Sergio Vargas Villar

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EDUCATION

North Carolina State University — May 2025
Master of Science, Electrical Engineering — GPA 3.5
Related Coursework: Data Converters, Radio System Design | Major in Electrical Engineering

UPC School (Universitat Politècnica de Catalunya) (Barcelona - Spain) — May 2019
Master's degree in automation and Robotics. — GPA 3.5

Bolivian Catholic University (Bolivia) — May 2015
Bachelor's degree in Mechatronics, Engineering. — GPA 3.25

TECHNICAL SKILLS

Hardware Tools: Altium Designer, Cadence, AWR, LTSpice, SolidWorks.
Embedded Systems and Administration: STMCube, Linux, Embedded Linux Development.
Libraries/Frameworks: FreeRTOS, ROS.
Programming Languages: C, C++, Python, Bash, JavaScript.
Database Management Systems: SQL, NoSQL.

RELEVANT PROFESSIONAL EXPERIENCE

Bettair Cities (Spain), PCB Engineer — *Apr 2017 – Jan 2020*

- Designed and built complex prototypes and final products of digital & analog PCBs using Altium Designer.
- Developed IoT devices to improve air quality, mitigating air pollution in urban environments.
- Simulated electronic circuits in LTSpice to validate performance.

PROJECT EXPERIENCE

LoRaWAN IoT Network Management for AERPAW, Research Assistant — *Sep 2023 – Present*

AERPAW project at NC State University, a wireless research platform studying 5G technology and autonomous drones.

- Managed the LoRaWAN network across NC State's Centennial Campus.
- Collaborated with research teams to integrate LoRaWAN with 5G systems for advanced drone experiments.

LTE Integration for Environmental Sensing System (Summer Internship) — *Jun 2024 – Aug 2024*

Developed LTE communication firmware for embedded systems at iBionicS Laboratory, NC State University.

- Wrote a driver for the LTE module in C++ using STMCube, integrating it into the existing software stack.
- Documented all work comprehensively, facilitating future maintenance and upgrades.

LICENSES & CERTIFICATIONS

Switching Power Supply Design – FEDEVEL 06bc2dcb46f5b01bb504ae8cc9624320

Learn to Design Boards – FEDEVEL d5e83bbe8252918517f954b14deb6efd

Embedded Software and Hardware Architecture – Coursera KF6CY4SP2VEA

HONORS & AWARDS

Best Master Project Award 2018/19 - CIM UPC (Barcelona - Spain) — *Jul 2019*

- The project involves designing, programming, and developing an ABB robotic palletizing cell incorporating Deep Learning techniques for identifying good parts and detecting their collection point.

Academic Excellence - Bolivian Catholic University — *Feb 2014*

- Best academic grades in Mechatronics Engineering career.

PROFESSIONAL EXPERIENCE

INNOVENT Tech, Full Stack Engineer *Nov 2021 - May 2023*

- Integrated RFID systems, IoT solutions, and Industry 4.0 initiatives for Smart Retail and Smart Healthcare.
- Improved system performance through RPM integration, enhancing automation and connectivity with NodeRED and Linux systems (JavaScript, Linux Systems, Node.js, MongoDB, MySQL).

Bolivian Catholic University (Bolivia), Adjunct professor *Feb 2020-Jul 2022*

Courses: Robotics, Mechanical Design, and Principles of Electronic Communication Systems.
Guided eight undergraduate students as a thesis advisor with original research projects.

- Used Altium Designer and SolidWorks to develop and support course materials and projects.

Bettair Cities (Spain), PCB Engineer *Apr 2017 – Jan 2020*

- Designed and built complex prototypes and final products of digital & analog PCBs using Altium Designer.
- Developed IoT devices to improve air quality, mitigating air pollution in urban environments.
- Simulated electronic circuits in LTSpice to validate performance.

Jalasoft, (Bolivia) Jr. DevOps Engineer *Jan 2016 – Jan 2017*

- Automated CI/CD pipelines, accelerating software delivery.
- Implemented continuous integration processes, ensuring consistent code quality across deployments.
- Managed build environments and tools.

Jalasoft, (Bolivia) (Internship Applied Research: UAS and Robotics) *May 2014 – Dec 2015*

- Developed unmanned aerial systems for remote sensing applications.
- Integrated robotics solutions with UAS for automated data acquisition
- Conducted applied research in robotics.