2024

PUBLICATIONS

- G. Manogaran, N. Khalifa, M. Loey, M. Taha, "Cyber-physical Systems for Industrial Transformation: Fundamentals, Standards, and Protocols", CRC Press, 2023.
- M. Loey, S. El-Sappagh, S. Mirjalili, "Bayesian-based optimized deep learning model to detect COVID-19 patients using chest Xray image data", Computers in biology and medicine, 2022. (Q1, IF= 4.589)
- N. Khalifa, M. Taha, R. Chakrabortty, M Loey, "COVID-19 Chest X-rays Classification Through the Fusion of Deep Transfer Learning and Machine Learning Methods", PROCEEDINGS OF 7TH INTERNATIONAL CONFERENCE ON HARMONY SEARCH, SOFT COMPUTING AND APPLICATIONS (ICHSA 2022), 2022.
- M. Loey, S. Mirjalili, "COVID-19 cough sound symptoms classification from scalogram image representation using deep learning models", Computers in biology and medicine, 2021. (Q1, IF= 4.589)
- N.E.M. Khalifa, M. Loey, S. Mirjalili, "A comprehensive survey of recent trends in deep learning for digital images augmentation", Artificial Intelligence Review, 2021. (Q1, IF= 8.139)
- M. Afify, M. Loey, A. Elsawy, "A Robust Intelligent System for Detecting Tomato Crop Diseases Using Deep Learning", International Journal of Software Science and Computational Intelligence, 2022. (Q3, IF= 0.57)
- N.E.M. Khalifa, G. Manogaran, M.H.N. Taha, M. Loey, "A deep learning semantic segmentation architecture for COVID-19 lesions discovery in limited chest CT datasets", Expert Systems, 2021. (Q2, IF=1.546)
- S. Maher, M. Loey, "Photo Realistic Generation from Arabic Text Description Based on Generative Adversarial Networks", ACM Transactions on Asian and Low-Resource Language Information, 2021. (Q4, IF= 1.471)
- R. Ghanem, M. Loey, "Face Completion Using Generative Adversarial Network with Pretrained Face Landmark Generator", International Journal of Intelligent Engineering & Systems, vol.14, 2, 2021. (Q3, CiteScore= 1.9, SJR= 0.19)
- N.E.M. Khalifa, F. Smarandache, G. Manogaran, M. Loey, "A Study of the Neutrosophic Set Significance on Deep Transfer Learning Models: an Experimental Case on a Limited COVID-19 Chest Xray Dataset", Cognitive Computation, 2021. (Q1, IF=4.307)
- M. Loey, G. Manogaran, M.H.N. Taha, N.E.M. Khalifa, "A hybrid deep transfer learning model with machine learning methods for

- face mask detection in the era of the COVID-19 pandemic", Measurement, vol.167, 1, 2021. (Q1, IF=3.364)
- M. Loey, G. Manogaran, M.H.N. Taha, N.E.M. Khalifa, "Fighting against COVID-19: A novel deep learning model based on YOLO-v2 with ResNet-50 for medical face mask detection", Sustainable Cities and Society, 2020. (Q1, IF=5.268)
- M. Loey, G. Manogaran, N.E.M. Khalifa, "A deep transfer learning model with classical data augmentation and CGAN to detect COVID-19 from chest CT radiography digital images", Neural Computing and Applications, 2020. (Q1, IF=4.774)
- N.E.M. Khalifa, M. Loey, A. Mawgoud, M.H.N. Taha, "EMPIRICAL STUDY AND ENHANCEMENT ON DEEP TRANSFER LEARNING FOR SKIN LESIONS DETECTION", Journal of Theoretical and Applied Information Technology, vol.98, 9, 2020. (Q3, CiteScore= 1.2, SJR= 0.23)
- M. Loey, M. Naman, H. Zayed, "A Survey on Blood Image Diseases Detection Using Deep Learning", International Journal of Service Science, Management, Engineering, and Technology (IJSSMET), vol.11, 3, 2020. (Q2, CiteScore= 1.8, SJR= 0.25)
- M. Loey, F. Smarandache, N.E.M. Khalifa, "Within the Lack of Chest COVID-19 X-ray Dataset: A Novel Detection Model Based on GAN and Deep Transfer Learning", Symmetry, vol.12, 4, 2020. (Q2, IF=2.645)
- M. Loey, M. Naman, H. Zayed, "Deep Transfer Learning in Diagnosing Leukemia in Blood Cells", Computers, vol.9, 2, 2020. (Q2, CiteScore= 2.5, SJR= 0.36)
- M. Loey, M.W Jasim, H.M EL-Bakry, M.H.N. Taha, N.E.M. Khalifa, "Breast and Colon Cancer Classification from Gene Expression Profiles Using Data Mining Techniques", Symmetry, vol.12, 3, 2020. (Q2, IF=2.645)
- M. Loey, A. ElSawy, M. Afify, "Deep Learning in Plant Diseases Detection for Agricultural Crops: A Survey", International Journal of Service Science, Management, Engineering, and Technology (IJSSMET), IGI, vol.11, 2, 2020. (Q2, CiteScore= 1.8, SJR= 0.25)
- N.E.M. Khalifa, M. Loey, M.H.N. Taha, "INSECT PESTS RECOGNITION BASED ON DEEP TRANSFER LEARNING MODELS", Journal of Theoretical and Applied Information Technology, vol.98, 1, 2020. (Q3, CiteScore= 1.2, SJR= 0.23)
- N.E.M. Khalifa, M. Loey, M.H.N. Taha, "Deep Transfer Learning Models for Medical Diabetic Retinopathy Detection", Acta Informatica Medica, vol.27, pp. 327-332, 2020. (Q3, CiteScore= 0.85, SJR= 0.25)
- A.A. Mawgoud, N.E.M. Khalifa, M.H.N. Taha, M. Loey, "Cyber Security Risks in MENA Region: Threats, Challenges and Countermeasures", International Conference on Advanced Intelligent Systems and Informatics, pp. 912-921, 2019.
- M. Loey, H.M EL-Bakry, M.W Jasim, "Machine Learning in Gene Expression Profile for Central Nervous System Tumor Classification", Journal of Convergence Information Technology, vol.14, pp. 49-60, 2019.

- M.W Jasim, H.M EL-Bakry, M. Loey, "Survey on Gene Selection Using Meta Heuristic Algorithms for Classifying Cancer Disease", International Journal of Advanced Research in Computer Science & Technology, vol.6, pp. 19-27, 2018.
- A. El-Sawy, M. Loey, and H. EL-Bakry, "Arabic handwritten characters recognition using convolutional neural network," WSEAS Transactions on Com puter Research, vol. 5, pp. 11–19, 2017.
- A. El-Sawy, H. El-Bakry, and M. Loey, "An intelligent agent tutor system for detecting Arabic children handwriting difficulty based on immediate feedback," WSEAS TRANSACTIONS on SYSTEMS, vol. 15, pp. 63–72, 2016.
- A. El-Sawy, H. EL-Bakry, and M. Loey, "CNN for handwritten arabic digits recognition based on lenet-5," in Proceedings of the International Conference on Advanced Intelligent Systems and Informatics 2016, vol. 533, pp. 566–575, Springer International Publishing, 2016.
- A. El-Sawy, M. Loey, and H. EL-Bakry, "Arab kids tutor (akt) system for handwriting stroke errors detection," INTERNATIONAL JOURNAL OF TECHNOLOGY ENHANCEMENTS AND EMERGING ENGINEERING RESEARCH, vol. 4, pp. 42–49, 2016.
- H. N. Elmahdy and M. L. Ramadan, "Improving the performance of antigps signal," in Proceedings of the 3rd WSEAS International Symposium on Wavelets Theory and Applications in Applied Mathematics, Signal Processing & Modern Science, WAV'09, (Stevens Point, Wisconsin, USA), pp. 17–22, World Scientific and Engineering Academy and Society (WSEAS), 2009.

ACADEMIC REVIEWER

Verified peer reviews

- IEEE TRANSACTIONS ON NETWORK SCIENCE AND ENGINEERING (Q1)
- MATHEMATICAL METHODS IN THE APPLIED SCIENCES (Q1)
- IEEE ACCESS (Q2)
- PLOS ONE (Q2)
- CLUSTER COMPUTING (Q2)
- PERSONAL AND UBIQUITOUS COMPUTING (Q2)
- SOFT COMPUTING (Q2)
- KNOWLEDGE MANAGEMENT RESEARCH & PRACTICE (Q2)
- ARABIAN JOURNAL OF GEOSCIENCES (Q3)
- EARTH SCIENCE INFORMATICS (Q3)
- WIRELESS PERSONAL COMMUNICATIONS (Q3)
- TRANSACTIONS OF THE ASABE (Q3)
- ACM TRANSACTIONS ON ASIAN AND LOW-RESOURCE LANGUAGE INFORMATION PROCESSING
- ENERGY SYSTEMS
- JOURNAL OF INTERCONNECTION NETWORKS

RESEARCH PROJECTS

Deep-Learning Face Detection Scheme for Highly Occluded Faces

• Principal Investigator: Dr. Abdulhakim Mohamed

Funded by: A'Sharqiyah University

Duration: 2024Status: In Progress

Bayesian-based optimized deep learning model to detect COVID-19 patients using chest X-ray image data

• Principal Investigator: Prof. Seyedali Mirjalili

Funded by: Yonsei Frontier Lab

Duration: 2020-2022Status: Completed

A Robust Intelligent System for Detecting Tomato Crop Diseases Using Deep Learning

Principal Investigator: Prof. Ahmed Elsawy

• Funded by: Benha University

Duration: 2019-2022Status: Completed

COVID-19 cough sound symptoms classification from scalogram image representation using deep learning models

Principal Investigator: Prof. Seyedali Mirjalili

Funded by: Yonsei Frontier Lab

Duration: 2020-2021Status: Completed

Fighting against COVID-19: A novel deep learning model based on YOLO-v2 with ResNet-50 for medical face mask detection

• Principal Investigator: Prof. Gunasekaran Manogaran

Funded by: University of California

Duration: 2019-2020Status: Completed

A Study of the Neutrosophic Set Significance on Deep Transfer Learning Models: an Experimental Case on a Limited COVID-19 Chest X-ray Dataset

Principal Investigator: Prof. Florentin Smarandache

Funded by: University of New Mexico

Duration: 2018-2020Status: Completed

A hybrid deep transfer learning model with machine learning methods for face mask detection in the era of the COVID-19 pandemic

• Principal Investigator: Prof. Gunasekaran Manogaran

Funded by: Asia University

Duration: 2018-2020Status: Completed

Within the Lack of Chest COVID-19 X-ray Dataset: A Novel Detection Model Based on GAN and Deep Transfer Learning

Principal Investigator: Prof. Florentin Smarandache

Funded by: University of New Mexico

Duration: 2018-2019Status: Completed

A deep transfer learning model with classical data augmentation and CGAN to detect COVID-19 from chest CT radiography digital images

• Principal Investigator: Prof. Gunasekaran Manogaran

• Funded by: Asia University

Duration: 2017-2019Status: Completed

Deep Transfer Learning Models for Medical Diabetic Retinopathy Detection

• Principal Investigator: Prof. Nour Eldeen M. Khalifa

Funded by: Cairo University

Duration: 2017-2019Status: Completed

Breast and Colon Cancer Classification from Gene Expression Profiles Using Data Mining Techniques

Principal Investigator: Prof. Hazem El-bakry

• Funded by: Benha, Cairo, and Mansoura University

• Year of Sanction: 2017-2019

• Status: Completed

INTERNATIONAL CERTIFICATIONS

Deep Learning:

- Deep Learning for Business by Yonsei University on Coursera. Certification earned on September 7, 2017
- Neural Networks and Deep Learning by deeplearning.ai on Coursera. Certification earned on September 8, 2017

Machine Learning:

- Machine Learning, a 4-course specialization by University of Washington on Coursera. Specialization Certification earned on February 13, 2017
- Machine Learning Foundations: A Case Study Approach by University of Washington on Coursera. Certification earned on November 11, 2016
- Machine Learning: Clustering & Retrieval by University of Washington on Coursera. Certification earned on February 13, 2017
- Machine Learning: Classification by University of Washington on Coursera. Certification earned on January 2, 2017
- Machine Learning: Regression by University of Washington on Coursera Certification earned on November 28, 2016

Python:

- An Introduction to Interactive Programming in Python (Part 1) by Rice University on Coursera. Certification earned on February 15, 2017
- Programming for Everybody (Getting Started with Python) by University of Michigan on Coursera. Certification earned on November 11, 2016

Data Science:

- The Data Scientists Toolbox by Johns Hopkins University on Coursera. Certification earned on March 4, 2017
- Introduction to Data Science in Python by University of Michigan on Coursera. Certification earned on February 4, 2017
- Data Management and Visualization by Wesleyan University on Coursera. Certification earned on May 10, 2017
- Predictive Analytics Modeler (SPSS Modeler) by IBM. Certification earned on 2017

MATLAB:

 Introduction to Programming with MATLAB by Vanderbilt University on Coursera. Certification earned on November 7, 2016

Quality of Education:

- Strategic Planning
- University Lecturer Preparation
- External Review
- Self-Evaluation
- Programs and Curriculum maps Characterization

Algorithms:

Algorithmic Toolbox by University of California on Coursera.
 Certification earned on October 28, 2017

AWARDS

- Won first place in the Artificial Intelligence for Security and Surveillance Challenge
 at the Artificial Intelligence and Future Technology Hackathon Competition held
 during the Fifth Scientific Week 2024 (AFAQ) at the Military Technological
 College. Represented by the PredictSafe team from the College of Engineering and
 College of Business Administration, A'Sharqiyah University.
- Certificate of thanks and appreciation for **world top 2% Scientists** in the field of scientific research and international publishing from Benha University in 2024
- Certificate of thanks and appreciation for **world top 2% Scientists** in the field of scientific research and international publishing from Benha University in 2023
- Certificate of thanks and appreciation for **world top 2% Scientists** in the field of scientific research and international publishing from Benha University in 2022
- Won Scientific Excellence Day 2021 in the Field of Scientific Research and International Publishing from Benha University
- Won Scientific Excellence Day 2020 in the Field of Scientific Research and International Publishing from Benha University
- Won the 2nd place in Olympics of Computing and Information from Kafrelsheikh University (2016-2017)
- Won best Academic Website for Academic Benha University (2014-2015)
- Won best Assitant Lecturer for Academic from Faculty of Computer and Informatics, Benha University (2015-2016)

GRANTS

• Granted from **NVIDIA** GPU (**Titan X Pascal**) to support my research on Deep Learning at Benha University - 2017

COMPUTER SKILLS

Cybersecurity:

- Vulnerability Scanners: Nmap, Nessus, OpenVAS, Qualys
- Exploitation Frameworks: Metasploit, Cobalt Strike
- Password Cracking Tools: John the Ripper, Hydra, Hashcat
- OS: Kali linux

Digital Forensic:

EnCase, FTK Imager, Autopsy, Wireshark

Deep Learning:

- Pytorch
- TFLearn & Keras based on Tensorflow
- Keras based on Theano
- Deep Learning using MATLAB

Machine Learning:

- Scikit-Learn
- Statistics and Machine Learning Toolbox using MATLAB

Data Science:

Pandas, SciPy, Matplotlib, Seaborn, NumPy and Scrapy

Data Mining:

- Weka
- Orange
- SPSS Modeler

Computer Vision and Image Processing:

- OpenCV
- Computer Vision Toolbox using MATLAB
- Image Processing Toolbox using MATLAB

Web Development:

- HTML, CSS, JQuery, Bootstrap
- PHP/MySQL

Programming Language:

- Python
- C++
- Java

Mobile Development:

Android using Java

Report Writing:

Latex

SPEECHES

- Presented lecture about "Information Security" in Qalyubia Security Directorate
- Introduced lecture about "How to protect your privacy on social media" in Faculty of Nursing –Benha University
- Presented lecture about "A Pen Based Intelligent System for Educating Arabic Handwriting" in Faculty of Education - Benha University
- Introduced lecture about "How to protect your privacy on social media" in Faculty of Computers and Artificial Intelligence -Benha University

HOBBIES

- Travelling
- Swimming
- Reading

REFERENCES

- Prof. Seyedali Mirjalili
 - o ali.mirjalili@torrens.edu.au
 - o ali.mirjalili@gmail.com
- Prof. Nour Eldeen Khalifa
 - o nourmahmoud@fci-cu.edu.eg
- Prof. Heba Mohamed Khalil
 - o heba.khalil@fci.bu.edu.eg