

Esteban Jiménez Sánchez

San José, Costa Rica (Open to Relocation) | ejimenezs93@gmail.com | +506 8713-3979 | linkedin.com/in/esteban-jimenez93

PROFESSIONAL SUMMARY

Senior propulsion and mechanical design engineer with 6+ years developing liquid rocket engines, microgravity flight hardware, and regulated hardware products from concept through test and integration. Cofounder and technical lead of a liquid rocket engine program (RP-1/N₂O, 200 psi, 1–5 kN thrust); led mechanical design and final integration of two flown microgravity payloads, including a successful suborbital launch from Esrange Space Port, Sweden. Founder and President of Costa Rica's national high-power rocketry association and TRIPOLI prefecture, with hands-on rocket motor design, test stand development, and Range Safety Officer experience dating back to 2015. Complements this with FDA-regulated medical device development experience (Boston Scientific), bringing added rigor in design controls, verification & validation, and structured problem-solving. Named inventor on five pending U.S. patents.

CORE COMPETENCIES

Propulsion & Rocketry: Liquid rocket engine design (chamber, injector, nozzle, regenerative cooling), isentropic & thermal modeling, solid motor design, static-fire test stand design & instrumentation, Range Safety Officer

Propulsion Software: RPA, NASA CEA, RocketISP, PROPEP, RocketPy, OpenMotor, OpenRocket, RockSim

Simulation & Analysis: ANSYS (Mechanical, Thermal & Fluent) for FEA/CFD, SolidWorks Simulation

Program Leadership: Cofounder/executive experience (hiring, budget, roadmap, strategy), AGILE team leadership, launch-provider integration, stakeholder management

CAD / CAE: SolidWorks, Autodesk Inventor, AutoCAD, Fusion 360, CATIA, Creo, PTC Mathcad, PTC Windchill PLM, Capture PDM

Manufacturing & Test: GD&T, CNC machining, FDM & SLA 3D printing (7+ yrs), metal 3D printing, sheet metal stamping, arc welding, soldering, load cells/pressure/temp sensors & DAQ, INSTRON UTM, Phantom VEO high-speed video

Programming: Python, MATLAB, Java, LISP, SQL | **Standards:** NASA Systems Engineering Handbook, TRIPOLI safety code, FDA Design Controls (21 CFR 820.30)

PROFESSIONAL EXPERIENCE

Sr. Propulsion Engineer & Cofounder | *VEL Space*

Mar 2026 – Present | San José, Costa Rica

- Co-founded a liquid rocket engine startup and lead a 7-person engineering team, owning hiring, budget, and technical strategy.
- Directing end-to-end development of a liquid rocket engine (200 psi, 1–5 kN thrust, RP-1/N₂O) from concept through FEA/CFD analysis in ANSYS, component design and fabrication, and test planning.
- Designing and building a dedicated static-fire test stand with load-cell instrumentation and data acquisition.

Chief Product Officer | *Orbital Space Technologies*

Nov 2024 – Mar 2026 | San José, Costa Rica

- Promoted from founding engineering role to executive leadership of product strategy, design-team management, and stakeholder alignment for a small aerospace startup (<15 employees).
- Hired and managed engineering team members and owned the product roadmap; coordinated vibration, electrical, and thermal environmental testing with external partners ahead of flight delivery.
- Led final delivery of a suborbital stem-cell payload for Brazilian partner R-Crio, including hiring an intern and conducting thermal testing on the flight hardware.
- Introduced AGILE methodologies to the company's hardware development process to shorten traditional aerospace development cycles.

Founding Mechanical Engineer | *Orbital Space Technologies*

Feb 2022 – Nov 2024 | San José, Costa Rica (part-time)

- Sole mechanical engineer for the MUSA microgravity experiment (Costa Rica's second aerospace mission): designed the flight structure (constrained to a 1U volume) and an experimental fluid-pumping subsystem for transporting fluid to test samples.
- Led final integration of the experiment and coordinated vibration/electrical testing with launch provider SSC ahead of a successful suborbital launch from Esrange Space Port, Kiruna, Sweden.

R&D Engineer II | *Boston Scientific – Endoscopy Division*

May 2021 – Nov 2024 | Coyol, Costa Rica

- Performed mechanical design and FEA/mechanical analysis of medical device components on an AGILE new-product-development team, from concept through verification & validation and market release.
- Authored Design History File (DHF) documentation and led structured problem-solving to resolve design challenges under FDA Design Controls (21 CFR 820.30).

- Planned and executed prototype testing in engineering lab, clean room, ex-vivo, and in-vivo settings, developing and documenting test methods along the way.
- Presented prototypes directly to physicians for design feedback at ESGE Days 2024 and DDW 2022, and managed vendor relationships for prototype parts across stamping, 3D printing, and machining.
- Named co-inventor on 5 pending U.S. patents (see Patents).

Mechanical Engineering Intern | *PRIS-Lab, University of Costa Rica* Jan 2019 – Dec 2019 | San José, Costa Rica

- Designed, machined, and validated a hydraulic test loop for a Ventricular Assist Device (VAD), including a custom hydraulic seal and 3D-printed flow-tracking markers.

Intern | *Marostica S.A.* Jan 2011 – Dec 2018 | San José, Costa Rica (part-time)

- Supported renewable energy (hydro/wind) feasibility research; designed, manufactured, and tested a Pelton micro-turbine prototype and an autonomous water-flow measurement unit.

FEATURED PROJECT — LIQUID ROCKET ENGINE DESIGN (UNDERGRADUATE THESIS)

- Designed a low-cost, easily replicable liquid rocket engine using non-toxic, non-cryogenic propellants, with a partner, as a future platform for university rocket launches.
- Built an isentropic-calculation model for preliminary combustion chamber wall sizing, then a coupled thermal model via wall discretization to size a regenerative cooling system.
- Validated the design in ANSYS: CFD for nozzle/gas expansion and fuel distribution, and coupled thermal/FEA analysis to confirm the wall could withstand operating stresses.

PATENTS

- Device, Systems, and Methods for Creating a Working Space Within a Body - [US-20260069113-A1](#) (pending, filed Sept 2025)
- Medical Devices, Systems, and Methods for Providing Traction to Tissue - [US-20250339136-A1](#) (pending, filed Apr 2025)
- Ligator Devices, Systems, and Methods - [US-20250331860-A1](#) (pending, filed Apr 2025)
- Jaw Assembly for Medical Devices and Methods of Using the Same - [US-20250255592-A1](#) (pending, filed Feb 2025)
- Medical Devices and Related Methods for Controlling and/or Locking a Needle - [US-20240366201-A1](#) (pending, filed May 2024)

EDUCATION

Licentiate and Bachelor of Mechanical Engineering — University of Costa Rica, 2020

High School Diploma — Methodist High School of Costa Rica, 2010

CERTIFICATIONS & CONTINUING EDUCATION

Cryogenic Engineering and Safety Summer Course — CRYOCO LLC, Colorado School of Mines, 2025

High Power Rocketry Certification, Level I & II — TRIPOLI Rocketry Association, 2016

LEADERSHIP & VOLUNTEER EXPERIENCE

- President, Costa Rica Rocketry Association & Prefect, TRIPOLI Costa Rica (2022–Present): Founded the national rocketry association and TRIPOLI prefecture; run public rocket motor testing campaigns; teach university and public courses on rocketry and propulsion; serve as Range Safety Officer; designed a static-fire test stand with dual linear rails and load-cell DAQ sampling every 3 ms.
- Board Member, Central American Association for Aeronautics and Space – ACAE (Mar 2021 – Nov 2024): Developed public-facing aerospace educational initiatives for youth.
- Propulsion Working Group Lead, Grupo de Ingeniería Aeroespacial – GIA, University of Costa Rica (2015–2018): Independently developed the group's first working rocket motor design; built a static-fire test stand; designed and tested an autonomous rover for the ARLISS competition (2018), deployed from 4 km altitude.

LANGUAGES

Spanish (Native) | English (Fluent, TOEFL iBT 101) | Italian (Intermediate, B2) | French (Beginner, A2)