

Renato Villacres

Cincinnati, OH | villacrs@mail.uc.edu | (513) 254-5846 | [LinkedIn](#) | villacresengineering.com

EDUCATION

University of Cincinnati

Bachelor of Science in Mechanical Engineering | GPA: 3.15 / 4.00

Cincinnati, OH

Expected May 2027

ENGINEERING EXPERIENCE

Thermal-Mechanical Research Co-op

Aug 2025 - Dec 2025

Tecnológico de Monterrey

Querétaro, Mexico

- Designed and built a thermal-conductivity test system for 3D-printed polymer lattices, including a modular cylinder guard, controls enclosure, and electrical heating and sensing circuitry.
- Programmed Arduino data acquisition with four thermocouple channels, an LCD, and SD-card logging to automate temperature collection and heat-flux calculations.
- Completed 12 thermal runs on Diamond and Gyroid structures in Onyx and Nylon; documented experimental methods and results for faculty and laboratory teams.

Mechanical-Thermal Engineering Co-op

Jan 2025 - Apr 2025

Ubicquia

Fort Lauderdale, FL

- Led 30+ thermal validation tests on smart-city hardware under computational and environmental loads to identify overheating issues.
- Analyzed test data with cross-functional teams to validate design changes to heat sinks, airflow, and thermal interface materials.
- Designed and built a Creo Parametric assembly fixture to improve component alignment during production.
- Built an automated immersion test rig for ingress-protection validation, reducing manual setup and supporting repeatable testing.

Mechanical Engineering Co-op

May 2024 - Aug 2024

Ubicquia

Fort Lauderdale, FL

- Designed and optimized 10+ mechanical components in Creo Parametric for manufacturability and to address tolerance-related defects.
- Produced 15+ engineering drawings with geometric dimensioning and tolerancing (GD&T) to support tooling, supplier communication, and design release.
- Conducted accelerated life testing to identify failure modes and support product reliability improvements.

PROJECTS

Bearcat Motorsports | Formula SAE

2026 - Present

Cooling System Design - In Progress

University of Cincinnati

- Develop a Formula SAE cooling-system design approach covering the radiator, coolant lines, swirl pot, and water pump.
- Review prior-year designs and FSAE rules to define cooling-system constraints and identify opportunities to reduce system mass.

PawGuard Rover

May 2026 - Aug 2026

SolidWorks CAD Concept

- Modeled component packaging and drivetrain layout in SolidWorks; created 2D drawings, a bill of materials (BOM), exploded views, and an assembly animation.

TEACHING & LEADERSHIP

Engineering Design Graphics Grader

Aug 2026 - Present

University of Cincinnati

Cincinnati, OH

- Evaluate Siemens NX models, assemblies, and 2D drawings for 72 students; provide feedback on geometric accuracy and drawing requirements.

University of Cincinnati Tennis Club

Jan 2025 - Jan 2026

Vice President

- Secured \$3,000+ in local sponsorships for travel, equipment, and club activities; co-led team and event logistics.

SKILLS

CAD & Documentation: Creo Parametric, SolidWorks, Siemens NX, Fusion 360, GD&T, engineering drawings, BOMs

Design & Manufacturing: DFM, assembly and fixture design, prototyping, additive manufacturing, CNC machining

Testing: Thermal validation, accelerated life testing, ingress-protection testing, thermocouples, data acquisition

Analysis: MATLAB, Arduino programming, Excel, experimental data analysis, root cause analysis