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Luis Alejandro Rodriguez Arenas

Education

2024–Present **BS Mechanical Engineering**, *Universidad de los Andes*, Bogotá
Minor in Computer Science. GPA: 4.4/5.0

2023 **Undergraduate coursework in Mechatronical Engineering**, *Universidad Nacional de Colombia*, Bogotá
GPA: 4.6/5.0

2017–2023 **High School Diploma**, *Colegio San Carlos*, Bogotá
GPA: 92/100
SAT: 1320 (660 Math, 660 Reading and Writing)
ICFES Saber 11: 100%

Projects

Ongoing **PATACON-2 L1 Rocket Program – SpaceTech Rocketry**
- Appointed Director of SpaceTech Rocketry, overseeing team structure, technical roadmap, and project execution
- Leading development of P.A.T.A.C.O.N. 2, a Level-1 class high-power rocket with upgraded avionics and composite structures
- Supervising design reviews, manufacturing workflows, and system-level verification

Ongoing **CanSat World Championship 2025 – SpaceTech Satellite**
- Developing a CanSat featuring an autonomous autogyro recovery mechanism capable of steering to a ground target
- Working on the dynamics and control subsystems, including actuator modelling, landing guidance, and descent stability
- Supporting system integration, mechanical packaging, and flight-test planning

2025 **PATACON-1 Sounding Rocket – SpaceTech Rocketry**
- Led the aerodynamics and mechanical design subsystems for P.A.T.A.C.O.N. 1, a carbon-fiber sounding rocket developed for CCCD 2025
- Designed aerodynamic surfaces, internal structures, and subsystem interfaces for high-performance flight
- Validated performance through CFD, structural simulations, and materials testing
- Coordinated subsystem integration, documentation, and pre-flight test campaigns
- Awarded *Best Technology* at the Colombian Rocketry Competition (CCCD 2025)

2024 **Ion Thruster Research Project – SpaceTech Ion Thruster**
- Worked in electromechanical and thermofluid systems
- Developed a mathematical model for ion acceleration and charge transport
- Performed first-pass calculations for electron mass flow and charge transport behavior
- Supported literature review and early-stage design validation

Skills

CAD	OnShape, Inventor, Fusion360, SolidWorks
Simulation	ANSYS, OpenRocket, Rocksim
Programming	Python, C++, MATLAB, Git
Embedded	Arduino, ESP32, Raspberry Pi, Linux environments
Languages	Spanish (Native), English (C1), French (B2)
Aerospace	Sounding rockets, Ion propulsion
R&D	Literature review, prototype development
Documentation	LaTeX, Markdown, technical writing

Awards

2024 **Banco de la República Academic Excellence Scholarship** – Awarded for one of the highest national ICFES scores.

2023 **Universidad Nacional Academic Excellence Scholarship** – Recognized among top high school graduates nationwide.

2022 **IOAA – International Olympiad on Astronomy and Astrophysics** – Represented Colombia in Kutaisi, Georgia.

2020 **OLAA – Latin American Astronomy Olympiad** – Represented Colombia internationally.