




RUBIERE RAMIREZ

Geospatial Developer | Spatial Data Engineer

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 19 Barton Creek Street, Belmopan City, Cayo, Belize



PROFESSIONAL SUMMARY

A geoinformatician, geospatial developer, and a spatial data engineer with over seven years of experience in proprietary geographic information systems (GIS), free and open-source GIS, spatial data programming, spatial database management, remote sensing, earth observation, and spatial data engineering.

SKILLS

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|---------------|------------------------|---|
| • R | • QGIS | • PostgreSQL with PostGIS extension |
| • R-Spatial | • ArcGIS Pro | • Oracle Spatial |
| • Python | • Spatial Data Science | • FOSS4G GeoServer |
| • GeoPython | • Data Engineering | • Geovisualization and Geocommunication |
| • SQL | • Earth Observation | • WebGIS / InternetGIS |
| • Spatial SQL | • Remote Sensing | |

EMPLOYMENT HISTORY

Geographic Information Systems Assistant,
Systems Development and Data Processing,
Statistical Institute of Belize.

 September 2022 – Present
 Belmopan City, Belize

- Supervise the GIS Technician and Data Processing Technicians.
- Create, administer and maintain spatial databases on PostgreSQL database with PostGIS extension.
 - Utilize SQL and Spatial-SQL within PostgreSQL with PostGIS to automate workflows by proficiently creating databases, schemas, tables, views, procedures, functions, triggers, events, users, roles, and efficiently granting privileges, ensuring streamlined access management and comprehensive data administration.
- Create, administer and maintain web applications on free and open-source software for geospatial (FOSS4G): GeoServer/Mapstore2.
- Create, administer and maintain web applications on commercial off-the-self (COTS) software: Portal for ArcGIS and ArcGIS Server; and Oracle Application Express.
- Perform earth observation on the built environment: create Sentinel-2 geomedian satellite imagery with Google Earth Engine and use machine learning algorithms to predict built up areas.
- Create tools to automate and standardize the extraction, transformation, and loading (ETL) of non-spatial data and spatial data into spatial data repositories with SQL, R and Python.
- Create spatial features with R programming language and Python with Open Geospatial Consortium (OGC) Standards.
- Research and develop systems design for geospatial solutions at the Institute.
- Provide training and support to the Geospatial Information Unit and other departments at the Institute.
- Created a full stack PostgreSQL, Express, React, NodeJS web application to geovisualize spatial data.

- Created *{rvr2spatial}* a package in R programming designed to facilitate the ETL process from MariaDB to PostgreSQL database with PostGIS extension for the Institute's needs. The package also does quality assurance and quality control on the Institute's spatial data. The package can be inspected here: <https://github.com/Rubi3r3/rvr2spatial>.
- Created *MariaDB to QGIS* which is a QGIS Python Plugin to fetch longitude (x) and latitude (y) data from MariaDB and writes the table to a shapefile or geopackage. The plugin also handles data without geometry, saving it to a specified directory as a comma separated value (CSV) or as a table within the geopackage. Additionally, the plugin also adds the points to the QGIS map canvas and displays data without geometry as CSV or table into the layers pane. The MariaDB to QGIS plugin is published on the QGIS Python Plugin Repository: https://plugins.qgis.org/plugins/qgis_mariadb_plugin, and the source code can be inspected here: https://github.com/Rubi3r3/qgis_mariadb_plugin.

Geographic Information Systems Technician,
Systems Development and Data Processing,
Statistical Institute of Belize.

📅 July 2018 – September 2022
 📍 Belmopan City, Belize

- Heads-up digitizes building footprints in ArcGIS suite of products and QGIS from Google Earth Pro and Environmental Systems Research Institute's World Imagery, Bing Maps, Open Street Maps, Satellite pour l'Observation de la Terre 7 (SPOT-7).
- Provide both digital web maps and hard copy maps for different departments at the Statistical Institute upon request.
- Perform remote sensing techniques to detect changes in urban areas in QGIS.
- Process aerial photos from drone imagery in QGIS and ArcGIS Pro.
- Assist with the preparation of Enumeration District Maps for the 2022 Population and Housing Census.
- Assist with the creation of maps in the SIB Census Dashboard with R programming and RStudio.
- Perform quality assurance and quality control on census spatial field data collected using ArcGIS, QGIS and R Programming.
- Automate the generation of spatial data with R programming language using OGC Standards.
- Implement Row level and column level security with table views on PostgreSQL database with PostGIS Extension.
- Implement Geofence, Geofence Data Rules and Geofence Admin Rules on Open-Source GeoServer.
- Implement Row level and column level security with table views on PostgreSQL database with PostGIS Extension.

Geographic Information Systems Technician,
Coastal and Marine Data Centre,
Coastal Zone Management Authority and Institute of Belize

📅 May 2017 – June 2017
 📍 Belize City, Belize

- Updated building footprints for Caye Caulker using Google Earth Pro and existing building footprints data.
 - Prepare maps for ground-truthing in Caye Caulker using updated building footprints and parcel data provided by the Land Information Center, Ministry of Natural Resources.
 - Assisted with the collection of land use and building information in Caye Caulker using Open Data Kit for android devices.
 - Processed data obtained from the open data kit for Caye Caulker using the building footprints Urban Land Use Data Processing Manual standardized by the Land Information Center at the Ministry of Natural Resources.
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Stann Creek Field Representative,
Oceana in Belize

📅 2015 – 2016
📍 Stann Creek, Belize

- Represented Oceana Belize in the Stann Creek district with the public, community-based organizations, non-governmental organizations, and the business sector.
- Conducted presentations about Oceana in Belize at the primary, secondary and tertiary level schools as well as to the community and business sector in the district.
- Canvassed neighborhoods in the district and collected people's sentiments on offshore oil exploration and exploitation in Belize as well as collect signatures against offshore oil exploration and exploitation.
- Recruited wavemakers (volunteers) in Stann Creek district.
- Maintain and update a wavemaker database for the Stann Creek district.
- Organized public events in the district such as beach cleanups, mural unveiling, people's referendum anniversary event, among others.
- Procured vendors for community projects, provided logistics and reached out to the community for public events.

EDUCATION

MSc in Geographical Information Science and Systems (In Progress)

Department of Geoinformatics - Z_GIS,
Faculty of Digital and Analytical Sciences,
Paris Lodron University of Salzburg

📅 2026
📍 Salzburg City, Austria

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| - <i>Introduction to Geoinformatics</i> | - <i>Application Development</i> | - <i>Automated Data Processing with R</i> |
| - <i>Data Modeling and Data Structures</i> | - <i>Remote Sensing Basics</i> | - <i>Spatial Statistics</i> |
| - <i>Data Sources and Data Acquisition</i> | - <i>Spatial Analysis</i> | - <i>Spatial Data Science</i> |
| - <i>Geodatabase Management</i> | - <i>Remote Sensing Advanced</i> | - <i>OpenGIS and Distributed GI Infrastructures</i> |
| | - <i>Visualization and Cartography</i> | |

BSc in Natural Resource Management

Department of Science,
Faculty of Science and Technology,
University of Belize

📅 2014
📍 Belmopan City, Belize

Associate in Natural Resources Management

Department of Science,
Faculty of Science and Technology,
University of Belize

📅 2011
📍 Belmopan City, Belize

Associate in Arts

St. John's College Junior College
Majors: General Studies and Chemistry

📅 2009
📍 Belize City, Belize

High School Diploma

St. John's College High School
Concentration: Biology, Chemistry and Physics

📅 2007
📍 Belize City, Belize

ACHIEVEMENTS

- ✓ **Geospatial Database Management System: ArcSDE, QGIS and PostgreSQL PostGIS Integration**
Developed and implemented an ArcSDE/Multiuser PostgreSQL database with PostGIS extension for environment agnostic editing in ArcGIS Pro and QGIS.

- ✓ **Geospatial Database Management System: Oracle database with locator/spatial extension (Oracle Spatial)**
Developed and implemented an instance of Oracle Spatial to serve spatial data into Oracle Application Express with Oracle's SDO_Geometry from PostgreSQL database with PostGIS extension using GDAL – ogr2ogr and reconciled with python programming.

- ✓ **Enterprise GIS in FOSS4G**
Developed and implemented Enterprise Geographic Information Systems infrastructure exclusively with free and open-source software for geospatial: QGIS and PostgreSQL Database with PostGIS extension.

- ✓ **Web GIS in FOSS4G**
Deployed and maintained Open-Source GeoServer and Mapstore2 with Apache Tomcat on Apache HTTP Server on SIB's GIS Servers.

- ✓ **Web GIS Development: FOSS4G Web Application for Census Progress Tracking**
Geovisualized census progress coverage by creating a web application using open standards: Mapstore2 Web Application created using GeoServer, PostgreSQL database with PostGIS extension and ETL process automated with R programming.

- ✓ **Web GIS Development: Oracle Application Express**
Developed and managed a GeoPortal that uses a Python API to access PostgreSQL geospatial data within Oracle Application Express.

- ✓ **Web GIS Development: Full-Stack PERN Application**
Built and maintained a PostgreSQL with PostGIS extension, Express.js, React, Node.js geoportal to geovisualize the Statistical Institute of Belize's spatial data.

- ✓ **Created {rvr2spatial}**
A package in R programming that was designed to facilitate the ETL process from SIB's MariaDB to PostgreSQL database with PostGIS extension.

PROFESSIONAL DEVELOPMENT

- **Principles of Reproducible Analytical Pipelines for Official Statistics**, Facilitated by United Nations Statistical Institute for Asia and the Pacific (SIAP), 17th February to 14th March 2025.
- **Urban Area Classification through Remote Sensing and Machine Learning Techniques**, Facilitated by the Mexican National Institute of Statistics and Geography (INEGI), 27th to 24th May 2024.

- **Food Insecurity Experience Scale (FIES) and Sustainable Development Goal 2.1.2 Analysis Workshop**, Facilitated by the Food and Agriculture Organization (FAO) of the United Nations Statistics Division, 6th May to 10th May 2024.
- **A National Validation Workshop on Advancing Comprehensive Disaster Management (CDM) Blueprint Implementation**, Facilitated by the Caribbean Disaster Emergency Management Agency (CDEMA), Natural Disaster Facility (NDF) in the CARIFORM Programme, the European Union (EU), & the National Emergency Management Organization (NEMO), 11th October 2023.
- **III Workshop on the use of Big Data for Official Statistics**, Facilitated by the United Nations Big Data Regional Hub in Brazil, United Nations Statistics Division, Brazilian Institute of Geography and Statistics (IBGE), National Administrative Department of Statistics (DANE) Colombia, National Institute of Statistics (INE) Paraguay, 31st July, 2nd August and 4th August 2023
- **Caribbean Geospatial Webinar – End User Training**, Facilitated by the Caribbean Community Climate Change Centre and Caribbean Development Bank, September 2021.
- **Advance Spatial Data Analysis Using ArcGIS**, Facilitated by the Belize National Spatial Data Infrastructure, Ministry of Natural Resources and Total Business Solutions Ltd, October 2018.
- **Creative Communications Training**, Facilitated by ArcCorps, May 2015.
- **Leadership Training for Social and Environmental Justice**, Facilitated by the Belize Institute of Environmental Law and Policy, August 2014.

REFERENCES

Arlenie Rogers, PhD

Assistant Professor,
Science Department,
Faculty of Science and
Technology,
University of Belize

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