

# Michael Caruana

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## EDUCATION

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**Bachelor of Science in Robotics & Embedded Systems**

**Bachelor of Science in Artificial Intelligence**

*Maxwell, TX*

## TECHNICAL SKILLS

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**Programming Languages:** Python, C, C++, Rust, JavaScript, Arduino

**Hardware & Fabrication:** Mechanical fabrication, electrical wiring, PCB design (KiCad), soldering, 3D printing

**Design & CAD Tools:** Fusion 360, SolidWorks, KiCad

**Other:** Embedded systems development, AI/ML fundamentals, sensor integration, motor control, prototype development

## PROJECTS & EXPERIENCE

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**Personal Robotics Projects** | *Independent* | Ongoing

- Designed and fabricated a custom robotic arm using 3D-printed components, custom PCBs (KiCad), and servo motor control programmed in C++ and Python
- Developed embedded firmware in C and Rust for microcontroller-based systems, including sensor fusion and real-time actuator feedback loops
- Created autonomous navigation and control logic using AI/ML techniques applied to robotics applications
- Managed full project lifecycle from CAD design in SolidWorks and Fusion 360 through fabrication, wiring, and software integration

**Embedded Systems Development** | *Academic & Personal* | Ongoing

- Built multiple Arduino and microcontroller projects integrating sensors, actuators, and custom PCBs
- Wrote low-level firmware in C/C++ and Rust for real-time systems with minimal hardware overhead
- Designed and manufactured custom PCBs using KiCad, including schematic capture, layout, and fabrication

## CORE COMPETENCIES

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- Full hardware-to-software development: design, build, wire, program, and test robotic systems end-to-end
- Strong hands-on fabrication skills combined with software development across multiple languages
- Experienced in rapid prototyping using 3D printing, custom PCBs, and off-the-shelf components
- Dual academic background bridging robotics/embedded systems hardware with AI/ML software
- Comfortable working independently on complex, multi-disciplinary engineering projects