Mohamed Salah-Eldin Mostafa Kamel

Richmond Virginia, United States

(+1) 8043967089 kamelms@vcu.edu Mosalah022 mo-salah Upwork Profile

Personal Information

Date of Birth: 28th of June 1999
Military Service: Exempted

Education

2024 – Present	**PhD in Computer Science:** Virginia Commonwealth University (VCU) United States (*GPA 4/4*)
2023 – 2024	**Master in informatics:** Nile University (NU) Egypt (*GPA 3.96/4*)
2018 – 2022	**Bachelor of Computer Science and information technology** **Ahram Canadian University (ACU) Egypt** (*GPA 3.9/4, Second of the class*)

Skills

- **Programming**
  Expert: Java SE, Python, C++
  Proficient: PHP, JavaScript, CSS, Java EE
  Familiar: Dart, Kotlin

- **Ai Technologies**
  Expert: Machine Learning, Computer Vision
  Proficient: Deep Learning

- **Languages**
  Arabic: Mother tongue
  English: C1
  Deutsch: A1

- **Database Management Systems**
  Expert: MySQL
  Proficient: Firebase
  Familiar: MongoDB

- **Technologies & Frameworks**
  Expert: JavaFX, Swing, Bootstrap
  Proficient: Json, Flutter
  Familiar: Microservices, Docker, Kafka

Publications & Achievements

2025	**Conference Publication Under Review** ICML25, Attention Driven Reinforcement Learning to Optimize Packet Retransmission in Semantic Communication
2022	**Conference Publication** JAC-ECC 2022, Skin Former: Robust Vision Transformer for Automatic Skin Disease Identification https://ieeexplore.ieee.org/abstract/document/10044005
2022	**Semi-Finals in Dell Technologies Graduation Project Competition for Middle East, Russia, Africa and Turkey (Dell Technologies Envision the Future 7th Edition** https://emcenvisionthefuture.com/
2021	**Software Design and Architecture certificate, University of Alberta** **Include:** Object-Oriented Design, Design Patterns, Software Architecture, Service-Oriented Architecture https://www.coursera.org/account/accomplishments/specialization/certificate/KH6E2Y5LDQXC
2020	**First Place in ACU Problem Solving Competition** https://www.hackerearth.com/challenges/college/CS-ACU-ProbleImSolving/leaderboard/
2019 – 2022	**Award for Academic Achievement, Ahram Canadian University**

Work Experience

JAN 2024 – Present	**Graduate Assistant at Virginia Commonwealth University (VCU) US (Full-time)**
	• Primary duties include weekly office hours, teaching foundation labs, and grading.
FEB 2023 – JAN 2024	**Teacher Assistant at Nile University (NU) Egypt (Full-time)**
	• Teaching Subjects of AI and CS Major and core programming courses
OCT 2022 – FEB 2023	**Teacher Assistant at Ahram Canadian University (ACU) Egypt (Full-time)**
	• Teaching Subjects of AI and CS Major and core programming courses
JAN 2022 – JUL 2023	**Software Developer at LÀCRIMA Dairy Industrial Ltd Jordan (Contract)**
	• Developed a Desktop system (electronic archiving software) to streamline HR communication and managers in sending files and data internally and externally
	• Designed an application for both customers and employees to enhance communication and improve service delivery.
	• Tech Used: Java, JavaFX, Amazon Web Services (**AWS**), MYSQL, Flutter, Firebase, kotlin
	▪ Play Store
	▪ Apple Store
APR 2021 – OCT 2021	**Full Stack Developer at Order GO United Kingdom (Full-time)**
	• Developed a company website to showcase applications and services, increasing client engagement and brand visibility.
	• Implemented the Receive Order Station (ROS) App, enabling kitchen staff to manage the order process efficiently.
	• Tech Used: Java, JavaFX, kotlin, HTML, CSS, JavaScript, Bootstrap, PHP, Firebase, GIT
APR 2019 – OCT 2023	**Top-Rated FreeLancer at Upwork (Freelance)**
	• **worked on more than 65 projects with Job Success 98%**

Volunteering Activities

2018 – 2022	**Volunteer Undergraduate Teaching Assistant**
	Ahram Canadian University (ACU)
	Linear Algebra, Fundamentals of programming I , Event Driven and Data Structures.
	I uploaded some of the videos to YouTube and I achieved high views, and this is a simple example of an educational explanation for me. it got nearly 50,000 views with great Feedback. You can look at it from here :https://www.youtube.com/watch?v=NShTcmx9dnA&t=472s
2018 – 2022	**EXCEPTION STUDENT COMMITTEE**
	Member and Academic Instructor
	Exception is an academic and technical only content committee, the first of its kind in ACU CS history, with a sole purpose to make the student life more efficient on the academic and technical scale. The committee conducted a series of workshops in different fields/courses like Introduction to computer science, Fundamentals of programming, Java (OOP) and Web.
2020 – 2022	**ACU CPC Community (ACM)**
	Mentor
2020 – 2021	**ACU CS Student Union**
	Scientific Committee
2020 – 2021	**ACU DSC Community (Google Student Developer)**
	Member
2019 – 2020	**Hult Prize Foundation**
	HR Assistant

Key Skills & Competencies

- ▪ Fast Learner of New Technologies and Programming Languages
- ▪ Excellent Communication and Team Collaboration
- ▪ Strong Analytical and Problem-Solving Skills
- ▪ Performs Well Under Pressure and Shares Knowledge Effectively

Academic & Freelance Projects

Attention-Driven Reinforcement Learning for Optimized Packet Retransmission in Semantic Communication
- Developed a semantic communication framework leveraging reinforcement learning and attention-based mechanisms to enhance data transmission in noisy environments. Integrated DINOv2 attention maps and Vision Transformers to prioritize critical image regions for retransmission. Designed an adaptive RL model to optimize corruption thresholds, balancing bandwidth efficiency and reliability.
- Submitted to ICML 2025

AI Disease Diagnostic System Using Deep Learning and Image Processing
- Developed an application for early diagnosis of diseases using a combination of 50,000+ images from three datasets (Fitzpatrick17k, SD198, ISIC 2019). Achieved 85% accuracy using LAMB optimizer and various image augmentation techniques. Built with clean architecture and MVI framework.
- Technologies: Machine Learning, Deep Learning, Python, Kotlin, Vision Transformers, Neural Networks, MVI.
- [Demo Preview](#) | [Paper](#)

Navigating the Retinal Maze: Cutting-Edge IR Imaging for Retinal Exploration
- Developed CrackRAVIR, a novel deep learning model for the precise segmentation of retinal arteries and veins using Infrared Reflectance (IR) imaging. Utilized the Residual Attention UNET architecture to enhance segmentation accuracy and vascular width estimation. Improved the detection of retinal diseases, such as glaucoma and age-related macular degeneration, by providing detailed analysis of retinal vasculature.
- Technologies: Deep Learning, Residual Attention UNET, Semantic Segmentation, Python, Infrared Reflectance (IR) Imaging

Energy-Efficient, Priority-Driven UAV Deployment via Reinforcement Learning for Disaster Response
- Developed a UAV deployment framework that optimizes disaster response by prioritizing tasks based on disaster severity and urgency. Integrated reinforcement learning using Deep Q-Networks (DQN) and collaborative drone behavior to maximize disaster coverage while minimizing energy consumption. Enhanced timeliness and efficiency of UAV interventions through dynamic prioritization of disaster areas.
- Technologies: Reinforcement Learning, Deep Q-Networks (DQN), UAV, Optimization Algorithms, Swarm Intelligence, Python

Self-Driving Car with Object Detection using CNN, Reinforcement Learning, and YOLOv3
- Developed a self-driving car model capable of detecting traffic signals and adjusting speed based on camera input.
- Technologies: Computer Vision, Carla Simulator, Machine Learning, Convolutional Neural Networks, Reinforcement Learning, YOLOv3, Python

Leveraging Graph Neural Networks for Movie Recommendation Systems
- Developed a (GNN)-based recommendation system for movies using the GraphSAGE architecture. The project involved constructing a bipartite graph where users and movies were represented as nodes, and their interactions were represented as edges. Explored the potential of GraphSAGE to improve recommendation accuracy, particularly addressing the cold start problem and scalability issues. Compared the model's performance with traditional collaborative filtering techniques and the LightGCN model.
- Technologies: Python, GraphSAGE, PyTorch Geometric, Collaborative Filtering, LightGCN

Evidence Detection in Cloud Forensics through Machine Learning and Deep Learning
- Designed a system to enhance cloud forensic investigations.This project aimed to detect evidence of cyber threats and anomalies in cloud environments, utilizing Gradient Boosting Machines, Sequential Neural Networks, and Recurrent Neural Networks. The approach improved forensic analysis accuracy and speed, enabling proactive cloud security measures.
- Technologies: Python, Gradient Boosting Machine, Recurrent Neural Network, Enhanced MLP,

Extending Fastpitch with Emotional Awareness
- Enhanced Fastpitch for emotional speech output using a modified Conformer architecture. Trained on emotional labels with classification and perceptual loss to ensure style adherence.
- Technologies: Python, Neural Networks (Conformer, Fastpitch), DeepVoice3, Mel Spectrogram, Meta-Style Speech

Early-Stage Diabetes Risk Prediction Classifier
- Developed a classifier using binary tabular data to predict diabetes risk, aimed at enabling early screening and automated predictions in medical systems.
- Technologies: Machine Learning, Python, Fast AI Library
- [Demo Preview](#)

Wheat Seeds Classification
- Classified wheat seeds using multiple machine learning algorithms, including Naïve Bayes and Random Forest, comparing results to determine the best-performing model.
- Technologies: Python, Naïve Bayes, Random Forest, Support Vector Machine, Decision Tree, K-Nearest Neighbors
- Demo Preview

E-Learning School Website
- Developed a website for managing student registration, teacher assignments, and communication between students and teachers.
- Technologies: HTML, CSS, JavaScript, Bootstrap, AJAX, JSON, PHP, SQL
- Demo Preview

Hospital Management System
- Designed an integrated hospital system for managing clinics, labs, pharmacies, and securely sharing patient records.
- Technologies: Java, JavaFX, MySQL
- Demo Preview

Bank Management System
- Developed a desktop application to manage banking operations, including account creation, validation, and ATM transactions.
- Technologies: Java, Swing, MySQL

Account Management System
- Automated accounting tasks, including employee hour tracking, payroll generation, and bonus/deduction calculations.
- Technologies: Java, JavaFX, MySQL

Inventory Management System
- Developed an inventory management system to streamline stock control and order processing for a manufacturing firm.
- Technologies: Java, JavaFX
- Demo Preview

Tazkarti Football Match Booking System
- Developed a user-friendly system to register, select matches, and book tickets online.
- Technologies: Java, JavaFX, MySQL

Car Agency System
- Developed a car sales management system to streamline vehicle addition and sales processing for managers.
- Technologies: Java, JavaFX, MySQL

Hotel Reservation System
- Developed a Java desktop application for hotel receptionists to manage room reservations, services, and guest details, including payment tracking. The system simplifies hotel operations by automating the management of rooms and customer billing.
- Technologies: Java, JavaFX, MySQL

Café Management System
- Developed a café management program to help managers handle employee work, create invoices, and print them for customers.
- Technologies: C++, Makefile

Learn Tech Website
- Developed a website for offering programming services such as hosting, desktop application development, and web design.
- Technologies: HTML, CSS, JavaScript, Bootstrap
- Demo Preview

Restaurant Website
- Created a website for restaurants to showcase menus, manage reservations, and allow customers to book tables.
- Technologies: HTML, CSS, JavaScript
- Demo Preview

Grow Social App
- Created an Instagram growth application that allows users to easily increase their follower base and engagement.
- Technologies: Java, JavaFX, MySQL
- [Demo Preview](#)

Scotland Yard Game in Java
- Created a digital version of the Scotland Yard board game, allowing players to take on the roles of detectives or suspects in a pursuit-evasion scenario set in London.
- Technologies: Java, JavaFX
- [Demo Preview](#)

Snake 2D Game
- Developed a classic 2D snake game where the player controls a snake, avoiding obstacles and collecting items to grow in size.
- Technologies: Java, JavaFX, MySQL
- [Demo Preview](#)

Kids Games
- Developed a series of simple and educational games aimed at helping children improve their intelligence and problem-solving skills.
- Technologies: Java, JavaFX, MySQL

Memory Game
- Developed a web-based memory card game where players flip cards to match pairs.
- Technologies: HTML, CSS, JavaScript
- [Demo Preview](#)

Hangman Game
- Developed a web-based hangman game where players guess letters to form words with a limited number of attempts.
- Technologies: HTML, CSS, JavaScript

Other Information

Hobbies	Reading research papers on AI and Computer Vision, participating in coding challenges (e.g., Hackerrank, LeetCode), contributing to open-source projects, attending tech meetups and AI webinars, gym, football, and classical music.
Social activities	Helping people and sharing knowledge

References

Upon request.