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RODRIGO SCHMITT

MOTIVATION

A major driver in the coming two decades will be the return of human explorers to the Moon. Furthermore, the challenges involved in long-distance human exploratory missions such as Mars are surely one of the most ambitious human endeavors ever taken.
I chose to play an active role in the transformation of humanity to a multi-planetary species because I don't want to watch it from afar. Instead, I want to make it happen.

SKILLS

Software

Python
Microsoft Office
LaTeX
MATLAB
C
Fortran
Fusion 360
HTML
LINUX
SQL
ANSYS
Simulink

Languages

Portuguese
English
Spanish
Japanese

ADDITIONAL EDUCATION

- **Winter School - Introduction to Space Technologies (INPE)**
  3-week-long, 100h (07/19)
  All satellite development stages.
- **Spacecraft Dynamics & Control Specialization**
  CU Boulder on Coursera (11/20)
  Credential ID: UWR9V3ZPS295
- **Deep Learning Specialization**
  DeepLearning.AI on Coursera (02/21)
  Credential ID: 9PBV369FZ2DV

EDUCATION

Bachelors of Science in Astronomy
University of São Paulo, Brazil | 02/15 - 08/19
#1 in class (one extra semester due to exchange program).

Bachelors of Science in Physics
University of São Paulo, Brazil | 08/19 - 12/19
Double degree.

Exchange Program
University of Notre Dame du lac, USA | 01/18 - 05/18
Final GPA: 3.8/4.0.

Master of Science in Space Engineering & Technology
National Institute for Space Research, Brazil | 02/21 - Present
Focus Area: Space Mechanics & Control.

RESEARCH

Educational CubeSat Development for Scientific Disclosure
Dr. Jane Hetem - University of São Paulo | 02/17 - 06/17
Printed Circuit Board electronics and Arduino programming in C.
Vacuum testing in laboratory.
Successful launch and recovery in a helium balloon to 30 km.

Orbit Determination Programming
Dr. Helio Kuga - National Institute for Space Research| 07/17 - 12/17
Studied astrodynamics and developed Fortran codes for orbit determination.

Mineralogical Analysis of an Apollo 16 Lunar Basalt
Dr. Clive Neal - University of Notre Dame du lac | 01/18 - 06/18
Lab work using electron microprobe.
Statistical analysis of element compositions.

Radiation Prediction in Low Thrust Transfer Orbits
Dr. Antonio Prado- National Institute for Space Research| 07/18 - Present
Investigated a spacecraft's radiation exposure during a mission to the Moon.
Developed a 3D model for the distribution of particles in the Van Allen Belts.
Created a Neural Network regression relating initial conditions to predictions.

Six-Degree of Freedom Rocket Trajectory Simulation
Dr. Bruno Carmo - University of São Paulo | 03/19 - Present
Python library available on github.com/Projeto-Jupiter/RocketPy.
High-fidelity variable mass six degree-of-freedom dynamic model.

ORGANIZATIONS

International Recruitment Advisor
AIESEC, University of São Paulo | 10/15 - 06/16
- Volunteer in a team of 5.
- Received around 20 international students to work in São Paulo in 4 multinational and 2 national companies.

ACHIEVEMENTS

Poli/USP Scholarship - 2017 Spaceport America Cup
12 students selected from Project Jupiter's 55 members.

2017 AUCANI International Mobility Scholarship
1 student selected to go to UND.
Open to USP's 59,000 students.
Process #690/2017.

PRCEU Fellowship - Scientific Disclosure (03/17 - 06/17)
Category #1938.

CNPq Fellowship - Scientific Research (07/18 - 10/18)
Grant #2018/14757-0.

FAPESP Fellowship - Scientific Research (11/18 - 12/19)
Grant #2018/16442-6.

2017 Spaceport America Cup
4th place out of 9 in the "10k ft SRAD Solid" category.

2017 Brazilian Rocket Competition
Overall winner out of 25.

2018 NASA Student Launch
10th place out of 45.
Education Engagement Award .

2019 Latin America Space Challenge
2nd place out of 26.

2020 Latin America Space Challenge
Overall winner out of 26.

We are what we repeatedly do. Excellence, then, is not an act, but a habit.

Will Durant

Marketing Manager of Outgoing Volunteering Programs
AIESEC, University of São Paulo | 07/16 - 12/16
- Volunteer in a team of 6.
- Weekly data analysis of customer market (Excel).
- Alignment of sales and customer experience (PowerPoint).
- Development of buyer personas.

Aerodynamics & Structures Member
Project Jupiter - Rocket Design Team, University of São Paulo | 07/16 - 06/17
- Optimal sizing of rocket parts through merit function analysis.
- Vacuum infusion manufacturing of carbon-fiber structure.
- Imperius: rocket launched to 10,000 feet.

Marketing Director
Project Jupiter - Rocket Design Team, University of São Paulo | 01/17 - 06/17
- Leader of a team of 4.
- Attracted 69 people to Recruitment Process.
- Articles for blogs and magazines with thousands of subscribers.

Structures Member
Notre Dame Rocket Team, University of Notre Dame du lac | 01/18 - 05/18
- Model, laser cut, and 3D print of parts of the vehicle.
- Murphy: rocket launched to 5,280 feet.

Structures Coordinator
Project Jupiter - Rocket Design Team, University of São Paulo | 08/18 - 07/19
- CAD in Fusion 360, Structural Analysis in ANSYS Mechanical.
- Manufacturing of carbon-fiber laminated structure.
- Caldene: rocket launched to 3,000 feet.
- Callisto: rocket launched to 10,000 feet.

Teacher
Let's Code Academy | 02/20 - 02/21
- Python Pro (48h): Language fundamentals, OOP, webscraping, APIs.
- Python for Finance (24h): Data Science, Machine Learning and Time Series.
- Data Science & Artificial Intelligence (72h): Data manipulation and visualization, classification, clustering, regression, Neural Networks, NLP.

Data Scientist
Let's Code Academy | 08/20 - 02/21
- Worked with data manipulation, visualization and databases.
- Developed supervised and non-supervised machine learning algorithms.
- Built a Reinforcement Learning recommendation AI for the company's learning management system.

PUBLICATIONS

TECNOLOGIAS ESPACIAIS APLICADAS AO PLANEJAMENTO URBANO
2019 CINASAMA - Congresso Internacional de Saúde e Meio Ambiente.
***Schmitt R. N.**, Santos T. R., Rodrigues L. M. T., Santos V. C. S., Barros J. D. | 2019*

OPTIMIZATION OF LOW THRUST TRANSFER ORBITS OF A SPACECRAFT CONSIDERING THE RADIATION HAZARD FROM THE VAN ALLEN BELTS
AIAA/AAS 2019 Astrodynamics Specialist Conference.
Volume 171 of the Advances in the Astronautical Sciences Series.
***Schmitt R. N.**, Sukhanov A. S., Barbosa G. & Prado A. F. A. B. | 2019*

ROCKETPY: A SIX DEGREE-OF-FREEDOM LAUNCH VEHICLE TRAJECTORY SIMULATOR
Accepted to the Journal of Aerospace Engineering.
DOI: 10.1061/(ASCE)AS.1943-5525.0001331
*Ceotto G. H., **Schmitt R. N.** , Alves G. F. , Pezante L. A. & Carmo B.*