

Camilo Bayona

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Skills

CAD: OnShape, AutoDesk Fusion360, Blender

Programming: C, C++, Python, Linux, Bash, Git

Toolchains: Cmake, ROS2, G++, GCC, PlatformIO

Experience

Lead programmer, UF Dream Team Engineering – Gainesville, FL Feb 2026 – Present

- **MIDI Controller: Assisting patients in assistive therapy by developing a MIDI based controller**
- Simplified a multi stage MCU-to-Python-to-DAW pipeline into a direct USB MIDI implementation on a Raspberry Pi Pico W using TinyUSB and MIDI libraries, enabling direct integration with Ableton Live.
- Prototyped a breadboard circuit containing the Pico, various potentiometers and buttons, capable of enumerating from USB to Ableton Live, enabling control of DAW software.
- In progress: designing a custom PCB in KiCad to reduce footprint and improve usability based on DJ controller layout constraints.

Participant, DTE x SHPE Designathon – Gainesville, FL Feb 2026

- Collaborated in a 24 hour designathon to develop a 3D printed calculator mounted stencil featuring engineering symbols to help students study.
- Was awarded the title of 'Honorary Mention: Design Elegance'.

Officer, Santa Fe Engineering Club– Gainesville, FL Aug 2014 – Sept 2020

- Led electronics team in developing fundamental skills by providing introductory programming lessons in Python, hands-on learning with Arduino starter-kits.
- Guided team in parts list for the electronics side of an autonomous underwater vehicle (AUV) for the RoboSub competition in California.

Projects

Autonomous Panning Security Camera [cambay/Autonomous-Webcam](#)

- Created a closed-loop control system using OpenCV with a Haar cascade classifier for real-time face detection, converting face position error into motor actuation commands to center targets within the frame.
- Designed, soldered, and integrated an embedded motion control circuit (Raspberry Pi 4 + Arduino Nano + TMC2209 + NEMA 17) Pi 4 sends UART commands to Arduino via PySerial at a baud rate of 115200 for motor actuation.

3D Lidar SLAM Rover In Progress

- Converting a 2D Slamtec RPLidar C1 into a 3D lidar by mounting it to a secondary closed loop servo motor, capturing 2D slices before reconstructing them using spherical coordinates and storing points in an array, to use in a 3D voxel map in ROS2. The RPLidar is controlled over UART via hexadecimal through C++ and the servo is synchronously timed using serial as well.
- Designing custom body in OnShape to overlay existing chassis to effectively mount electronics components together seamlessly.

Project Title [projectsite.com](#)

- Resume checklist: <https://old.reddit.com/r/EngineeringResumes/wiki/checklist>
- LaTeX version of this template: <https://www.overleaf.com/read/npmbvrbvthpd#bb3114>

Project Title [projectsite.com](#)

Education

Santa Fe College– A.A. in general engineering April 2026

TBD– B.S. in Computer Engineering April 2028