Roberto Oliveira Santos

Emails: contato@robertosantos.net, roberto.santos@nottingham.ac.uk

I am currently a PhD candidate at the School of Geography, University of Nottingham, and my main research focus is the use environmental data, genetic data, mathematical modelling to provide an improved understanding of the complex factors driving the genetic variation of underutilised crops. Previously, I have worked as a software analyst in several project involving web mapping and geographic information applied to areas such as Meteorology, Agriculture, Environment protection and Utilities.

Education

- 2013-(on going) PhD in Geography, Nottingham Geospatial Institute and School of Geography, University of Nottingham, Nottingham, United Kingdom.
- 2011-2013 MSc in Applied Computing, Technological Federal University of Paraná, Brazil.
- 2008-2010 Specialisation in Java technology, Technological Federal University of Parana, Brazil.
- 2000-2005 Mathematics, Federal University of Parana Brazil.

Publications

- Discovering Order in Chaos: Using a Heuristic Ontology to Derive Spatio-Temporal Sequences for Cadastral Data - Kristin Stock, Didier Leibovici, Luciene Delazari, Roberto Santos - Spatial Cognition & Computation - Vol. 15, Iss. 2, 2015.
- (Portuguese) Regressão simbólica sobre séries temporais de dados meterológicos utilizando programação genética - Roberto Santos and Heitor Lopes - In IX Encontro Nacional de Inteligência Artificial - ENIA - Curitiba, Brazil, 2012.
- (Portuguese) Sistema de visualização web para previsão, monitoramento em tempo real e análise histórica de dados meteorológicos - Marco Aurélio Silva Neto, Roberto Santos, Fabio Sato, Cesar Beneti, Sergio Scheer - In: IV Simpósio Brasileiro de Ciências Geodésicas e Tecnologias da Geoinformação - Recife, Brazil, 2012.

Languages

- Portuguese (Mother language)
- English (Very good)
- Spanish (Fair)

Computational Skills

- Operating systems: Linux and Unix-like, 15 years
- Programming languages: Python (5 years), Java (10 years), PHP (15 years) and Shell script (15 years), R (2 years)
- Frameworks: Django (5 years), Spring (5 years), JPA/Hibernate (5 years)
- Version control systems: Git (5 years) and Subversion (3 years)
- Databases: PostgreSQL (10 years), Oracle (Oracle Certified Professional 9i and Oracle Associated Developer 9i, 10 years) and Riak (2 years)
- Web servers: Apache Httpd (15 years)
- Application servers: Apache Tomcat (10 years), Jetty (5 years) and Glassfish (5 years)

Web Mapping and related Skills

- Geospatial technologies and tools: WMS, WFS, SLD, GeoServer, Geowebcache, MapServer, Mapnik, MapProxy, TileCache, Gdal/OGR, PostGIS and QGIS (15 years)

My experience with geospatial technologies started in 2002. I worked with Visual Basic 6 and Map Objects from ESRI to develop the visualisation of agricultural data, such as farms and production. Between 2003 and 2004, I worked in a Web system for oil and gas utility company using MapGuide from AutoDesk. After those experiences, I focused on open source tools and the OGC standards for interoperability such WMS and WFS, and more recently GeoJSON. I developed web mapping systems using MapServer, GeoServer and more recently Mapnik/MapProxy combined with GeoDjango and OpenLayers or Leaflet. This projects gave me the opportunity to work with varies libraries and tools such Gdal (C and Python), Shapely (Python), Fiona (Python), TileCache and MapProxy (Python). Most of the projects involved the installation and configuration of a PostgreSQL/PostGIS database and loading of geographic data from Shapefiles and other formats. These project usually involved a server side and client side development. On the client side, I used jQuery and ExtJS combined with OpenLayers and Leaflet. I also had a few experiences using ArcGIS Server and FME for publication of maps and ETL operations.

- Visual weather, Grads, NetCDF, GRID (5 years)

In October of 2009, I started working at a regional meteorological service in the south of Brasil, the Simepar. My contract involved applying my knowledge and experience with geospatial technologies into the IT projects and working as an instructor and consultant in the IT department. During the next four years, I had the opportunity to work in 3 or 4 in-house projects and three projects for the Brazilian National Institute of Meteorology. In this projects, I had contact and learned tools such as Grads and Visual Weather as well as I had contact with scientific formats such GRID and NetCDF. My activities involved data management of the geographic database, conversion between formats and reference systems, development of geo web services and client-side interfaces using OpenLayers and ExtJS.

Recent professional experience

- 2009-2013 Software Analyst at SIMEPAR

Between 2009 and 2013 I had the opportunity to work at Simepar (a meteorological service in the south of Brazil). I started as a part-time consultant and after two years moved to a full time position as a software developer and instructor.

My main focus was supporting the IT team and on going projects using open source tools for web mapping such as Geoserver, Postgis/PostgreSQL and OpenLayers/Leaflet.

The daily activities involved the installation and configuration of Linux environments (web servers, databases, version control systems, etc.), and the development of web applications using Java and Python.

During this period I developed my experience of several technologies and tools such as Spring framework, Play framework, Riak distributed database, Web services, JQuery, ExtJS, Git, Maven and Jenkins.

- 2012-2013 Geographic Information System (GIS) consultant at FABC

Between 2012 and 2013 I had the opportunity to work at ABC Foundation (a regional agricultural research centre in the south of Brazil).

This project involved the development of a web mapping system that publishes a number of products for farmers, technical and commercial staff. Several data sources were involved such as meteorological weather stations, numeric weather prediction outputs and remote sensing data.

A multitude of crop and disease models are run on an hourly basis and products such as maps and charts are updated in the system.

There were many challenges in this project such as the volume of data, parallel processing of models and web optimization techniques, all this with the objective of improving the experience of the user when accessing the system.

The technologies and tools applied in this project were: OpenLayers, GeoServer, Mapnik, Gdal/OGR, PostGIS, PHP, Python and Shell script.

- Previous experiences involved projects in areas such as Agriculture, Environment conversation and Utilities (Oil and Gas, Transport and Water services). More details are available under request.

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