

Daniel Oliveira Tavares

B.S. in Computer Engineering expected Jul 2026, Robotics researcher

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Experience

J2S Solutions - Embedded System Engineering Intern [Sep 2025 - Present]

- Performed **reverse engineering** on industrial equipment to decode proprietary protocol and developed **C firmware** for ESP32 enabling remote control via **MQTT** and **LoRa**
- Implemented local **NAS** server (TrueNAS) with **Git** versioning (Gitea) for collaborative development workflows

TestRigor - Automation Engineer Intern [June 2025 - Sep 2025][USA-remote]

- Automated self-tests** for Chrome & Android/iOS apps using TestRigor's framework

Bern University of Applied Sciences - Researcher [June 2025 - Aug 2025][Switzerland-remote]

- Designed a C++ driver for the KUKA LBR **IIWA** robot using its proprietary messages over TCP/IP and integrating with **ROS2** and **Gazebo**
- Gained expertise in robotic middleware, real-time communication, and simulation workflows

NERo - UFV's Robotics Specialization Center - Assistant [Jan 2025 - Present]

- Highly practical robotics program focused on **improving an education robot** used on public school competition (new **PCB**/connections layout, hardware optimizations, OO in **C++**, app implementation in **Flutter**)

PadTec S.A. - Network/Tester Engineer Intern [Oct 2022 - Oct 2024]

- Developed **Python** and **Robot Framework** scripts to automate testing and streamline validation workflows, increasing coverage by 12%
- Configured, monitored, and validated networking equipment (Cisco, Juniper, Arista, Cumulus) in virtual (**EVE-NG**, **GNS3**) environments
- Worked with **routing**, **switching**, and protocols such as OSPF, VLAN, DMVPN, and SD-WAN
- Acquired experience in **automated unit/integration tests**, **code reviews**, **refactoring**, **clean code**, and **Agile (Kanban/Scrum)** practices

Skills

Programming related: C/C++ (intermediate-experienced), Python (intermediate), Git (intermediate), vim (beginner)

Robot development: Linux (intermediate), ROS2 (beginner), Gazebo (beginner), SolidWorks (Intermediate)

Languages: Portuguese (native), English (fluent), German (beginner-A2)

Education

Vicosa University Center (Univicosa)

Bachelor in Computer Engineering [July 2021 - July 2026]

- GPA (so far) 0.8626 / 1**
- Study of Low-Level, Data Structures, Algorithms, IoT, Robotics
- Main technology: **C/C++**
- Volunteered as teaching assistant for the courses Calculus 1 & 3, and Statistics, aiding 20+ students per semester

- Academic Researcher - Scientific Initiation [2023]: Developed a low-cost level control system using Arduino Uno, implementing on-off and PID algorithms to teach process automation to chemical engineering students.

Federal High School of Vicosa (Cap-COLUNI)

Ranked best public High School in Brazil for 8 consecutive years (2007-2016) on ENEM [Jan 2016 - Dec 2018]

Leadership

GEEC (computer engineering study group) [Jan 2023 - July 2025]

President from January 2023 to July 2025.

- Led 8+ member team on projects in robotics, embedded systems, and web development
- Coordinated development of a **computer vision system** in Python for real-time object recognition and classification

- Supervised the projects: game development (**GameMaker**), group's **website** creation, **line follower robot** optimization, and **Arduino graphical interface** in **C#** for real-time monitoring and control of embedded systems.
- Gained experience in leadership, project management, and collaborative software development with Git

Projects

Robotic manipulation system based on computer vision - undergraduate project [Jul 2025 - Oct 2025]

- Simulated a 6-DOF robotic arm (UR10) in CoppeliaSim for pick-and-place tasks, using **Computer Vision (OpenCV)** for object detection.
- Developed and compared PID and LQR (Optimal Control) controllers in Python, integrating the vision and control system via ZMQ Remote API.

Wetlands Automation - project for a Master student [Jul 2025 - Sept 2025]

- Designed and developed an **IoT automation system** based on the ESP32 for reactor monitoring and control.
- Printed Circuit Board (**PCB**) design in **KiCAD** and case modeling for 3D printing in SolidWorks.
- Implementation of a Human-Machine Interface (HMI) via **SPI** protocol and data logging with **fault redundancy** on an SD card.

Drone build: personal project [Jan 2023 - Mar 2023]

- Assembled a first-person view (FPV) drone from scratch, sourcing and integrating hardware components
- Configured and tuned the drone using **BetaFlight Configurator** software, **PID** adjustments, and firmware customization
- Gained hands-on experience in **embedded systems**, electronics assembly, and **drone avionics**.

Linux Certification [Jan 2023]

- Introductory certification covering **Linux** process, system security, shell scripting, and hardware management.
- Certification integrity: LPI000555388

testRigor Certification [July 2025]

- Certification recognizing expertise in AI-driven **test automation** for web, mobile, and desktop apps using testRigor's Generative AI framework
- Certification ID: UTI8f7ZRXFt0EwCISaMD250m