

Sergio Alejandro Rosales Vargas

STUDENT · M.Sc. SPACE ENGINEERING

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“Aim to the stars.”

Personal Profile

I am a student of the Space Engineering master program. Mechatronics engineer who likes challenges and learning new things. I see myself as a passionate person with perseverance, thoughtfulness and perceptiveness. Always ready to expand my abilities and skills. Currently looking for positions in Space Technology and Development.

Education

University of Bremen

Bremen, Germany

M.Sc. in Space Engineering

April 2022 - Current

- **Master thesis:** Analysis of an Active Thermal Control System for the Avionics Equipment for Future Upper-Stages of a Launcher System.
- **Master project:** Research in techniques to mitigate errors of CNNs in radiation space environments.
- **Courses:** FEM simulations for the design of space systems, Fluid Handling in spacecrafts, Structural design and analysis, Control theory, Orbital systems.

Catholic University of Bolivia “San Pablo”

Cochabamba, Bolivia

Bachelor Degree in Mechatronics Engineering

February 2013 - February 2018

- Graduated with Honor Distinction: Top of the 2018 class.
- **Main occupational skills covered:** Automation and control engineering, Signal processing, Fluid mechanics and thermodynamics, Vector mechanics.
- **Bachelor thesis:** Design and development of a prototype robot to explore and detect cracks in drinking water pipes using Convolutional Neural Networks.

La Salle High School

Cochabamba, Bolivia

High School Diploma

December 1999 - December 2012

- Passed with Distinctions.

Work Experience

ArianeGroup JTMU 5

Bremen, Germany

Werkstudent

July 2023 - June 2024

- Part time student job as support for thermal tasks in JTMU 5.
- Support in multiple discipline tasks related to:
 - ✓ Migration of Version Control Systems using Bazaar and Git.
 - ✓ Post processing of data for interfaces purposes.
 - ✓ Automation of processes through Python and Matlab scripting.
- Support in thermal simulations tasks with ESATAN, ESARAD and Thermal.
- **Technical Skills:** ESATAN, ESARAD, MATLAB, Python, Bazaar, Git, Bitbucket, Jira.
- **Soft Skills:** Adaptability, Communication, Decision-Making, Teamwork, Resource Management.

IMEMED

Cochabamba, Bolivia

Research and Development Engineer

April 2020 - March 2022

- Full time job in collaborative research and development of medical equipment.
- Developed and manufactured the company's first medical equipments:
 - ✓ The first intensive care unit medical ventilator in Bolivia.
 - ✓ A X-Ray portable machine of 2DOF.
 - ✓ Prototype of a PSA oxygen concentrator plant of $180 \text{ m}^3 \text{ h}^{-1}$.
- Collaborated with the software development team in back-end and front-end solutions for the 3 prototype equipments.
- Led the electronics design team and managed the design process of PCB prototypes for the ICU ventilator from the conceptualization up to manufacturing and testing in the span of 2 years.
- Carried out technical presentations to business partners, governmental institutions and medical facilities in 3 regions of the country.
- Carried out negotiations with international technology partners, such as Masimo, Bürkert and Demcon to reach OEM solutions for the company and product acquisition deals.
- **Technical Skills:** Altium Designer, Eagle Designer, C#, Wpf, C++, Solidworks, MATLAB, Simulink, Microsoft Office, \LaTeX .
- **Soft Skills:** Leadership, Adaptability, Communication, Decision-Making, Teamwork, Resource Management, Negotiation skills, Presentation skills.

Catholic University of Bolivia “San Pablo”

University lecturer

- Teaching of the subject “Physics Fundamentals” for newly admitted students.
- **Soft Skills:** Creativity, Integrity, Empathy.

Cochabamba, Bolivia

July 2020 - December 2020

AGROINBO TFD

Control and Automation Engineer

- Designed and implemented the complete system of automation for the process of dehydration of almonds which improved productivity of the company in 300% and reduced time duration of production in 80%.
- Designed the electric layout using CAD modeling tools and executed the implementation of the cable net connection.
- Characterized the system and designed a thermal mathematical model of the almond ovens through sensor measurements.
- Conceptualization and implementation of a closed loop control system using a LOGO PLC to fully automate the production lines.
- Designed the peripherals for the system automation and programmed the safety routines for the controller.
- **Technical Skills:** MATLAB, Simulink, Ladder programming, LOGO! Soft Comfort, AutoCAD Electrical.
- **Soft Skills:** Problem-solving, Constraint optimizations, Resourcefulness, Logical thinking.

Cochabamba, Bolivia

November 2018 - December 2019

Publications

CONFERENCE PROCEEDINGS

Effect of Single Event Transient Errors on Convolutional Neural Networks for Space Applications

Sergio Alejandro Rosales Vargas, Alberto García-Ortiz

2024 13th International Conference on Modern Circuits and Systems Technologies (MOCASST), 2024

Volunteering

Avionics Team Member

ASTRA e.V.

- Electronics designs prototyping, soldering and testing.
- Programming flight computer and testing the elements of the Kalman Project Rocket.
- Support in ASTRA's technical and non-technical activities.

Cochabamba, Bolivia

November 2022 - January 2024

Instructor Volunteer Team Member

IILC Latinamerican Institute of Leadership Cristóforos

- Volunteer during leadership and oratory courses.
- Instruction and planning of the activities in oratory courses.

Cochabamba, Bolivia

May 2018 - November 2019

IEEE Student Branch Chair

IEEE Student Branch of the Catholic University of Bolivia “San Pablo” - Cochabamba

- Founding member of the first IEEE Student Branch of the Catholic University of Bolivia “San Pablo” - Cochabamba.
- Management of the Student Branch recruitment and promotion of events.
- Scheduling and planning of technical and non-technical activities for the Student Branch.
- Interface between other branches of the region.

Cochabamba, Bolivia

January 2018 - January 2019

Logistics Team Member

TEDx UCB Cochabamba

- Member of the management team of the first TEDx event in Cochabamba.
- Management of logistics activities of assets needed in the main event.

Cochabamba, Bolivia

May 2017 - August 2018

Achievements

2021	Solidworks CSWP - Professional Mechanical Design , Dassault Systèmes 🔗 (Click to view)	Bolivia
2021	Specialized Program - Spacecraft Dynamics and Control , University of Colorado Boulder in partnership with Coursera 🔗 (Click to view)	Bolivia
2021	Goethe-Zertifikat B2 , Goethe Institut	Bolivia
2020	TOEFL iBT , ETS	Bolivia
2018	Specialization in Automation and Industrial Control , Ideas Automation with sponsorship of Schneider Electric	Bolivia
2013	Full founded Coca-Cola scholarship for bachelors degree , Coca-Cola Foundation	Bolivia

Extracurricular Projects

Development of a hybrid solar car

Catholic University of Bolivia “San Pablo”

Cochabamba, Bolivia

June 2016 - November 2016

- Member of the student group that conceptualized and to developed a hybrid solar car for the university.
- Collaboration in the design of the mechanical structure of the “Catomóvil” prototype.
- Management and organization of the mechanical design team and scheduling of the tasks.
- Machining and performance testing of the mechanical structure.
- Integration and assembly of the electrical and mechanical systems.
- **Technical Skills:** Solidworks, TIG Soldering, Bender.
- **Soft Skills:** Collaborative work, Mechanical skills, Time Management.

Academic Recommendations

M.Sc. Edwin Calla Durandal

Advisor and colleague

✉ Ecalla.d@ucb.edu.bo

Advisor in my Bachelor Degree Thesis project and then worked together in multiple projects.

Ph.D. Luis Molina

Professor in university courses

✉ luis.molina@stconsultingbolivia.com

Mentor and University professor in the subjects of Electronics I and II.

Ph.D. Jaime Ruffo Antezana Arzabe

Natural Sciences Director

✉ jantezana@ucb.edu.bo

Academic guide during my undergraduate courses.

Skills

Programming

MATLAB, Simulink, Simscape, C/C++, C# (Front-end, Back-end), Wpf, Python (Pandas, NumPy, Tensorflow), VBA, R, PLC Programming, SCADA.

CAD Design

AutoCAD, SolidWorks, Ansys Mechanical, Altium Designer, Eagle Designer.

Soft Skills

Leadership, Adaptability, Decision-Making, Communication, Teamwork, Resource Management, Negotiation skills, Presentation skills, Perseverance, Assertiveness.

Thermal Design

ESATAN, ESARAD.

Miscellaneous

TeX(Overleaf/MikTeX), Microsoft Office, Git, GitHub, Bitbucket, Jira.

Languages

English

Professional proficiency C1

Spanish

Native proficiency C2

German

Advanced proficiency B2

French

Basic proficiency A1

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ArianeGroup Bremen Hiring Manager

March 10, 2025

AIRBUS-ALLEE 1
28199 BREMEN

Reference: Application for Auslegung eines mechanisch gepumpten Kühlkreislaufes für zukünftige Raketen-Oberstufen

Dear Hiring Manager,

My name is Sergio Rosales, and as an enrolled student of the master of Space Engineering at the University of Bremen, I am writing to express my interest for the position of a master thesis in your company. You will find soon that my skills are well suited for the application and moreover, you will see that my professional background matches precisely what you are looking for.

For the past months, I've had the privilege of working a part-time student job in the Thermal Department in ArianeGroup. During this time, I learned the importance of applying my knowledge in real life applications. Notwithstanding, I gathered important insight in the processes that take place in the aerospace industry. As a result, I had the opportunity of being part of on-the field applications, which strengthened my understanding of the studies.

I am particularly impressed with the work policy, the efficiency and the commitment to ethics in the workplace. Continuing the master thesis in this department will allow me to further develop these skills. Throughout the duration of the master thesis, I commit to do full research and complete the intended work with rigorous dedication. I am eager to develop my leadership skills, improve my teamwork capabilities, expand my knowledge of synergy work, and most importantly, apply my agile traits.

In conclusion, my goal in the company is to learn everything that I can and offer all my abilities and experience in return. I am thankful in advance for considering me for this opportunity and I expect to make this experience the most rewarding not only for myself but for the company as well.

With utter enthusiasm I look forward to your reply.

Sincerely,

Sergio Alejandro Rosales Vargas

Attachement:

Resume