

# Abdallah Afifi

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## EDUCATION

### The American University in Cairo

*Bachelor of Computer Science*

Sept. 2022 – June 2026

*USAID-AUC Merit Award*

## COURSEWORK

AUC: Fundamentals of Computing I, Fundamentals of Computing II, Applied Data Structures, Discrete Mathematics, Linear Algebra; Harvard: CS50 Introduction to Computer Science; MIT: Introduction to Computer Science and Programming Using Python, Mathematics for Computer Science, Introduction To Algorithms; UMich: Python for Everybody, Problem-Solving using Computational Thinking; UCSD: Mathematical Thinking in Computer Science

## EXPERIENCE

### Software Developer

Sept. 2022 – Present

*The American University in Cairo*

*Student Union*

- Developed the American University in Cairo's Student Union mobile application for Android and iOS platforms, creating a website and establishing a back-end database infrastructure.
- Leading the development team responsible for the carpooling feature, promoting sustainability initiatives within the student body.

### IT/Website Manager

Sept. 2020 – Present

*The American University in Cairo*

*Robotics Club*

- Managing and maintaining the club's website, ensuring it remains constantly updated with the latest essential updates.
- Coordinating robotics events with renowned industry representatives from Google, Microsoft, and Valeo, fostering valuable partnerships and enriching club activities.

### Software Developer

Sep. 2019 – Sept. 2022

*Be Apps*

*Cairo, EG*

- Led and managed a team of developers and UI/UX designers, overseeing the development of more than 30 mobile applications.
- Collaborated with key clients Vezeeta and HungerStation to develop and enhance their mobile applications, serving over 10 million users.

## PROJECTS

### Experimental-Verification-and-Analysis-of-Sorting-Algorithms | *C++, QT, Python, UML, Git, OpenXLSX*

- Implemented Selection, Insertion, Merge, Quick (with its variations), Bubble, Counting, Heap, Tree, and shell sorting algorithms using Random Permutation Vectors with a standard entropy and maximum size of 24000.
- Analyzed the algorithms based on the number of comparisons, swaps, and time complexity, verifying their mathematical model.

### Complexity Analyzer | *C++, Regex, Git, UML*

- Developed a program to analyze and calculate the time complexity of code written in any programming language.
- Used Graph-based Functional Analysis (GFA) to build the analysis algorithm.

### Password Manager | *C++, UML, Git, OpenSSL*

- Developed a password manager application implementing AES encryption, SHA hashing, compression, and password-generating algorithms.
- Implemented password generation, auto-fill, password customization, data compression, two-factor authentication, bio-metrics authentication, and secure sharing features.

### Plagiarism Detection Utility | *C++, UML, Git*

- Implemented Hamming Distance, Approximate String Matching, Rabin Karp, Knuth Morris Pratt, Boyer Moore, N-Gram Analysis, Cosine Similarity, Levenshtein Distance, and an enhanced Brute Force Algorithm to detect plagiarism in input documents.
- Analyzed and compared the algorithms in terms of time complexity.

## SKILLS & AWARDS

**Technical:** C, C++, Python, Java, Kotlin, Dart, Flutter, React Native, JavaScript, HTML, CSS, PHP, Node.js

**Awards:** Line Follower Cup, 1st Place | NASA Space Apps, 2nd Place | Intel ISEF Cairo, 1st Place