

Jean Carlos Andrade De Carli Geophysicist - AgroData Scientist

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📄 Profile

I am a qualified and experienced Geophysicist. I have performed numerical and fieldwork research with Ground Penetrating Radar (GPR) in interdisciplinary environments as part of a team and independently. My work experiences allowed me to hone my skills in programming (Python), statistics, causal analysis, Machine Learning, parallel computing (mpi4py), teamwork, and written and oral communication. I am motivated by the research for efficient and feasible solutions to real-life problems.

🎓 Education

Doctor of Philosophy - Petroleum Engineering, 2019 Sep – 2022 Jan | Moscow, Russia
Skolkovo Institute of Science and Technology ☑

Thesis (incomplete degree): Causality Analysis Applications to Subsurface Reservoir Optimization and Energy Efficiency Problems. **Specialization:** Geology, Exploration, and Development of Mineral Resources.

Master of Science - Petroleum Engineering, 2017 Sep – 2019 Jul | Moscow, Russia
Skolkovo Institute of Science and Technology ☑

Specialization in Exploration and Development of Unconventional Reserves. **Thesis:** Modeling of Acoustic Wave Propagation on Laboratory Core Samples.

Bachelor of Science - Geophysics, 2010 Mar – 2016 Dec
Federal University of the Pampa ☑ Caçapava do Sul, Brazil

Thesis: Application of Ground Penetrating Radar (GPR) to estimate thickness and lateral disposition of soil horizon and the granitic bedrock in Caçapava do Sul.

BSc. Geophysics - Exchange Student, 2013 Aug – 2014 Dec | Columbia, USA
University of South Carolina ☑

Studies focused on near-surface and environmental geophysics. With the emphasis on Ground Penetrating Radar application to agriculture and environmental hazards.

Technical Degree in Agriculture and Animal Husbandry, Federal 2007 Feb – 2009 Dec
Institute of Education, Science and Technology of Rondonia ☑ Colorado do Oeste, Brazil

Specialization in Agriculture. Studies focused on soil fertilization and soil mechanics.

🧠 Computational Skills

Programming Languages

[1] **Python**, scripts, and software development for solving tasks related to geophysics, geomechanics, geographic information system, data science, machine learning, artificial intelligence, and parallel computing.
[2] **Dart** (Flutter), Android OS application development in Visual Studio Code and Android Studio.

Python, programming and development

- **GPR and Seismic (SEG-Y, files) processing:** segy-sak, pylops.
- **Parallel Computing:** mpi4py.
- **Algebra & Data Analysis:** numpy, pandas, scipy.
- **Causal Inference in Time Series:** Tigramite.
- **Geographic Information System:** Geopandas.
- **Data Visualization & Interpretation:** plotly, matplotlib, Blender 3D.
- **Machine Learning & Predictive Data Analysis:** scikit-learn, statsmodels.

Web-based development: Jupyter Notebook and Google Colaboratory.

Integrated Development Environment (IDE): Spyder.

Software

Petrel, QGIS, Fidesys, Matlab, Oasis Montaj, Paraview, Blender 3D, Microsoft Office.

Operational Systems

Linux, Microsoft Windows, Android OS.

Languages

Portuguese

Native

English

Fluent/full working proficiency

Russian

Elementary Proficiency

Professional Experiences

Agrodata Scientist, FTAI Feito LLC

2021 Aug – present | Russia | Brazil

I founded FTAI Feito in 2021 to use my knowledge in physics, mathematics, artificial intelligence, machine learning, remote sensing, geomechanics, geophysics, geology, pedology, radiology, agronomy, and veterinary to solve real-life problems in [1] Bayesian analysis in the causal relationship of fertilization and soil dynamics; in [2] spatial and temporal relationship of parameters and geophysical attributes and their direct relationship to the physical-chemical characteristics of soils; and in [3] development of a neural network to forecast and estimate pregnancy rate in beef cattle using Fixed-Time Artificial Insemination (FTAI). I apply my results in an entrepreneurial way as well as a private consultant.

Geophysicist - Researcher, Fidesys LLC

2018 May – 2018 Jul | Moscow, Russia

Internship. Fidesys develops and commercializes its software Fidesys which is used for the analysis of modal, dynamic, static, and harmonic forces on a study target (water dam, well casing, fractured geological bodies, and others). The results can be analyzed in time and frequency domains. It generates files in SEG-Y format, which helps in the interpretation and design of corrective measures in geological hazardous environments. My work at Fidesys was dedicated to the study and the test of the new seismic modeling processing module. I worked with the technical team, who were responsible for the development and advertisement of the software at international fairs. I participated as a member of Fidesys in the largest startup accelerator program in the Russian Federation. Furthermore, I represented the company in demonstrations and negotiations with Brazilian companies in Russia.

Field Geophysicist, Geodecon Geologia & Geofísico LTDA


2016 | Curitiba, Brazil

Geodecon works in hydrogeology, archaeology, geotechnics, mining, and environmental geophysical studies. Geodecon uses seismic, electrical, and magnetic methods. At Geodecon, I worked on-field development. I worked on projects: [1] to aid civil engineering projects (highways) with electrorresistivity and seismic refraction methods (Oct. 2016 - Jan. 2017); [2] geophysical campaigns in mining areas of the minerochemical complexes of Cajati and Araxá (Vale Fertilizantes), with electrorresistivity and magnetometric methods (Dec. 2012 - Feb. 2013); [3] and geophysical campaigns in support of the planning of Hydroelectric Power Plants with refraction seismic, magnetometry and electrorresistivity methods (Jun. 2011 - Aug. 2011).

Awards

Imperial Barrel Award - European Region,

2018

American Association of Petroleum Geologists (AAPG) 

Prague, Czech Republic. Top 5 leading teams of 2018.


500 Startups - Sberbank Accelerator Program, Sberbank

2018

Moscow, Russia. Top 30 leading startups in Russia. CAE Fidesys-Sim4Design.

Skoltech Challenge - Crossing the Chasm,


2018

Philips & Skolkovo Institute of Science and Technology 

Moscow, Russia.

Travel Grant - SEG International Exposition and Annual

2015

Meeting, Society of Exploration Geophysicists (SEG) 

New Orleans, United States of America. Top 10 Student Chapters Worldwide. First of the two Student Chapters selected for this rank in the Americas. SEG International Exposition and 85th Annual Meeting.

Scholarship

PhD Program - Skolkovo Institute of Science and Technology,
Travel Grant, Tuition and Stipend.

2019 Sep – 2022 Jan | Moscow, Russia

MSc Program - Skolkovo Institute of Science and Technology,
Travel Grant, Tuition and Stipend.

2017 Sep – 2019 Jul | Moscow, Russia

Science Without Borders - Brazilian Federal Government & Institute of International Education,

2013 Aug – 2014 Dec | Columbia, USA

Travel Grant, Tuition and Stipend

Scholarship granted to outstanding undergraduate Brazilian students.

Professional Interests

Professional interests in applied geophysics, agricultural sciences, artificial intelligence, data science, software development, and mobile applications to aid management and forecast of the yield of crops.

Industrial

Integration of fields of knowledge in geophysics, geotechnics, pedology, hydrology, data science, machine learning, artificial intelligence, and agriculture.

Educational

To teach, exemplify, and motivate the study of applied sciences as a method of solving real-life problems. To use my knowledge in geosciences to foster innovative solutions. To show that for everything there is a possible algorithm to be created, used, and improved.

Technological

Bayesian methods and causal analysis via time series.

The causal relationship between gamma spectrometric variables (mainly K40) and soil fertility.

Publications

Analysis of Time-Dependent Behavior of Dynamic and Static Parameters of Preheated Westerly Granite for Microseismic Fracture Monitoring Experiments,

Society of Petroleum Engineers Russian Petroleum Technology Conference. Moscow, Russia. 2018.

A. Dotsenko, V. Stukachev, J.C. Andrade De Carli, A Shevtsova, M Charara.

Applied Geophysics in Engineering and Environmental Studies, using 3D Animations and Models as a pedagogical tool, (in-Portuguese) *Anais do Salão Internacional de Ensino, Pesquisa e Extensão 7. Universidade Federal do Pampa. Bage, RS, Brasil. 2016*

J.C.A. de Carli, M. Fries.

Ground Penetrating Radar applied on geological mapping of the Edgefield Fault, South Carolina, USA, (in Portuguese) *Anais do Salão Internacional de Ensino, Pesquisa e Extensão 7 (2). Universidade Federal do Pampa. Bage, RS, Brasil. 2016.*

J.C.A. de Carli, M. Fries.

Ground Penetrating Radar Application on lateral-depth soil profiling characterization of Granitic terrains, *Universidade Federal do Pampa. Bachelor of Science Theses 2016* 

J.C.A. de Carli.

Integration and Interpretation of Electroresistivity, Ground Penetrating Radar and Reflection Seismic Data in the Geological Mapping of the Edgefield Fault, South Carolina, USA,

(in Portuguese) Anais do Salão Internacional de Ensino, Pesquisa e Extensão 8 (2). 2016

J.C.A. de Carli, M. Fries.

Characterization of Geophysical-Geotechnical profiles on Cacapava do Sul, (in Portuguese) *Anais do Salão Internacional de Ensino, Pesquisa e Extensão 7 (2). Unipampa. Bage, RS, Brasil. 2015.*

L.R. da Silva Gonçalves, M. Fries, J.C.A. de Carli.