

Location: Vila Real, Portugal

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PROFILE

Nathalie Guimarães is a researcher of Reveal project at the Engineering Department of the University of Trás-os-Montes e Alto Douro (UTAD, Portugal). She graduated in Geography, in 2009, from Faculty of Arts and Humanities of the University of Porto, and received her M.Sc. degree in Geomatics Engineering from Faculty of Sciences of the University of Porto, in 2014. Her M.Sc. project was related to Remote Sensing products and their application to ocean study through the use of ocean color data: Chl-a (chlorophyll-a), as well as SST (Sea Surface Temperature) and SLA (Sea Level Anomalies) images. In this project, she worked on Matlab algorithms in order to perform the image processing and the manipulation of remote sensing data. After completing her Master, Nathalie worked as a technical consultant in Geographic Information Systems (GIS), being also responsible for the collection of GIS data and quality control in Mobility plans for various Portuguese councils and Edinburgh Council, in Scotland. From November 2016 to January 2019, Nathalie worked as a full-stack developer in Interact project from University of Trás-os-Montes e Alto Douro, Vila Real, Portugal. In this position, she developed open-source web applications with geographic and photogrammetric data, using different programming languages e.g. Python, PHP, HTML, CSS, JavaScript. From February 2019 to April 2020, Nathalie conducted research work related to Remote Sensing and Machine Learning. As an outcome of this work, Nathalie authored and co-authored four publications in international indexed journals, one co-authored book chapter and made three presentations in international conferences. Moreover, she co-authored several conference papers.

EXPERIENCE

November 2016 – Currently

Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal

Role description: Researcher.

Reveal Project.

Interact Project - Integrative Research in Environment, Agro-Chains and Technology.

January 2016 – October 2016

IIC Technologies, York, United Kingdom

Role description: Technical consultant in GIS, quality control.

I was responsible for the collection of GIS data and also for the quality control in a Mobility project for Edinburgh Council.

October 2015 – December 2015

MPT - Mobilidade e Planeamento do Território, Porto, Portugal

Role description: Geographer and GIS technician.

I have developed PMOT – Planos de Mobilidade e Ordenamento do Território (Mobility Plans) for a several Councils in Portugal.

March 2015 – September 2015

Focus bc – Google for Work Partner, Lisboa, Portugal

Role description: Technical consultant in GIS, Geoserver configure and manage, Responsible for creating Web Gis Maps development, Gis database and PostgreSQL database management, Front-end development (HTML, CSS, Javascript).

October 2010 – August 2012

Technical School of Infante, Vila Nova de Gaia, Portugal

Role description: Educational guide; Teacher of Geography.

October 2009 – August 2010

Secondary school of Carvalhos, Vila Nova de Gaia, Portugal

Role description: Teacher of Geography (3rd cycle of basic education).

October 2008 – August 2010

Secondary school of João Gonçalves Zarco, Matosinhos, Portugal

Role description: Course manager - Education and Training of Adults; Trainer of Citizenship and Professionalism.

EDUCATION

2012 – 2014 - University of Porto – Faculty of Sciences

MSc Geomatics Engineering

Final grade: 15/20

Modules included: Geographic Information Systems (GIS), Cartography, Geodesy, Global Navigation Satellite System (GNSS), Hydrography, Remote Sensing, Photogrammetry, and Topography.

Dissertation: The theme I have developed during my MSc dissertation was related to Remote Sensing products and their application to ocean study through the use of ocean color data: Chl-a (chlorophyll-a), as well as SST (Sea Surface Temperature) and SLA (Sea Level Anomalies) images. In this project, I worked on Matlab algorithms in order to perform the image processing and the manipulation of remote sensing data.

2004 – 2008 - University of Porto – Faculty of Letters

BSc Geography

Final grade: 13/20

Modules included: Geomorphology, Biogeography, Climatology, Urban and Regional Planning.

SKILLS

Softwares

- Agisoft Metashape
- A. Illustrator
- ArcGIS
- AutoCAD Map
- CloudCompare
- GeoServer
- Inkscape
- MicMac
- Microsoft Office
- Pix4D
- Potree
- PostgreSQL
- QuantumGIS
- Relational Database management/design (MySQL, Oracle, PostgreSQL)

Programming

Languages

- CSS
- HTML
- JavaScript
- Matlab
- PHP
- Python
- SQL

Frameworks

- Bootstrap
- MaterializeCSS
- Leaflet
- Google Maps API

Scientific Publications

Indexed journal articles:

- Guimarães, Nathalie; Pádua, Luís; Adão, Telmo; Hruška, Jonáš; Peres, Emanuel; Sousa, Joaquim J.. 2020. VisWebDrone: A Web Application for UAV Photogrammetry Based on Open-Source Software. ISPRS International Journal of Geo-Information 9(11), 679. <https://doi.org/10.3390/ijgi9110679>.
- Pádua, Luís; Guimarães, Nathalie; Adão, Telmo; Sousa, António; Peres, Emanuel; Sousa, Joaquim J.. 2020. Effectiveness of Sentinel-2 in multi-temporal post-fire monitoring when compared with UAV imagery. ISPRS International Journal of Geo-Information 9 (4): 225. <http://dx.doi.org/10.3390/ijgi9040225>.
- Guimarães, Nathalie; Pádua, Luís; Marques, Pedro; Silva, Nuno; Peres, Emanuel; Sousa, Joaquim J.. 2020. Forestry remote sensing from unmanned aerial vehicles: a review focusing on the data, processing and potentialities. Remote Sensing 12 (6): 1046. <http://dx.doi.org/10.3390/rs12061046>.
- Fraga, Helder; Guimarães, Nathalie; Santos, João A.. 2019. Future changes in rice bioclimatic growing conditions in Portugal. Agronomy 9 (11): 674. <http://dx.doi.org/10.3390/agronomy9110674>.
- Pádua, Luís; Marques, Pedro; Adão, Telmo; Guimarães, Nathalie; Sousa, António; Peres, Emanuel; Sousa, Joaquim João. 2019. Vineyard variability analysis through UAV-based vigour maps to assess climate change impacts. Agronomy 9 (10): 581. <http://dx.doi.org/10.3390/agronomy9100581>.

Book chapters:

- Luís Pádua, Nathalie Guimarães, Telmo Adão, Pedro Marques, Emanuel Peres, António Sousa, Joaquim João Sousa. 2019. Classification of an agrosilvopastoral system using RGB imagery from an unmanned aerial vehicle, Artificial Intelligence and IoT in Agriculture.

Oral presentations in international conferences:

- Guimarães, N. S., Moura, J. P. e Oliveira, P. C.. 2018. Development of a Web application to provide and analyze Geographic Information, FOSS4G - Europe 2018, Guimarães, Portugal.
- Guimarães, N. S., Moura, J. P. e Oliveira, P. C.. 2018. Development of a Web application for Interact Project, Geomapplica 2018 International Conference, Syros, Greece.
- Guimarães, N. S., Moura, J. P. e Oliveira, P. C.. 2018. Web application to publish geographic data, II Simpósio Internacional de Águas, Solos e Geotecnologias (SASGEO), Vila Real, Portugal.

Conference papers:

- Adão, T.; Soares, A.; Pádua, L., Guimarães, N.; Pinho, T.; Sousa, J. J.; Morais, R.; Peres, E.. 2020. MYSENSE-WEBGIS: A graphical map layering-based decision support tool for Agriculture. IGARSS - 2020 IEEE International Geoscience and Remote Sensing Symposium.

- Pádua, L., Adão, T.; Hruška, J.; Guimarães, N.; Marques, P.; Peres, E.; Sousa, J. J.. 2020. Vineyard classification using object based image analysis in RGB data from unmanned aerial vehicle. IGARSS - 2020 IEEE International Geoscience and Remote Sensing Symposium.
- Pádua, L.; Adão, T.; Guimarães, N.; Sousa, A.; Peres, E.; Sousa, J. J.. 2019. Post-fire forestry recovery monitoring using high-resolution multispectral imagery from unmanned aerial vehicles. ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences XLII-3/W8: 301-305. <http://dx.doi.org/10.5194/isprs-archives-xlii-3-w8-301-2019>.
- Hruška, J.; Adão, T.; Pádua, L.; Guimarães, N.; Peres, E.; Morais, R.; Sousa, J. J.. 2019. Evaluation of Machine Learning techniques in vine leaves disease detection: a preliminary case study on Flavescence Dorée. ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences XLII-3/W8: 151-156. <http://dx.doi.org/10.5194/isprs-archives-xlii-3-w8-151-2019>.
- Adão, T.; Pinho, T. M.; Pádua, L.; Guimarães, N.; Sousa, A.; Sousa, J. J.; Peres, E.. 2019. Using virtual scenarios to produce machine learnable environments for wildfire detection and segmentation. ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences XLII-3/W8: 9-15. <http://dx.doi.org/10.5194/isprs-archives-xlii-3-w8-9-2019>.

OTHER INFORMATION

- Full, clean driving licence.
- Fluent in Portuguese, Advanced level in English.

REFERENCES

José Carlos da Silva

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