Alberto A. Ocampo Rios, Ph.D.

Data Science Team Lead

CONTACT INFORMATION

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ABOUT ME

I am a Lead scientist with several years of experience in data analysis, statistics, machine learning, software development, and leadership. I started my scientific career at CERN, there, I obtained a Ph.D. in Experimental Physics and did four extra years of scientific research. During this time, I was part of a experiment that was fundamental for the 2013 Nobel Prize in Physics award.

Difficult challenges motivate me, I use them to expand the limits of my knowledge. I like to approach problems from a global point of view, finding the best solutions after considering several possible options. I am a self-starter and an explorer. I like to take new ideas and identify their commercial or scientific potential. I am self-motivated and resilient, and I get a lot of my energy motivating people around me. I believe leadership is about setting the right standards and the right example.

As part of a team, my main objective is that my contributions improve the status quo. I take a supportive role to address the problems my team can face in order to set it up for success. I like to help people with their own development, always aiming to get the best version of what they want to be. I believe that maximising people's potential leads to the best possible results.

SKILLS

- Organisational: Agile, Quality Management Systems, Roadmap Planning.
- Technological: Detector/Sensor commissioning, Big Data Analysis, Statistical Analysis, Infrastructure Control & Monitoring, Technology Design and Implementation.
- Technical: Machine learning, Statistics, Physics, Software Architecture, Math.
- Soft: Motivator, Resilient, Persistent, Analytical, Practical, Result oriented.
- Languages: Native Spanish, Excellent English, A2+ Dutch.

PROFESSIONAL EXPERIENCE

Coolblue.nl
Data Science Team Lead   **January, 2021 - present**

I am the team lead of the data science team for pricing and marketing. I am responsible of the performance of the team, and the direct manager of the team members. With the team, we have worked on several machine learning projects, among them: ab-testing, proactive pricing (automatic pricing), product market price modelling, estimations of the time to sell for second chance products, customer lifetime value, purchase intent, and customer interest estimations, among others. Together with the teams, I designed, prototyped, validated, implemented, tested, documented, and productionized these products.

Relevant Skills: Team Leadership, Roadmap planning, design of Machine Learning solutions, implementation, management, and DevOps.

Senior Data Scientist   **January, 2020 - 2021**

I started in Coolblue as a Senior Full Stack Data Scientist. I was part of the core data science team, we worked mainly in ab-testing, automated pricing, and route-employee allocation planner.

Relevant Skills: Machine Learning system architecture, Google Cloud Platform, Airflow, Python,

DevOps.

Topic Healthcare Solutions
System & Machine Learning Architect   **August, 2017 - November, 2019**

I was in charge of designing, prototyping, validating, implementing, testing, productionising, and documenting the Machine Learning related work in a hospital IoT system used to monitor activity in the surgical zone of hospitals. I was also the technical point of contact of the startup, I performed several business pitches for hospitals and 3rd party companies.
As part of the team I: Coauthored the patents used by the system, identified and documented the requirements of the system, designed the data model of the sensors and the machine learning strategy of the system, implemented the machine learning software, contributed to the ISO-27001 certification, performed constant system integration and configuration, lead the team in scientific topics, contributed to the testing effort of the system, calibrated the sensors, lead the deployment effort in the first hospitals, had constant contact with clients and commercial leads, constantly contributed to milestone planning and performance tracking.

Relevant Skills: Business pitches, team leadership, technology development and implementation.

ASML, YER
Senior Focus Expert   **April, 2017 - August, 2017**

I contributed to the validation of the new implementations of the LIS software. I worked in a clustering algorithm to identify interesting regions in the focus data. I wrote an internal document explaining the LIS focus implementation.

LucidBlue
Co-Founder & Software Architect   **January, 2016 - March, 2017**

LucidBlue was a startup with the goal to track the amount of UV radiation received by customers in order to control harmful exposures. I was a Co-Founder of the company. I obtained experience in management, planning, risk analysis, marketing, project management, and product development.

CMS Experiment, CERN & University of Ghent
RPC Detector Performance Group Convener   **August, 2013 - August, 2015**

I lead the Detector Performance group of the Resistive Plate Chambers detectors. This group consisted of several students from several different universities from Korea, Italy, Pakistan, and Colombia. This position included the responsibility of: guaranteeing a 99% uptime as well as a 95% efficiency for the RPC detectors during data collection (around 3000 detectors); leading the data analysis group of the RPC detectors; plan milestones and deadlines for physical results and reviews; maintaining and modifying the architecture of several software projects that included: displaying, storing, and analysing large streams of data on web applications; reviewing and internally approving physics results of our detector, coordinating simulation efforts to study and better understand the performance of the detectors. Constant updates to the CMS collaboration giving short talks biweekly to about 300 people.

RPC Detector SCADA Developer   **August, 2013 - December, 2015**

I was responsible of maintaining, designing, and developing the SCADA software used to control the RPC detectors (around 3000 multi-channel sensors) using Siemens WinCC. I was also the expert on call during data taking periods. This software was critical for the detector operation.

UGhent, Post-Doctoral Researcher   November, 2011 - November, 2015

I continued with the activities performed during my Ph.D. In addition I was guiding Ph.D. students; giving tutorials on data analysis, CMS software, C++, and statistics.

CMS Experiment, CERN & University of Los Andes
Ph.D., Research   August, 2007 - April, 2011

I was part of the physics group in charge of analysing the data produced by the LHC and the CMS experiment, specifically I was searching for signatures of new physics compatible with the theory of Supersymmetry. To perform these searches I was constantly analysing terabytes of data using the grid of the CMS experiment. I also did frequent hypothesis testing using likelihood ratio test; frequentists, and Bayesian methods. I used machine learning algorithms (Boosted Decision Trees, and Neural Networks) to classify data into signal and background. I predicted background and signal levels using this insights. During this period I was also heavily involved in the commissioning of the detector as well as in the data analysis effort of the RPC detectors.

Universidad de los Andes - CBPF
M.S., Research   August, 2005

Simulation of a detector geometry using *Geant4*, **Big data simulations** of background and physical signals for a neutrino experiment.

Universidad de los Andes
Physics Teacher   July, 2005 - July, 2007

I taught under-graduate level courses of, Mechanics, Thermodynamics, Electromagnetism, and Quantum Mechanics. I shared responsibility for lectures, exams, homework assignments, and grading.

San Carlos High School
Teacher   July, 2006 - July, 2007

Math, and Geometry teacher for third year students.

CONTINUOUS
EDUCATION
- 03/2021 Principles of financial accounting.
- 03/2021 Smart Analytics, Machine Learning, and AI on GCP.
- 01/2021 Modernizing Data Lakes and Data warehouses with GCP.
- 11/2020 Google Cloud Platform Fundamentals: Core Infrastructure.
- 01/2020 Deep Learning Specialization.
- 01/2020 Sequence Models.
- 12/2019 Big Data Analysis with Scala and Spark.
- 12/2019 Convolutional neural networks.
- 12/2019 Improving Deep neural networks: Hyperparameter tunning, regularization and Optimization.
- 12/2019 Neural networks and Deep Learning.
- 12/2019 Structuring Machine learning projects.

- 11/2019 Computer Vision Basics.
- 06/2019 Data Engineering on Google Cloud Platform. Coursera.
- 06/2019 Building Resilient Streaming Systems on Google Cloud Platform. Coursera.
- 05/2019 Serverless Machine Learning with Tensorflow on Google Cloud Platform. Coursera.
- 05/2019 Serverless Data Analysis with Google BigQuery and Cloud Dataflow. Coursera.
- 05/2019 Leveraging Unstructured Data with Cloud Dataproc on Google Cloud Platform. Coursera.
- 05/2019 Google Cloud Platform Big Data and Machine Learning Fundamentals. Coursera.
- 04/2019 IEC60601 family standards, Medical electrical equipment development workshop. Topic.
- 02/2017 Machine Learning by Stanford University on Coursera.
- 10/2016 Intro to Machine Learning, Udacity.
- 08/2016 The complete Android developer course, Udemy.
- 02/2016 The complete web developer course. Udemy.
- 08/2008 Hadron Collider Physics, CERN-Fermilab summer school.
- 01/2008 USPAS accelerator physics winter school.

| EDUCATION | **Universidad de los Andes**, Bogotá, Colombia |

Ph.D. High Energy Physics, June 2011

- Dissertation Topic: "Search for Supersymmetry Production Signals in Events with Two Leptons with the Same Sign using the CMS Detector "

M.S., Physics, July 2007

- Dissertation Topic: "Weinberg Angle Measurement in Nuclear Reactor Experiments", neutrino physics.

B.A., Physics, July 2005

- Dissertation Topic: "Study about Refractive Indexes and the Speed of Light in Linear and Non-linear Materials".

HONOURS AND AWARDS

- e-Planet trip. Collaboration between European and Latin-American research centres. Universidad de Puebla-CERN.
- High Energy Latin-American European Network Scholarship for the first two years of my Ph.D.
- Scholarship for Master in Physics.

PUBLICATIONS

515 publications with the CMS collaboration. 1 Patent for a healthcare device.

CONFERENCE PRESENTATIONS

- CMS Overview. Universidad de Puebla 2014.
- Supersymmetry searches in the CMS experiment. XXVIII Annual meeting of the fields and particles division of the Mexican Physics society 2014.
- High Energy Physics. High school Puebla Mexico 2014.
- CMSSW (C++) Tutorial. Universidad de Puebla, Mexico 2014.
- Statistics Tutorial. Universidad de Puebla, Mexico 2014.
- Status of Stop-quark searches. Universidad de los Andes 2012.
- Search for SUSY with the CMS detector at the LHC. LISHEP-2011.
- RPC Background studies. CMS RPC Italy, Ischia, Sep 2009.
- RPC Noise tool status. RPC workshop, Colombia 2009.
- RPC Noise Studies. Torino CRAFT CMS Cosmic Ray Workshop March 2009.

HOBBIES

Martial arts, playing piano and guitar.