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Ibrahim A. Fares
PHD IN AI(MACHINE LEARNING, TRANSFORMERS)

About	AI researcher and software developer with a PhD in Artificial Intelligence, specializing in Machine Learning (ML), Natural Language Processing (NLP), and Large Language Models (LLMs), cybersecurity, and IoT. Demonstrates a proven track record in developing and implementing advanced AI models using Python and cutting-edge data science techniques to address complex challenges. Experienced in enhancing the accuracy and efficiency of Deep Learning models, achieving significant improvements in system performance and optimizing software processes. Expertise includes AI-driven Intrusion detection systems for the Internet of the IoT, combining academic research and practical applications to deliver innovative and impactful results.

Publications   **2024**

1. M. Abd Elaziz, **I. A. Fares** and A. O. Aseeri, CKAN: Convolutional Kolmogorov–Arnold Networks Model for Intrusion Detection in IoT Environment, in *IEEE Access*, vol. 12, pp. 134837-134851, 2024, doi: 10.1109/ACCESS.2024.3462297.

2. TFKAN: Transformer Based on Kolmogorov–Arnold Networks for Intrusion Detection in IoT, *In Egyptian Informatics Journal, Under Review.*

3. Explainable TabNet Transformer-Based on Google Vizier Optimizer for Intrusion Detection, *in Knowledge-Based Systems, Under Review.*

4. Federated Learning Framework for IoT Intrusion Detection Using Tab Transformer and Nature-Inspired Hyper-Parameter Optimization, *In Frontiers in Big Data, Under Review.*

5. Deep Transfer Learning based on Hybrid Swin Transformers with LSTM for Intrusion Detection Systems in IoT Environment, *in IEEE Access, Under Review.*

2023

6. FT Transformer for Intrusion Detection System in IoT, In Bulletin of Faculty of Science, Zagazig University, *Accepted.*

7. **Ibrahim Fares**, Aboul Ella Hassanien, Rizk M. Rizk-Allah, Roushdy Mohamed Farouk and Hassan Mostafa Abo-donia, Solving capacitated vehicle routing problem with route optimisation based on equilibrium optimiser algorithm, *International Journal of Computing and Mathematics, (Jan 2023).*

2020

8. **I. Fares,** Rizk M. Rizk-Allah, Aboul Ella Hassanien & Snasel Vaclav, Multiple Cyclic Swarming Optimization for Uni- and Multi-modal Functions, *In book: International Conference on Innovative Computing and Communications, (Jan 2020).*

Education	**Nov 2024**	**Doctor of Philosophy (PhD) in Artificial Intelligence and Cybersecurity**

I hold a PhD in Artificial Intelligence, with a specialization in ML, DL, and Cybersecurity for IoT environments. My dissertation, *"Cyber Security Threats Detection in Internet of Things Based on Optimization Algorithms,"* focuses on developing advanced AI-driven techniques to enhance IoT security using optimization algorithms. The research integrates cutting-edge ML, DL, and Transformers approaches to address evolving cybersecurity challenges. During my PhD, I published five papers in high-ranked (Q1 & Q2) journals, contributing to the academic community and advancing the state of the art in AI and IoT security.

Location: Mathematics department, faculty of Science, Zagazig University.

Dec 2020 — **Master's Degree in Artificial Intelligence, Optimization Algorithms, and IoT**

My Master's research focused on applying bio-inspired optimization algorithms to tackle complex problems in smart cities. My thesis, *"Bio-Inspired Algorithms for Optimizing Dynamic Noisy Environment in Smart Cities,"* explores innovative solutions for real-world challenges in IoT applications. This work resulted in two published papers.
Location: Mathematics department, faculty of Science, Zagazig University.

May 2017 — **Pre-Master in Computer Science**

I pursued advanced studies in computer science, building expertise in specialized topics that prepared me for my Master's research and future academic endeavors.

May 2016 — **Bachelor's Degree in Computer Science**

During my undergraduate studies, I gained a solid foundation in mathematics, programming, and data structures. This education provided the essential skills and knowledge that shaped my career and academic journey.
Location: Mathematics department, faculty of Science, Zagazig University.

Experience

2024-Present — **Faculty Lecturer**
- **Position:** at Mathematics department, faculty of Science, Zagazig University
- Lecturer in Artificial Intelligence, Python, Data Mining, Data Science, C++, and Algorithms at the Computer Science Department.
- Guiding and supervising students in graduation projects.

2021-2024 — **Assistant Lecturer**
- **Position:** at Mathematics department, faculty of Science, Zagazig University
- Taught computer science courses including Computer Graphics, Graph Theory, Compilers, Algorithms, Data Structures, Digital Design, C++, Web Tools (HTML, CSS, JS), and Python.

2017-2021 — **Member in The Scientific Research School of Egypt (SRSEG)**
(https://www.egyptscience-srge.com)

2016 – 2020 — **Teaching Assistant**
- **Position:** at Mathematics department, faculty of Science, Zagazig University
- I assisted in teaching Discrete Mathematics and computer science courses such as Algorithms, Data Structures, Digital Design, and C++.

Skills

Research Skills, data mining, Machine Learning, Deep Learning, Transformers, LLMs, NLP, Programming (Python, C++, C#, Java, MATLAB, R).