

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 m³ 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

Cochabamba, Bolivia

Catholic University of Bolivia “San Pablo”

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.

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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OHB SE Hiring Manager

March 12, 2025

MANFRED FUCHS PLATZ 2-4
28359 BREMEN

Reference: Application for “Avionics Architect”

Dear Hiring Manager,

My name is Sergio Rosales, and I am writing to express my interest for the position of Avionics Architect at OHB SE. With my background in Space Engineering, hands-on experience in electronics design, and active participation in aerospace projects, I am confident that my skills are well suited for the position.

Currently, I am completing my master thesis in the field of Space Engineering. Although my academic background is not primarily in electronics, my experience in R&D, particularly at IMEMED, has allowed me to develop critical skills in electronics design. During my time there, I led the electronics design team, in the development of Bolivia’s first ICU ventilator and portable X-ray machine, projects that involved solving complex technical challenges in real-world applications.

In addition, as a member of the Avionics team in the student initiative ASTRA e.V., I contributed to the design of a rocket that aims to reach the Kármán line. This experience gave me valuable insight into avionics systems, interface management, and system-level trade-offs. My recent involvement in the thermal engineering team at ArianeGroup further deepened my understanding of aerospace development processes and reinforced my ability to work in multidisciplinary teams.

Although, I have not yet participated full lifecycle of a project in the aerospace industry, I am highly motivated to expand my expertise in this area. I am highly motivated to continuously develop my expertise.

I share OHB SE’s commitment to innovation, efficiency, and technical excellence. This makes me eager to the opportunity of growing my leadership skills, improving my teamwork capabilities, expanding my knowledge of synergy work, and most importantly, applying my agile traits.

In conclusion, my goal is to learn and offer all my abilities and experience in return. I am thankful in advance for considering me for this opportunity.

With utter enthusiasm I look forward to your reply.

Sincerely,

Sergio Alejandro Rosales Vargas