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Data Architect
The Water Institute
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EDUCATION

Universidad de los Andes, Colombia	Bogotá, Colombia	Systems and Computing Engineering	MS, 2011
Universidad Nacional de Colombia	Bogotá, Colombia	Systems Engineering	BE, 2000

RESEARCH INTERESTS

Information engineering, software architecture, big data, linked data, data mining.

PROFESSIONAL EXPERIENCE

The Water Institute	Data Architect	2021–Present
CERN, Switzerland	CMS Experiment Monitoring CAT-A	2019–2020
Universidad de los Andes, Colombia	Adjunct Professor	2021–Present
	Instructor	2015–2018
	Doctoral Teaching Assistant	2012–2014
	Professional Project Assistant	2011–2012
	Graduate Assistant	2010–2011
Grupo de Consultoría Informática, CGI, Colombia	Web Developer	2008–2010
PointMind LTDA, Colombia	Developer	2008

AWARDS AND HONORS

- Top 10 ECAES Nationally in systems Engineering, [2007, ICFES](#).

TEACHING EXPERIENCE

Former full-time instructor (4 years), and current adjunct professor, at the Universidad de los Andes, Colombia. Topics: Big Data Analysis and Architecture, Business Intelligence, Programming.

Technical training at CERN for the CMS experiment operators, and teaching in MOOCs in Coursera, in Spanish, on Data Architectures and NoSQL technologies.

TRAINING COURSES

- Semantic Web
- Teacher Training Module
- Google Cloud Platform Fundamentals

NOTABLE PROJECTS

Data Architect/SmartPort & Resilience Center Current

The Water Institute

Development of a platform collecting near-continuous vessel geospatial data (IOT) and high-resolution repeat multibeam bathymetry to develop spatiotemporal machine learning for shoaling forecasts at the Port of New Orleans and other ports along the Mississippi River. The application will enable decision-makers to anticipate and plan dredging operations (e.g., predictive maintenance).

Developer, Operator/CMS Experiment Monitoring Architecture 2019–2020

CERN

The globally distributed computing infrastructure required to cope with the multi-petabyte datasets produced by the Compact Muon Solenoid (CMS) experiment at the Large Hadron Collider (LHC) at CERN comprises several subsystems, such as workload management, data management, data transfers, and submission of users' and centrally managed production requests. To guarantee the efficient operation of the whole infrastructure, CMS monitors all subsystems according to their performance and status. Moreover, we track key metrics to evaluate and study the system's performance over time. The CMS monitoring architecture allows both real-time and historical monitoring of a variety of data sources.

Technical Lead/CDCOL 2015–2018

IDEAM- Universidad de los Andes, Colombia

Environmental analysts' and researchers' time is an expensive and scarce resource that should be used efficiently. Creating analysis products from remote sensing images involves several steps that take time and can be either automatized or centralized. Among all these steps, the product's lineage and reproducibility must be assured. CDCol is a geoscience data cube that addresses these concerns and fits the analysis needs of Colombian institutions and the forest and carbon monitoring system.

PUBLISHED WORKS

Peer-Reviewed Publications

- Ariza-Porras, C., Kuznestsov, V., Legger, F., Idra, R., Nikodemas, T., & Uzunoglu, C. (2021). The evolution of the CMS monitoring infrastructure. *Advancements in Nuclear Instrumentation Methods and Their Applications*, 251.
- Ariza-Porras, C., Kuznestsov, V., & Legger, F. (2021). The CMS monitoring infrastructure and applications. *Computing and Software for Big Science*, 5(1), 1–12.
- Villamizar, M., Castro, H., Ariza-Porras, C., Mancipe, M. P., Cabrera, S., Pachon, I., Ramirez, S., Fonseca, D., Lozano-Rivera, P., Cabrera, E., & Becerra, M. T. (2018). *Scaling the Colombian data cube using a distributed architecture*. 441–444.
- Pachon, I., Ramirez, S., Fonseca, D., Lozano-Rivera, P., Ariza-Porras, C., Mancipe, M. P., Villamizar, M., Castro, H., Cabrera, E., & Becerra, M. T. (2018). *Random forest data cube based algorithm for land cover classification: A Colombian case*. 8651–8654.
- Bravo, G., Castro, H., Moreno, A., Ariza-Porras, C., Galindo, G., Cabrera, E., Valbuena, S., & Lozano-Rivera, P. (2017). *Architecture for a Colombian data cube using satellite imagery for environmental applications*. 735, 227–241.
- Ariza-Porras, C., Bravo, G., Villamizar, M., Moreno, A., Castro, H., Galindo, G., Cabrera, E., Valbuena, S., & Lozano, P. (2017). *CDCol: A geoscience data cube that meets Colombian needs*. 735, 87–99.
- Moreno, A., Ariza-Porras, C., Lago, P., Jimenez-Guarin, C. L., Castro, H., & Riveill, M. (2014). *Hybrid model rating prediction with linked open data for recommender systems*. 193–198.
- Rivera, S., Riveros, H., Ariza-Porras, C., Lozano-Garzon, C., & Donoso, Y. (2013). *QoS-QoE correlation neural network modeling for mobile internet services*. 75–80.
- Lozano-Garzon, C., Ariza-Porras, C., Rivera-D'iaz, S., Riveros, H., & Donoso, Y. (2012). Mobile network QoE-QoS decision making tool for performance optimization in critical web service. *International Journal of Computers, Communications, & Control*, 7(5), 892–899.

Technical Reports

- Ariza-Porras, C., Kuznetsov, V., & Legger, F. (2020). *Big data solutions for CMS computing monitoring and analytics*. 245.