

ANTHONY BIANCHI

Raleigh, NC | anthonybianchi112@gmail.com | 919-357-0785 | linkedin.com/in/anthony-bianchi-jr | US Citizen

EDUCATION

North Carolina State University

Expected May 2028

Bachelor of Science in Computer Engineering (GPA: 3.89 / 4.00)

Raleigh, NC

- **Honors & Coursework:** Dean's List, Eta Kappa Nu (HKN) Honor Society (ECE Peer Tutor); Embedded System Design, Digital Logic & Microprocessors, Signals & Systems, Electronic Circuits

Johnston Community College (Early College Dual-Enrollment)

Aug 2019 – May 2024

Associate in Applied Science in Information Technology (GPA: 4.00 / 4.00)

Smithfield, NC

- **Honors:** Graduated with High Honors, Recipient of the Award for Excellence in Network Management

EXPERIENCE

NC State ECE MakerSpace

Aug 2024 – Present

Operations Assistant & Fabrication Technician

Raleigh, NC

- Maintain and operate shop electronic fabrication equipment, supporting student prototyping across SMT pick-and-place systems (NeoDen 4 and next-gen NeoDen), Bantam Tools CNC PCB mills, and FDM 3D printers
- Restored an out-of-service SMT pick-and-place feeder by diagnosing drive shaft slippage, CAD-modeling a custom replacement hub core in SolidWorks, and 3D printing it in flexible TPU to eliminate tape jams
- Automated the SMT machine setup workflow by developing a custom script to convert standard KiCad placement (.pos) CSV files into proprietary machine formats, eliminating hours of repetitive manual data entry
- Created a standard operating procedure (SOP) and visual checklist for precision double-sided PCB milling on the Bantam Tools CNC mill, covering board leveling, tool offset probing, and microscope trace verification

Hwy 42 Auto Service

May 2021 – Present

Diagnostic & Repair Technician

Willow Spring, NC

- Troubleshoot complex automotive electrical, sensor, and electro-mechanical faults under tight commercial turnarounds in a two-person shop, isolating wiring harness faults and parasitic drains using oscilloscopes and multimeters

TECHNICAL PROJECTS

HP Prime G2 Calculator FPGA Video Interface | Verilog RTL, Gowin FPGA, Open-Source EDA

Oct 2026 – Present

- Developing an FPGA-based real-time video capture pipeline on a Gowin Tang Nano 9K (in bring-up) to decode high-speed internal LCD bus signals and stream digitized live video frames over HDMI to an external display
- Writing custom Verilog RTL synthesized and routed via open-source tools, with an architectural roadmap to multiplex the hardware keypad matrix for external automated testing and LLM control

Autonomous Line-Tracking Robot Car | Embedded C, TI MSP430, Hardware Timers, ADC/DAC

Aug 2026 – Present

- Architected bare-metal C firmware for an embedded car, integrating low-jitter timer interrupts for switch debouncing, 8 kHz PWM motor speed control, and Lithium-Ion power supply
- Delivered autonomous navigation and switch-handling milestones ahead of schedule, currently integrating a 12-bit DAC output stage for motor rail voltage regulation

Synchronous Digital State Machine Controller | TTL Logic, FSM Design, Timing Verification

Apr 2026 – May 2026

- Designed, breadboarded, and validated a 4-state synchronous Mealy state machine using discrete TTL multiplexers, D flip-flops, and logic gates, deriving optimal state-transition equations via Karnaugh map minimization
- Resolved open-collector signal float issues with external pull-up resistor networks and verified clock synchronization, propagation delays, and state transitions using an Analog Discovery 3 digital logic analyzer

Embedded Sensor Systems & Rapid Prototyping | SolidWorks, 3D Printing, ESP32

Jan 2026 – Present

- Engineered custom functional brackets, sensor mounts, and protective enclosures in PLA and TPU using SolidWorks and Bambu Lab 3D printers, achieving tight press-fit mechanical tolerances for embedded hardware
- (In Progress) Designed a non-intrusive bed occupancy detection sensor utilizing an under-mattress force-sensitive resistor (FSR) and voltage divider into an ESP32 ADC, implementing custom software debouncing for reliable state detection

TECHNICAL SKILLS

- **Languages & HDL:** Embedded C, C++, Verilog HDL, Bash, Assembly, MATLAB
- **Embedded Systems & Logic:** Microcontrollers (TI MSP430, ESP32), FPGAs, SAR ADC, DAC, PWM, GPIO, TTL Logic, FSMs
- **Fabrication & EDA:** SolidWorks (CAD), SMT Pick-and-Place, CNC PCB Milling, 3D Printing, KiCad, Soldering
- **Lab Verification & Tools:** Digital Storage Oscilloscopes, Logic Analyzers (Analog Discovery 3), Multimeters, Git, Linux