Faris Hamdi Rizk

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My Website — Google Scholar — LinkedIn— Kaggle — GitHub

Professional Summary

Motivated and detail-oriented Undergraduate Research Assistant with experience in machine learning, metaheuristic optimization, and deep learning. Proven ability to conduct independent research, develop innovative algorithms, and collaborate effectively in diverse teams. Strong analytical skills and a passion for continuous learning.

Experience

Undergraduate Research Assistant   Sep. 2023 - June. 2024
Machine Learning and Metaheuristics Optimization Lab — Prof.Sayed El-Kenawy, Delta Higher Institute of Engineering and Technology

- Conducted research on metaheuristic algorithms and their applications in machine learning.

Education

B.S. in Electronics and Communication Engineering   Sep. 2021 - Jul. 2026
Delta Higher Institute of Engineering and Technology, Mansoura 35111, Egypt

- Relevant Coursework: Programming, Data Structures, Algorithms, Probability & Statistics, Digital Signal Processing and Electronics Design.

Research Interests

- Deep Learning
- Computer Vision
- Optimization Algorithms

Projects

Face Mask Detection Using CNN Pre-trained Model (MobileNetV2)   Aug. 2024

- Developed a Deep Learning model to detect face masks using the MobileNetV2 architecture.
- Achieved a 97.71% accuracy rate in detecting masked, mask worn wrong and unmasked faces in various environments.

Exploratory Data Analysis (EDA) for Superstore Dataset   Mar. 2024

- Conducted an in-depth analysis of a retail superstore dataset to identify sales patterns, customer behavior, and product performance.
- Utilized Python libraries such as Pandas, Matplotlib, and Seaborn for data cleaning, visualization, and statistical analysis.

Research Projects   Jan. 2024 - Aug. 2024

I have been actively engaged in several research projects that focus on the application of artificial intelligence and machine learning to solve real-world challenges, as evidenced by my publications listed below. My work has included developing innovative methods for pothole detection in asphalt roads using deep learning models, which was presented at the 2024 International Telecommunications Conference (ITC-Egypt). Additionally, I have explored the use of metaheuristic algorithms, such as the Greylag Goose Optimization Algorithm, to enhance student performance prediction, demonstrating significant improvements over traditional methods. Another area of my research involves utilizing machine learning approaches for satellite image classification to revolutionize oil spill detection, contributing to environmental monitoring and protection efforts. Furthermore, I have investigated the integration of convolutional neural networks (CNNs) with optimization techniques, such as the Waterwheel Plant Algorithm, to enhance traffic detection and smart city development. These projects showcase my ability to apply advanced computational techniques to diverse fields, including education, environmental safety, and urban planning.

Technical Skills

- **Artificial Intelligence:** Machine Learning, Deep Learning, Computer Vision

- **Programming:** Python, C

- **Tools:** LaTeX, MATLAB, Jupyter Notebooks

- **Data Analysis:** Statistical Analysis, Data Visualization, Signal Processing

Core Competencies

- Analytical Thinking

- Problem Solving

- Team Work

- Curiosity and Continuous Learning

- Adaptability and Flexibility

- Self-Motivation

Volunteering Experience

Graphic Design Head   Sep. 2021 - Present

Google Developer Student Club (GDSC), Delta Higher Institute of Engineering and Technology

- Led a team of 4 in designing graphics for club events, improving outreach by 30%.

- Organized workshops and events to promote graphic design skills among students.

Awards & Honors

- 2nd Place, GDG DevFest Mansoura Hackathon, Mansoura University, Egypt   Dec. 2023

Languages

- English (B2)

- Arabic (Native)

Publications

Conference Articles

- Abdelmalak M. E. S., Khodadadi N., Zaki A. M., Eid M. M., Rizk F. H., Ibrahim A., Abdelhamid A. A., Abualigah L., & El-Kenawy E.-S. M. (2024). *Pothole Detection in Asphalt Roads: A Comprehensive Approach for Enhanced Road Maintenance and Safety with AlexNet Model.* 2024 International Telecommunications Conference (ITC-Egypt), 269–274.

- Rizk F. H., Mohamed M. E., Sameh B., Zaki A. M., Eid M. M., & El-Kenawy E.-S. M. (2024). *Enhancing Student Performance Prediction with Greylag Goose Optimization Algorithm.* 2024 International Telecommunications Conference (ITC-Egypt), 32–37.

- Sherif K., Rizk F. H., Zaki A. M., Eid M. M., Khodadadi N., Ibrahim A., Abdelhamid A. A., Abualigah L., & El-Kenawy E.-S. M. (2024). *Revolutionizing Oil Spill Detection: A Machine Learning Approach for Satellite Image Classification.* 2024 International Telecommunications Conference (ITC-Egypt), 245–250.

Journal Articles

- Rizk F. H., Arkhstan S., Zaki A. M., Kandel M. A., & Towfek S. K. (2023). *Integrated CNN and Waterwheel Plant Algorithm for Enhanced Global Traffic Detection.* Full-Length Article, Volume 6(Issue 2), 36–45.

- Kandel M. A., Rizk F. H., Hongou L., Zaki A. M., Khan H., & El-Kenawy E.-S. M. (2023). *Evaluating the Efficacy of Deep Learning Architectures in Predicting Traffic Patterns for Smart City Development.* Full-Length Article, Volume 6(Issue 2), 26–35.

- Rizk F. H., Elshabrawy M., Sameh B., Mohamed K., & Zaki A. M. (2024). *Optimizing Student Performance Prediction Using Binary Waterwheel Plant Algorithm for Feature Selection and Machine Learning.* Full-Length Article, Volume 7(Issue 1), 19–37.