JHONATAN RODRÍGUEZ CHAVES

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PROFESIONAL PROFILE

Professional in Civil Engineer and student the master's in water resources in Universidad Nacional de Colombia. I did focus on python developer for different problems, like a big data management, automatization problems and use, execute and programing mathematical models, ai (artificial intelligence) models or statistics approximation. Works focus on results and the user-friendly interaction.

JOB EXPERIENCE

Individual contractor:
EQUITAS – Centro forense integral
Immediate supervisor: Luz Adriana Pérez
lperez@equitas.org.co

January 2022 – April 2022
(3 months)

Functions:
- Collect and analyze of hydroclimatic historic registers from La Miel watershed (Caldas department), previous and after the build of Miel I hydroelectric.
- Determinate and identify of hydrologic sceneries in the moments of bodies was throw in the rivers. With information obtained from EQUITAS work team.
- Obtain results comparing the scenery simulation with calibrated models, where the particle tracking models used, and the real cases selected.
- Use scenarios with the calibrated models where the EQUITAS data found. Focusing on the comparison between simulation results and the real cases.
- Find trajectories of bodies and sites to search of bodies and body fragments.

Activities:
Apply of the methodology for identify geomorphology units of interest forensic (GUIF) in La Miel river from Puente de hierro to La Guamera.

Individual contractor:
EQUITAS – Centro forense integral
Immediate supervisor: Ana Carolina Guatame
acguatame@equitas.org.co

August 2021 – December 2021
(4 moths)

Functions:
- Build a methodology for identification of hydraulic accidents (eddies, rapids, and backwaters) from satellite images.
- Support of reporters for the project "Metodology for search floating bodies: La Miel river study case.

Activities:
Build a methodology for supervised search of geomorphologic units of forensic interest (GUFI) in rivers, from satellite images with random forest and neural networks identification models.

Individual contractor: Pontificia Universidad Javeriana – Empresas públicas de Medellín. Instituto Javeriano del agua. **Immediate supervisor**: Ing. Jorge Escobar jorge-escobar@javeriana.edu.co **Functions:**	March 2020 – July 2021 July 2021 - December 2021 March 2022 – April 2022 (24 months)

- Service for build definitive version of integration socio-ecological model for EPM.
- Service for data analysis of project between EPM and Pontificia Universidad Javeriana for the Ituango hydroelectric.

Activities:
Develop a mathematical and software of socio-ecosystem models for the direct and indirect area influence of the Ituango project (Sitio de presa - Pinillos). These models are based on hydrologic, hydrodynamic, biological, and secondary information (satellite images, meteorologic stations, hydraulic stations, etc.).

- Build and use the social models.
- Build micro habits from satellite images, results of hydrodynamics models and field data.
- Build methodology of sort, manage and visualization of the results from the hydrodynamic and water quality results, although dashboards and scorecards.

Individual contractor: Universidad Nacional de Colombia **Immediate supervisor:** PhD. Antonio Preziosi apreziosir@unal.edu.co **Functions:**	July 2019 – March 2020 April 2020 – June 2020 (12 months)

- Recompile and support the analysis of the superficial hydraulic secondary information about the watershed in the project study area.
- Build a conceptual model of the interaction of superficial water and groundwater, where the coupling of hydrologic, hydraulic and hydrogeologic models.
- Develop an algorithm for the coupling between superficial hydraulic model and hydrogeologic model for all scales.
- Make an uncertainty analysis for the hydraulic analysis and the coupling of the models.
- Take part in project meetings.
- Write the trimestral reporters.
- Go to the area of study in Magdalena medium valley, if necessary.

- Realizar un análisis de incertidumbre de la modelación hidráulica y de su acople con el modelo hidrogeológico del proyecto.

Activities:

Build and simulation of hydrodynamic model for Magdalena River in the middle valley with Telemac-Mascaret software. Collect and fix the hydro-morphological and hydrological data for study area. Build and execution of the software for management and show the results obtained.

Engineering assistant: Hidroconsulting **Immediate supervisor:** Eng. Guillermo Mora Tel: 4050031 **Functions:** Engineering assistant functions.	May 2019 – June 2019 (2 moths)
Resident engineer: Estructuras David S.A.S. **Immediate supervisor:** Eng. David Flores Tel: 7021640 **Functions:** Resident engineer activities in the metallic structure construction.	February 2019 – April 2019 (2 months)
Engineering assistant: Señalización vial Señalización y construcciones S.A.S. – SEÑALCON S.A.S. **Immediate supervisor:** Eng. Alma Pérez. Tel: 7026954 senalizacionsenalcon@gmail.com **Functions:** Engineering assistant on road signs and signals.	January 2018 – March 2018 (3 months)
Individual contractor: Pontificia Universidad Javeriana. **Immediate supervisor:** PhD. Nelson Obregón Neira Tel: 3208320 Extensión 6545 **Functions:**	diciembre 2015 – febrero 2016 (Duración 3 meses)

- Multi scenery meteorologic in La Mojana.
- Methodology reporter.

Activities:

Build software to managements of climatic data based on mathematical models.

Free-lance projects[1]

Customer:

Particular customer

Sandra@energy3.nz

(February 2022 – present)

Product:

Develop and review python scripts for automatic generation of reports from LiDAR data and mast data.

Customer:

Fundación Natura Colombia – Programa de modelamiento Eco hidráulico (PMEH) GEF – Magdalena Cauca Vive

Sra. Beatriz Emelina Hernández Castillo y Sra. Martha Cecilia Díaz Barrios

(February 2021 – May 2021)

Product:

Develop a mathematical and software of socio models for Zapatosa cienaga, Ayapel cienaga and the La Vieja watershed by dynamic systems type model.

Magister in engineering	June 2018 – present
(In course)	
Water resources in Universidad Nacional de Colombia – Sede Bogotá.	

Civil engineer	Junio 2011 – septiembre 2017
Universidad Nacional de Colombia	
Bogotá - Colombia	

Languages	Spanish (native)
	English (intermediate)
	French (basic)

Software	**Informatic languages:**
	Python (Expert)
	R-studio (intermediate)
	Html, css (basic)

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[1] La experiencia aquí mostrada no corresponde a experiencia certificada, debido a que corresponde a la venta de productos.

Office automation:
Microsoft office
Libre Office
Latex

GIS and maps
QGIS.
ArcGIS

Engineering simulation:
Hydraulic simulation:
Mascared -Telemac

Projects	SIRUN member (Semillero de Ingeniería de rocas de la Universidad Nacional de Colombia – Rock engineering hotbed of research of Universidad Nacional de Colombia). January 2012 – December 2014.
Goals	BBC spanish article https://www.bbc.com/mundo/noticias-61864463
Courses and congresses	**I workshop de monitoreo y modelación de agua en Colombia** Assistant Organize: Engineer faculty – Pontificia Universidad Javeriana and IDEAM 29 y 30 November 2018 **II DEEP LEARNING FOUNDATION BOOTCAMP** Assistant Organize: Dphy **III Resultados del convenio entre PUJ y EPM** Exhibitor Organize: Empresas públicas de Medellín. EPM Topic: Consumables and programming of integrate socio ecological model. (¿Cómo se construyó el modelo de integración socio ecológica? Insumos y programación.) April 2022

Referents are available upon request.