

Timothy Jay M. Marquez *Full Stack Developer*

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📍 Tuguegarao City, Cagayan

📅 November 18, 2000

Profile

Full-stack developer with strong experience designing and building scalable web applications and backend services. Skilled in modern frontend frameworks, backend development, RESTful APIs, real-time systems, and cloud-connected applications. Experienced in building maintainable, secure, and performance-oriented systems across the full software stack.

Technical Skills

Embedded Systems & Firmware Development ● ● ● ● ●

- Raspberry Pi, ESP, Arduino
- Firmware development using C/C++ and Python
- GPIO configuration, PWM control, interrupts, and timers
- Communication protocols: I2C, SPI, UART
- Motor and relay control (servo, stepper, DC motors)
- Real-time data acquisition and device state management
- Hardware debugging, serial logging, and fault isolation

Hardware Integration, Sensors & Actuators ● ● ● ● ●

- Sensor and actuator integration using datasheets
- Power management, voltage-level matching, and grounding
- Signal calibration, noise mitigation, and reliability testing
- Wiring, pin mapping, and interface validation
- Hardware debugging and fault isolation

AI, Data & Computer Vision ● ● ● ● ●

- YOLOv3 to v9 (PyTorch-based object detection)
- OpenCV (image capture and processing)
- NumPy, Pandas (data processing and analysis)

Full-Stack & Software Development ● ● ● ● ●

- Backend application development and API design
- Frontend development with component-based architectures
- RESTful API development and integration
- Real-time applications (WebSockets, live updates)
- Authentication and authorization (JWT, role-based access)
- Database design, migrations, and data modeling
- Cloud-connected applications and IoT platform integration
- Error handling, logging, and performance optimization

Cloud & Backend Services ● ● ● ● ●

- Cloud-connected application and IoT backend design
- RESTful and event-driven backend architectures
- Real-time data synchronization and messaging
- Device-to-cloud and cloud-to-device communication
- Offline-first logic and background task processing
- Backend monitoring, logging, and security

Professional Experience

2022 – Present
Tuguegarao City,
Cagayan, Philippines

Embedded & Full-Stack Systems Developer *Upwork / Independent / Academic Projects*

- Designed, developed, and deployed embedded and full-stack systems integrating hardware, firmware, backend services, and web interfaces
- Developed firmware for microcontrollers and single-board computers using **C/C++ and Python**, including GPIO control, sensor interfacing, motor control, and real-time logic
- Integrated cameras, sensors, actuators, and automation workflows with **RESTful APIs** and web-based dashboards

- Built responsive frontend interfaces for device monitoring and control using modern web technologies
- Designed and implemented scalable backend services with **authentication, role-based access, data modeling, logging, and error handling**
- Implemented cloud-connected systems for **real-time data acquisition, processing, and visualization**
- Worked with databases for structured data storage, querying, and performance optimization
- Applied **debugging, profiling, testing, and optimization** techniques across hardware, firmware, and software layers
- Deployed and maintained applications on **Linux-based environments**, including server configuration and process management
- Integrated third-party APIs and services for notifications, data exchange, and system automation
- Followed best practices in **version control (Git/GitHub)**, documentation, and iterative development

10/2024 – 03/2025
Tuguegarao City,
Cagayan

Laboratory Technician & Part-Time Instructor

Cagayan State University Carig

- Assisted in laboratory classes involving electronics, embedded systems, and computer engineering fundamentals
- Prepared, tested, and maintained laboratory equipment, tools, and instructional materials
- Guided students in hands-on experiments, circuit assembly, and troubleshooting
- Provided technical support during laboratory sessions and practical examinations
- Assisted in instruction, demonstrations, and supervision for engineering-related courses
- Ensured laboratory safety, proper equipment usage, and operational readiness

10/2023 – 03/2024
Tuguegarao City,
Cagayan

Head Technician

Silicon Valley – Tuguegarao

- Performed hands-on diagnosis, repair, and maintenance of computer systems and consumer electronics
- Troubleshoot hardware and software issues on desktops, laptops, and peripherals
- Installed, configured, and upgraded operating systems, drivers, and applications
- Conducted hardware replacements, system testing, and quality checks
- Documented repair work and ensured devices were fully functional before release
- Provided technical explanations and support to customers regarding repairs

Education

08/2019 – 07/2023
Tuguegarao City,
Cagayan

Batchelor of Science in Computer Engineering

Cagayan State University Carig