Salma Ahmed Sherif

Computer and communications engineering
+20 110 208 2590 ● salmazekri0002@gmail.com● GitHub ● LinkedIn

OBJECTIVE

Final-year Computer and Communications Engineering student (Minor in AI), graduating in 2025, with a strong focus on software development, NLP and HPC. Experienced in **deep reinforcement learning (DRL), AI model optimization, and high-performance computing (HPC)** through RL research at **Carleton University** and internships at **Applied Innovation Center (AIC) and Virginia Tech**. Skilled in **Linux programming** with hands-on experience in embedded systems, robotics, and high-performance computing environments. Developed security, netcentric and networks architectures over Linux, contributed to **large scale and full-stack projects**. Led AI-driven projects in **autonomous robotics and graduation project in decentralized systems**, integrating **LLM , Blockchain, and MLOps tools (CI/CD, Docker, Kubernetes,Kafka)**. Passionate about advancing **AI research and developing scalable, real-world AI applications**.

EDUCATION

Alexandria University, Alexandria, Egypt — Sep 2020 – Aug 2025 (expected)
BSE in Computer and Communication Engineering

- CGPA: 3.5
- Core focus: Electronics, Communication Engineering, Computer Science, and AI
- Gained a low-level understanding of the technology stack, from hardware architectures, logic design, and assembly languages to digital and analog communication systems
- **AI Minor:** Courses include NLP, Machine Learning, Deep Learning, Artificial Intelligence, Computer Vision, and Speech Recognition
- **Graduation Project**: Designing a decentralized autonomous system utilizing LLM and Blockchain for training and consultancy companies, collaborating with Boost Training (UAE), improving efficiency, and providing ROI estimations.

High School Diploma — Sep 2017 – Sep 2020
Math/Science Track

- Ranked 12th nationally in Lebanon.

INTERNSHIPS

Applied Innovation Center Inc., smart village, Egypt — Jul 2024 – Oct 2024
High-Performance Computing Intern

- Gained experience in Linux, networks, databases, and GPU programming (OpenMP, CUDA).
- Developed a strong understanding of hardware infrastructure for AI workloads. Maintained pipelines and architecture to ensure stable and efficient development lifecycles
- Worked closely with their supercomputers and worked with MLOps team to enhance performance and workflow

Virginia Tech University, remote, USA — summer 2024
AI on System on Chip Trainee

- Explored AI implementation on hardware platforms, emphasizing optimization and performance.
- Worked on a project to optimize AI workloads for hardware-software integration, improving inference performance by 15%.

Carleton University, remote, Canada — Aug 2024 – Present
Undergrad AI research Assistant

- Worked with PhD candidate Ali Mohamed Ali on his research which implements new techniques in Deep reinforcement learning algorithms in his research in robotics
- Studied and implemented papers in modern control theory and sparse DRL on software simulations and physical robots
- Currently working on writing a research paper highlighting our work and expected to be published by Aug 2025

Projects

Aquaphoton Robotics Team — Jun 2022 – Present

- Developed robots for competitions such as MATE ROV and the unmanned underwater robotics vehicles
- Developed automotive 3D reconstruction software using OpenCV and ML regression models, and my own stereo vision algorithm
- Built SLAM algorithms for underwater robots (**ROS2** framework, Kinect, IMU).
- Implemented **sensor fusion**, PID control, and Kalman filters for robotics.
- Leveraged Altium for PCB design and terminal programming in Linux environments

***Awards**:*

■ 1st Regional and 6th International in MATE ROV 2023 as a Software Engineer.
■ 2nd Regional in MATE ROV2024 as a Firmware Engineer.
■ Best Software Solution in MATE 2023 for innovative software development which I fully created myself with a colleague.

Alex Eagles Team — Sep 2023 – Present

- Contributed to ML tasks and firmware for drones which competes in the UAE competition for aerial robotics securing a place in the Top 3 teams each year.
- Designed and trained models for computer vision tasks (e.g., augmented data generation) and working on their navigation

software on both high and low levels.

AI related courses projects

- **Computer Vision:** Worked on classical algorithms (e.g., edge detection, HOG features) alongside modern deep learning models like YOLOv7, Unet, and NeRF. Learned neural semantic segmentation and object detection.

- **Sensor Intelligence:** Aligned with the course "Automated and Connected Driving Challenges (ACDC)" course .It covers topics such as sensor data processing, object fusion and tracking, vehicle guidance, and connected driving, utilizing tools like Python, C++, ROS, and TensorFlow.

- **Machine Learning**: Built games using adversarial algorithms to compete against AI players.

- **Artificial Intelligence:** Created games employing reinforcement learning techniques to outperform AI opponents including Queens, Chess and explored classical AI and rule-based algorithms.

- **Natural Language Processing:** developed and implemented Sequence models, word embeddings, language models, and transformers projects from scratch.
  - Participated in **Wojood NER 24** competition for developing a named entity recognition for Arabic language using Arabert and trying to get the best accuracies

- **Deep Learning**: Understanding hyperparameters, transfer learning, and pretrained model architectures and worked on a conference paper on (under development):
  - **Classification of Spoken Arabic Dialects Using Deep Learning** coauthored the paper in which we tried to identify spoken Arabic dialects. Experimented with various models for voice- based, image-based, and transformer-based classification and comparing their results.

- **Speech Recognition:** Explored Speech recognition from Signal processing building classical models using MCFFs and autocorrelation functions.
  - Developed Automatic Speech Recognition ASR models for transcribing audio data into text as the final project which including scraping data, cleaning and optimization, model choice and development and finetuning word2vec model developed by META

Programs and Courses

Quantum Computing Program with IBM (Qubit by Qubit) Sep 2022 – Apr 2023
- An 8-month program taught by MIT, NASA and UC Berkeley researchers on quantum mechanics, information, computation, and hardware

ITI Embedded Diploma (C++) Jun 2023 – Aug 2024
- Took more than 160 hours of embedded systems training given by industry experts in AVR low-level programming including ROTS, communication protocols, and developing software for various applications.

EXTRACURRIULARS

- Volunteered in 2018 United Nations model in Beirut as one of the representatives of the students.
- Mentored and led new members in Aquaphoton through their selection process and tasks which including providing technical assistance and showing leadership traits.
- Participated in ECPC 2022
- Participated in Wojood NER 2023
- Solves Codeforces Div 2 & 3 on regular basis in my free time.
- Completed advanced courses covering dynamic programming, graphs, and number theory.

SKILLS AND TECHNOLOGIES

- Programming Languages: Python, C++, C, Java, PHP, JavaScript, SQL, MATLAB
- Data Analysis Libraries: Pandas, NumPy, Matplotlib, TensorFlow, PyTorch, OpenCV, RAG, Lora.
- Technologies/Platforms: Qiskit, Git & GitHub, LaTeX, Docker, ROS2, Altium, CUDA, OpenMP
- General Skills: Data structures, Algorithms, Design patterns, Software Engineering, Quantum Mechanics, HPC