# CYRIL MALAYIL TOM THARIYAN

**Product Design | Manufacturing | Project Management | Analysis**

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## PROFESSIONAL SUMMARY

Mechanical Engineer with 5+ years of international experience in product development, asset reliability, and fluid-thermal systems integration. Specialized in advanced CAD/CAE modeling, structural simulation, and high-precision hardware integration. Proven expertise in fluid delivery networks, mechanical packaging, and multidisciplinary project management. Combines analytical problem-solving with prototyping, test validation, and lifecycle analysis, while expanding leadership through Lean Six Sigma Black Belt and PMP certifications.

## CORE ENGINEERING CAPABILITIES

**Product Design & CAD:** SolidWorks, PTC Creo, Siemens NX, AutoCAD MEP, Revit, KeyShot, GD&T (Geometric Dimensioning & Tolerancing), Design for Manufacturing & Assembly (DFMA)

**Simulation & Advanced Analysis:** ANSYS Mechanical (APDL & Workbench), Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), Thermal-Stress Analysis, MATLAB, C++, CoppeliaSim, Gazebo (ROS / ROS2), Kinematics, Dynamics

**Manufacturing & Prototyping:** Additive Manufacturing, Machine-Shop Practice, Composite Layup, Assembly, Weldment Design, Sensor Packaging, Actuator Integration, Hardware-in-the-Loop (HIL) Validation, Embedded Enclosures, Precision Instrumentation, Calibration, Quality Inspection

**Engineering Project Management:** Design Reviews, Milestone Tracking, Technical Documentation, Cross-Functional Leadership, Newforma PM, Bluebeam Revu, Agile/Stage-Gate Workflows

## PROFESSIONAL EXPERIENCE

### Mechanical Engineer
**Nov 2024 - May 2026**

**RTM Engineering Consultants** | Orlando, FL, USA

- Engineered and optimized 15+ complex fluid-thermal systems, applying thermodynamic modeling to balance performance, energy, and lifecycle constraints.
- Led end-to-end engineering initiatives, leading a remote team of 3+ engineers to drive high-visibility delivery and strict safety standards.
- Served as primary technical liaison between clients and contractors to resolve design conflicts, verify equipment specs, and ensure international code compliance.

### Mechanical Engineer
**May 2023 - Nov 2024**

**RGD Consulting Engineers** | Jupiter, FL, USA

- Designed and documented complex fluid delivery networks and piping infrastructure for 25+ projects using 3D modeling, ensuring strict adherence to international safety codes.
- Executed detailed hydraulic network sizing, thermal load analyses, and energy optimization studies for heavy fluid systems handling thousands of gallons per minute under high-demand conditions.
- Managed technical documentation, milestones, and deliverables across 5+ cross-functional engineers using enterprise project management workflows.

### Engineering Intern
**May 2022 - Aug 2022**

**Malema, a PSG Brand** | Boca Raton, FL, USA

- Created 15+ GD&T-compliant SolidWorks production drawings for precision flow instrumentation, vortex flow meters, and pressure transducers.
- Performed firmware verification and executed rigorous pass/fail electrical-mechanical validation for hundreds of ultrasonic flow-sensor units against strict voltage thresholds.
- Executed assembly procedures, precision calibration, and quality control for flow meters and valve-motor actuators deployed in high-precision industrial and semiconductor environments.

### Mechanical Intern, Mechatronics Division
**May 2021 - Aug 2021**

**Fractal Systems** | Dubai, UAE

- Designed custom mechanical enclosures and structural cladding in SolidWorks; managed on-site installation and resolved physical integration challenges via rapid prototyping.
- Engineered interactive mechatronic products for global events, including Expo 2020 Dubai, integrating automated systems for DULSCO and UAE University, built to rigorous safety and structural load standards.
- Integrated electronics, cable routing, and hardware across 15+ custom builds, including high-performance E-Foil watercraft operating under strict dynamic fluid conditions.

## SELECTED DESIGN & RESEARCH PROJECTS

**Variable Resistance Suit (VARS) - Graduate Research Assistant** **2021 - 2023**

*WEAR Lab, University of Central Florida*

- Designed 5+ advanced SolidWorks mechanical sub-assemblies for a human-assistive exoskeleton targeted at rehabilitation and athletic performance training.
- Evaluated ankle, knee, and hip linkages for vertical-jump augmentation, performing trade-off analyses on torque, weight, and structural compliance.
- Modeled mechanical kinematics in CoppeliaSim across multiple iteration cycles, mapping real-time joint kinematic and resistive parameters under dynamic multi-axis motion.

**Verification of Additively Manufactured Parts - Senior Design** **2021**

*Florida Institute of Technology*

- Led the Atmospheric Control sub-team within a 9-member cross-functional group, engineering active print-layer cooling and thermal chamber heating systems to eliminate FDM thermal warping.
- Produced over 12 production-grade subsystem CAD drawings, managed weekly design reviews, tracked project milestones, and resolved cross-team integration conflicts.

**RoboMech - VEXU Robotics Competition** **2019 - 2020**

*Florida Institute of Technology*

- Designed and fabricated 2 competition-ready robotic systems featuring autonomous and driver-controlled mechanisms optimized for high-speed intake, material transport, and scoring.
- Integrated multiple actuators, sensors, and structural components to enhance overall robot reliability and competitive field execution.

**Formula SAE - Formula IC Vehicle** **2018 - 2019**

*Florida Institute of Technology*

- Optimized multi-link suspension geometry and braking system actuation parameters for the FP19 race vehicle to improve vehicle dynamics and cornering stability.
- Executed precision chassis welding, structural fabrication, and hardware assembly across dozens of subsystem components, strictly adhering to ASME Y14.5 geometric dimensioning standards.

## EDUCATION

**Master of Science, Mechanical Engineering** **May 2023**

**University of Central Florida** | Orlando, FL, USA

Relevant coursework: Finite Element Analysis (FEA), Fracture Mechanics, Mechatronics, System Control, Continuum Mechanics, Dynamics, Advanced Mathematical Methods.

**Bachelor of Science, Mechanical Engineering** **May 2021**

**Florida Institute of Technology** | Melbourne, FL, USA

Relevant coursework: Design for Manufacturing (DFM), Advanced CAD & Automation, Control Systems, Mechanical Vibrations, Theory of Machines, Machine-Element Design, Materials Science.

## TECHNICAL PROFICIENCIES & CREDENTIALS

**Tools:** Microsoft Visual Studio, Microsoft Office Suite, ERP Workflows, Technical Documentation Suites.
**Training & Certifications:** Lean Six Sigma Green Belt, Machine Shop I & II Practical Training, Quality Inspection Methodologies, Hardware Prototyping & Assembly Standards.