

CHRISTIAN RUST

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Education

Southeastern Louisiana University

Expected Dec. 2026

B.S. in Mechanical Engineering Technology (ABET); Minor in Music; GPA: 3.61

Hammond, LA

Relevant Coursework: Mechanical Design, Control and Automation, Engineering Dynamics, Applied Thermodynamics

Engineering Experience

Southeastern Louisiana University

Sept. 2025 – Present

Mechanical Designer – LaSPACE/NASA-Sponsored Robotic Additive Manufacturing

Hammond, LA

- Interviewed and selected for a paid, 20-hour/week role. Completed mechanical design and electrical integration of a UFACTORY 850 robot arm printing platform from initial build to successful PLA cube prints.
- Modeled mounts and enclosures in Onshape for FDM fabrication. Kept the extruder centered and compact while preserving cooling-fan clearance, PTFE tube routing, and filament-loading access.
- Integrated an Archim 2.2 controller, LGX Ace Magnum extruder, LulzBot heated bed, 24 V power supply, cooling fans, and wiring into the printing system.
- Generated G-code test paths and extrusion commands with Excel formulas. Tuned separate feed rates in UFACTORY Studio and Cura and adjusted extrusion amounts to print PLA cubes of varying sizes with uniform layers.
- Homed the robot and set toolhead offsets to establish nozzle position and prevent collisions during printing.

Southeastern Louisiana University

Aug. 2025 – Present

Mechanical Engineering Technology Tutor

Hammond, LA

- Invited by the department head to tutor engineering coursework. Provided individual instruction to more than 10 students in dynamics, calculus, programming, and related subjects.
- Led exam-review groups of 10–15 students, working through engineering problems and developing variations to reinforce concepts and solution methods.

Selected Engineering Projects

RV-12 Aircraft Assembly

- Assembled the bulkhead connecting the forward fuselage and tailcone and contributed to tail and rudder assembly.
- Read aircraft drawings and performed drilling, deburring, and riveting, with work inspected by community volunteers experienced in building and flying aircraft.

CHRISCADE RP2040 Gaming Handheld

- Designed a custom enclosure in Onshape and 3D-printed it to house a touchscreen, joystick, pushbuttons, speaker, volume potentiometer, and power/battery-status LEDs.
- Created original menus and utility apps and adapted open-source Game Boy/Game Boy Color emulators. Implemented compressed ROM banks with on-demand decompression and caching within limited flash and RAM.
- Implemented and verified power-button sleep and wake, with working drawing, metronome, timer, calculator, screenshot, and display-setting features.

Closed-Loop Arduino PID Light Control

- Independently designed and programmed an LED brightness controller with PWM, phototransistor feedback, PID control, and an LCD interface; evaluated stability and system response using MATLAB root-locus analysis.

Additional Independent Design Projects

- Built and debugged a Big Muff Pi analog guitar fuzz pedal from published schematics and designed a custom 3D-printed enclosure.
- Designed and built a rechargeable solder-fume extractor with a replaceable filter; published practical 3D-printable models such as a soldering tray, a parametric gear generator, and more.

Technical Skills

CAD/Analysis: Onshape, SolidWorks, Autodesk Inventor, MATLAB, Finite Element Analysis

Robotics/Controls: UFACTORY Studio, Arduino, RP2040, PID Control, PWM, G-code, VS Code, Excel

Fabrication: FDM 3D Printing, Soldering, Lathe and Mill Operation, Bandsaw, Drilling, Deburring, Riveting

Certifications: Certified SOLIDWORKS Associate (CSWA); Certified SOLIDWORKS Professional (CSWP): In Progress

Memberships: ASME, Student Member

Engineering Portfolio: christianrust.com

CAD files, code, and project demonstrations – self-hosted on a Raspberry Pi 5