MAGDY YOUAKIM

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BACKEND SOFTWARE ENGINEER

Skilled back-end developer with internship experience developing and maintaining embedded systems using C and C++. Extensive academic experience building diverse projects using Java, Spring Framework, JavaScript, and React. Gained hands-on exposure to enhancing product scalability and performance through clean coding and modular architecture. Familiar with Agile methodologies and actively contributed to software development lifecycle phases during the internship and academic projects, including requirements analysis, design, and testing. Proficient in a foundational tech stack, including C, Java, JavaScript, MySQL, and RESTful APIs, with a strong eagerness to learn and grow in a collaborative environment. Successfully solved over 300 LeetCode problems, demonstrating strong analytical skills and a commitment to continuous algorithm design and problem-solving improvement.

● Agile Methodologies ● Microservices Architecture ● Test-Driven Development (TDD) ● Embedded C Programming
● Microcontroller Programming ● Serial Communication Protocols ● Memory Management ● Interrupt Handling
● Object-Oriented Programming (OOP) ● Real-Time Operating Systems (RTOS) ● Hardware-Software Integration

Languages: Java, C++, C, TypeScript
Web: HTML5, CSS, JavaScript
Web Services: REST, SOAP
Web/App Servers: Apache, Tomcat
Frameworks: Spring, Spring Boot
Databases: MS SQL, MySQL, PostgreSQL, MongoDB
Design Patterns: Singleton, Factory, Observer, Strategy, Decorator, Adapter
SDLC: Agile, Waterfall
Tools: Maven, Gradle, IntelliJ, PyCharm, Code::Blocks, Visual Studio, Vim, Emacs, Makefile, CMake, Bash Scripting
Platforms: Windows, Linux, macOS

FREELANCE EXPERIENCE

*CAREER NOTE: Completed on-campus studies and currently taking distance education courses to complete a **Master's Degree in Computer Science** (Available for full-time, W-2 employment).*

Self-Employed, Menia, Egypt ● 09/2021 – 02/2024

Embedded and Web Software Engineer
- Designed custom firmware for a smart home system using Embedded C and STM32, allowing smooth control of smart devices through mobile apps and improving overall usability.
- Built Python web scraping scripts using libraries like Beautiful Soup to gather and analyze data efficiently for client needs.
- Enhanced the database interaction module in a restaurant management platform using Spring Data JPA and Hibernate, reducing query response times by 20% and improving performance under high traffic.
- Developed and delivered tailored embedded solutions for client projects, ensuring reliable functionality and performance.
- Created detailed course materials for Embedded Systems, including lectures, practical exercises, and tests, to effectively teach students core concepts and skills.

Technologies Used: *Embedded C, STM32, Python, Beautiful Soup, Scrapy, Spring Boot, PayPal API, Spring Data JPA, Hibernate, Spring Cloud, Keil μVision, GCC, Arduino, and AVR.*

INTERNSHIP EXPERIENCE

Valeo, Smart Village, Egypt ● 10/2023 – 11/2023
A French automotive supplier that designs and manufactures products for automakers and the aftermarket.

Embedded Software Trainee.
- Designed and implemented software components for hardware interfacing using C programming, ensuring seamless communication between peripherals and microcontrollers.
- Conducted unit and integration testing to validate software reliability and ensure adherence to safety standards.

Technologies Used: *C, OSEK OS (Real-Time Operating System for Embedded Systems).*

NTI (National Telecommunication Institute), New Capital, Egypt • 05/2023 – 09/2023
NTI is Egypt's premier ICT education, research, and technical consultation institution.

Embedded Software Trainee
- Developed firmware for STM32 microcontroller to interface with GPS and SIM modules, ensuring accurate car location data transmission to a remote server.
- Built a PHP-based admin panel for real-time vehicle tracking, data management, and reporting, improving fleet monitoring efficiency by 40%.
- Integrated hardware components (GPS, SIM, STM32) with server communication protocols to achieve reliable data acquisition and processing.

Technologies Used: C (Embedded C, ANSI C), FreeRTOS, Keil µVision, GCC Compiler, Unity (Unit Testing Framework), I²C (Inter-Integrated Circuit), SPI (Serial Peripheral Interface).

ACADEMIC PROJECTS

Mahrashi International University (2024)
- **Dynamic Music Player Website:** This project involved creating a feature-rich music player website designed for an intuitive and enjoyable user experience. My role included developing the backend using Node.js. The platform offers essential music controls such as play, pause, shuffle, and reverse, ensuring seamless functionality for users. The combination of these technologies enabled a responsive and dynamic music player accessible across various devices. Utilized Node.js, React, TypeScript.

- **Online Shop Platform:** This project focused on building an engaging online shopping website that simplifies user interaction and enhances the shopping experience. I contributed by developing the backend with Spring Boot, supported by a MySQL database for efficient data management. The platform features user-friendly navigation, robust product browsing, cart management, and transaction functionality. This integration of technologies ensured a scalable and efficient e-commerce solution. Utilized Spring Boot, React, MySQL.

PERSONAL PROJECTS

Safety and Security Systems with FOTA and IoT (2021): This project focused on creating a smart home system with three key subsystems: Security System, Gas Protection System, and Fire Protection System. The system utilized FOTA (Firmware Over-The-Air) to enable remote updates, ensuring the software remains current and adaptable. IoT (Internet of Things) technology was integrated to allow homeowners to manage their homes from anywhere globally. Future enhancements include implementing face recognition and fingerprint authentication for login, along with handling additional safety threats in the home environment. Utilized FOTA, IoT, Embedded Systems.

EDUCATION

Master of Science in Computer Science
(In progress via distance education; expected completion 12/2026)
Maharishi International University, Fairfield, Iowa

Key Courses: Software Engineering, Web Programming, Web Application Architecture, Enterprise Architecture, Algorithms

Bachelor of Science in Communications and Electronics
Minia University, Minia, Egypt (08/2021)