

# Eman Sarah Afi

Computer Engineer — Software Engineering Master's Graduate

📍 Location: San Diego, CA & Tunis, Tunisia

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## EXECUTIVE SUMMARY

Motivated Computer Engineering graduate (AUBH) with a Master's in Software Engineering (MedTech). Passionate about applying technical knowledge to real-world projects, developing innovative solutions, and advancing professional growth in the engineering and technology industry.

## EXPERIENCE

### ACTIA Engineering Services

Ariana, Tunisia

Graduate Research Intern

Feb 2025 – Jun 2025

- Presented at the 2025 IEEE International Conference on Emerging Trends in Engineering and Computing (ETECOM); publication to appear in IEEE Xplore.
- Developed a **Python-MATLAB** system for seamless manual-autonomous vehicle control using the **CARLA** simulator.
- Created a real-time **MATLAB** dashboard with multi-sensor visualization, **fuzzy logic**, and **FDIR** for safe, context-aware vehicle operation.

Summer Research Intern

Jul 2024 – Aug 2024

- Published in the 8th EAI International Conference on Intelligent Transport Systems (INTSYS 2024); included in Springer Nature proceedings.
- Proposed a dual-chain framework for adaptive video bitrate allocation in multi-camera ROVs, optimizing transmission under bandwidth constraints.
- Evaluated the system using the **nuScenes dataset**, simulating real-time sensor fusion and streaming for realistic autonomous navigation.

### Savy

Manchester, UK

Software Engineer Intern

May 2024 – Oct 2024

- Developed a **ZohoSalesIQ** chatbot & connected it to a **React Native** mobile application to manage UK taxes.
- Integrated Savy's website via **Zoho Sites**.
- Updating the admin dashboard to trace the HMRC status to the users.

### American University of Bahrain (AUBH)

Riffa, Bahrain

Student Teaching Assistant

Mar 2023 – May 2023

- Assisted in executing during Spring 2023 the Software Design and Engineering Lab (CMPE 460/L) course.
- Conducted tutorials & labs.
- Graded and provided feedback for homework, assignments, and projects.

### TASHFEEN Engineering Solutions

Tunis, Tunisia

Software Engineer Intern

Jun 2022 – Aug 2022

- Worked on developing a **Python Tkinter** surveying application called GuideForm.
- Developed the online platform with **HTML, CSS & PHP** to showcase the survey, company & the visualized data.

## EDUCATION

### South Mediterranean University

Tunis, Tunisia

Master's in Software Engineering

Sep 2023 – Jul 2025

- Awarded Best Capstone Project Award in the Master's of Software Engineering 2025 Cohort.
- Honor's List (Fall 2023) and Dean's List (2024/2025) Student.
- Member of GDG on Campus SMU and IEEE SMU Student Branch.

### American University of Bahrain (AUBH)

Riffa, Bahrain

Bachelor of Science in Computer Engineering

Sep 2019 – May 2023

- Partial scholarship (45%) and Dean's List student.
- Represented university in Jaguar Land Rover Bahrain Young Creatives Initiative (2019) and presented posters on Machine Learning & Mobile Programming, 2021–2022.
- Marketing Member & Project Management Team Leader at AIESEC in Bahrain and IEEE AUBH student branch founding member.

## PROJECTS

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### LyricGen

*Python, NLP, Transformer Architecture*

 [GitHub Link](#)

- Designed & implemented an AI-powered lyric completion tool based on the **Transformer architecture** built from scratch.
- Trained the model on a large dataset of song lyrics to learn contextual patterns and generate meaningful line completions.
- Handled **data preprocessing, tokenization, and positional encoding** to optimize training.

### EcoEats

*MERN Stack, REST API, MongoDB, GitHub*

 [GitHub Link](#)

- Developed a full-stack food waste web app for restaurants to sell surplus food.
- Built backend with **Node.js, Express.js, MongoDB** and frontend with **React.js**.
- Deployed on **GitHub** for open-source collaboration.

## PUBLICATIONS

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Afi, E.S., Triqui, O., Sayahi, S., Besbes, H., Tlili, F. (2025). **Adaptive Video Bitrate Allocation for Remotely Operated Vehicles (ROV)**. In: Kocian, A., Milazzo, P., Henriques Martins, A.L., Nanni, M., Pappalardo, L. (eds) Intelligent Transport Systems. INTSYS 2024. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 608. Springer, Cham.  
[https://doi.org/10.1007/978-3-031-86370-7\\_21](https://doi.org/10.1007/978-3-031-86370-7_21)

Afi, E. S. (2023). **Development of a Smart Crop Monitoring System** (Version 2). American University of Bahrain. <https://doi.org/10.58014/aubh.24314056.v2>

## TECHNICAL SKILLS

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**Languages:** Java, Python, MATLAB, C/C++, SQL, JavaScript, HTML/CSS, PHP, Swift & Kotlin.

**Frameworks & Libraries:** React, Node.js, SwiftUI, JUnit, JavaFX, Pandas, NumPy, Matplotlib & Tkinter.

**Developer Tools:** CARLA, Git, Docker, Kubernetes, Google Cloud Platform, VS Code, Visual Studio, Eclipse & Firebase.

**Hardware:** Raspberry Pi, Arduino, ESP32, VHDL & Assembly.