

# Yussif H. Ammar

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## Summary

Machine Learning Engineer with proven experience in natural language processing, specializing in fine-tuning transformer models for text classification and sentiment analysis. Skilled in Python, PyTorch, and TensorFlow, I design robust data-preprocessing pipelines, optimize model performance through targeted hyperparameter tuning, and implement efficient training workflows. Adept at translating unstructured text into actionable insights, I stay current with NLP research and collaborate across teams to deliver scalable, production-ready solutions.

## Education

### Benha University

Sep. 2022 – Jun. 2026

*Bachelor of Computer Science in Artificial Intelligence*

*Benha, Egypt*

GPA: 3.55 / 4.00

Concentration in Artificial Intelligence, mastering machine learning, computer vision, and deep learning technologies.

## Experience

### DEPI Scholarship

Jun. 2025 – Jul. 2026

*Machine Learning Trainee*

*Telecom Egypt Center, Nasr City*

- Currently enrolled in Microsoft's ML curriculum, building a strong foundation in statistics, linear algebra, and Python for data science, while applying preprocessing and visualization techniques using NumPy, Pandas, Matplotlib, and Seaborn.
- Actively developing and evaluating machine learning models such as regression, decision trees, SVMs, and ensemble methods, and working with deep learning concepts including backpropagation, regularization, and transfer learning using TensorFlow.
- Enhancing soft skills through targeted training in freelancing strategies, communication, time management, and personal branding to effectively navigate professional environments and remote work opportunities.

### NTI Training Program

Jun. 2025 – Jan. 2025

*Machine Learning Trainee*

*Online*

- Completed 60 hours of hands-on machine learning training, covering supervised and unsupervised learning, model evaluation, and optimization techniques. Designed and implemented linear and logistic regression models from scratch using NumPy to gain a deeper understanding of model internals.
- Participated in 12 hours of soft skills development focused on freelancing platforms, communication strategies, and building a strong personal brand in the tech industry.

### Orange Internship

Jan. 2025 – Feb. 2025

*AI - Deep Learning Trainee*

*Orange Digital Center. Cairo*

- Developed and fine-tuned Convolutional Neural Networks for image classification and transformer-based NLP models for sentiment analysis and text classification, achieving over 25% improvement in validation accuracy through hyperparameter tuning and data augmentation.
- Designed and implemented end-to-end MLOps pipelines using Python, OpenCV, and Scikit-learn; automated data preprocessing, model training, and evaluation workflows. Deployed experiments on Kaggle and Google Colab for reproducible research and benchmarking.

### NASA Space Apps Challenge

Oct. 2024 – Oct. 2024

*Challenger*

*Innovation University, 10th of Ramadan*

- Designed and built an interactive, visually engaging website to highlight the James Webb Space Telescope's mission, features, and scientific breakthroughs using modern web technologies.
- Integrated educational content, animations, and responsive UI/UX elements to improve public understanding and accessibility, resulting in increased visitor interaction and time spent on the site.

### ECPC qualification

Aug. 2023 - Aug. 2023

*contestant*

*Arab Academy for Science and Tech Campus, Alex*

- Achieved 90th place in the ECPC qualifiers among hundreds of contestants by efficiently solving time-constrained algorithmic challenges using C++, demonstrating advanced proficiency in data structures, graph traversal, and greedy algorithms resulting in a 25% reduction in problem-solving time compared to previous competitions.

Projects

Home-made Matlab | Python

Oct. 2024

- Formulated an efficient image processing workflow for TIFF files, streamlining data analysis and enabling the team to handle 200% more files than before, according to stakeholders.
- Optimized pixel-wise manipulation techniques to enhance performance and accuracy, reducing processing latency and enabling real-time visual diagnostics during development.
- Enhanced understanding of image data structures and processing workflows through hands-on development.

Fischer | Python, C++

Dec. 2024

- Developed an AI-powered robotic arm capable of autonomously playing chess by integrating real-time computer vision, machine learning, and motion control using Python, C++, and OpenCV.
- Built a custom chessboard recognition pipeline using image processing and YOLOv8 to detect piece types and positions with over 80% accuracy under varying lighting and camera angles.
- Implemented forward and inverse kinematics to precisely translate board coordinates into servo motor commands, ensuring accurate, smooth, and collision-free physical movement of the robotic arm.

Flower Generator | PyTorch

Apr. 2025

- Designed and implemented a Variational Autoencoder using TensorFlow/Keras to reconstruct and generate flower images.
- Used an 8-dimensional latent space to efficiently encode image features and visualize smooth transitions between image representations.
- Implemented custom loss combining reconstruction error and KL divergence to train the model effectively and ensure meaningful latent distributions.

Butterflies Classifier | PyTorch

Jun. 2025

- Constructed a novel object detection model using CNNs, achieving a 15% improvement in mAP compared to existing models and enabling faster real-time image processing using AI.
- Built and trained deep learning models for butterfly species classification using EfficientNet with 97% acc and ResNet50 with 96% acc , achieving robust performance through transfer learning and fine-tuning.
- applied grid-search and random-search to fine-tune efficientnet model.

Relevant Coursework

- |                       |                        |                            |                   |
|-----------------------|------------------------|----------------------------|-------------------|
| • Data Structures     | • NLP                  | • Probability & Statistics | • Calculus        |
| • Algorithms Analysis | • System Analysis      | • Computer Graphic         | • Computer Vision |
| • Database Management | • Software Engineering | • Neural Network           | • GenAI           |
| • Problem Solving     | • Machine Learning     | • Image processing         | • VR / AR         |

Technical Skills

**Programming Languages:** Python, Java, C, C++, MySQL  
**Tools & IDEs:** Pycharm , VS Code , Eclipse , Apache Netbeans , MATLAB , Arduino IDE , Kaggle , Google Colab  
**Frameworks:** PyTorch, TensorFlow, OpenCV, Scikit-learn  
**Platforms:** Linux, GitHub, Google Colab, Kaggle

Effective Communication Skills and Extracurricular Activities

Plan International Egypt

Feb. 2020 – Jan. 2022

- Trainer
- Trained young people participants on effective communication skills, achieving improvement in understanding based on feedback surveys.
  - Collaborated with team members to design and execute impactful training programs.

IEEE BUB RAS

Jan. 2025 – Aug. 2026

- Secretary
- Reached out and greeted VIP guests and speakers at technical events, handled formal communication, and prepared detailed event reports. Supported attendee coordination and front desk operations throughout each session.
  - Helped organize and design IEEE events, ensured smooth execution, suggested creative ideas, and submitted detailed post-event reports to IEEE Global for documentation and evaluation.