João P C Bertoldo

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One-page CV

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Curriculum Vitae

Summary

Education

MSc. in artificial intelligence [a]

Double degree MSc. in engineering [b,d]

Research

1 year of experience [f,g] in research

Currently working as research engineer [e].

Work (others)

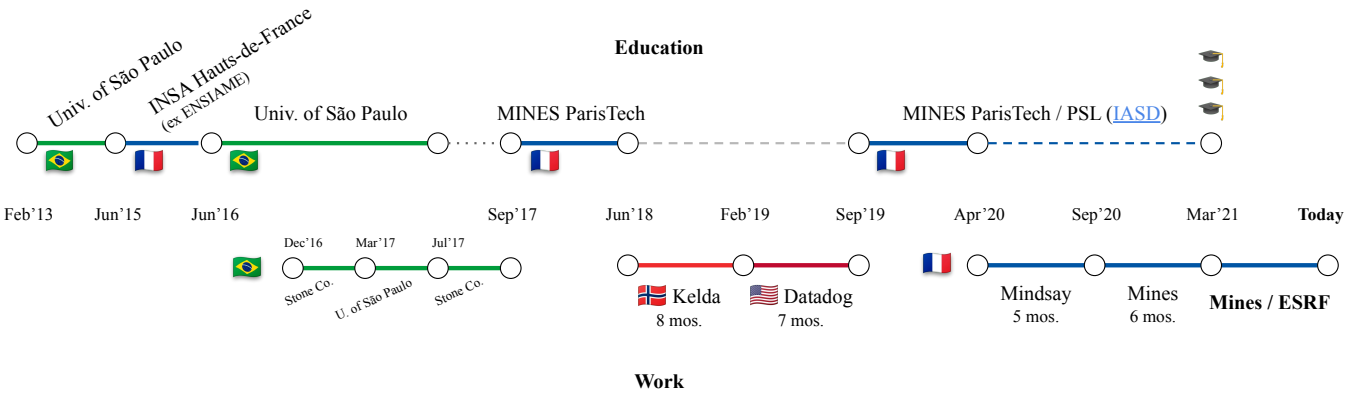
2 years of experience: Software Engineer [i], Data Scientist [h], and Teaching Assistant [n]

Experience in software development in Python and other technologies

Projects, Skills, etc

Using Python for several years in individual [o] and in-collaboration projects [p,q].

Lived in four countries – Brazil [d], France [a,b,e,g], Norway [i], USA [h], and speaks three languages.



1. Education

Paris-Dauphine – PSL University [a] — Paris, France
MSc. in Artificial Intelligence, Systems, Data (IASD) – *double degree with [b]* — 2019 – 2020
Subjects: Machine Learning, Deep Learning, Optimization, Image Analysis

MINES ParisTech – PSL University [b] — Paris, France
MSc. in Executive Engineering – Minor: Data Science – *double degree with [d]* — 2017 – 2020
Subjects: Software Engineering, Databases, Probability, Statistics, Operations Research

ENSIAME – INSA Hauts-de-France [c] — Valenciennes, France
Mechatronics Engineering — 2015 – 2016
1-year scholarship for an international academic exchange programme

University of São Paulo (USP) [d] — São Carlos, Brazil
Mechatronics Engineering — 2013 – 2015, 2016 – 2017
5-year degree at the best university in Latin America (U.S. News & World Report Best Colleges Ranking, 2020)

2. Research

The European Synchrotron Radiation Facility (ESRF) [e] — Grenoble, France
MINES ParisTech – PSL University — Paris, France
Research Engineer — since March 2021

Working on a diffraction tomography (DCT) automated pipeline (preprocessing and image segmentation).
→ Link to my slides about this project.

MINES ParisTech – PSL University [f] — Paris, France
Research Intern — Sep. 2020 – Mar. 2021 (6 mos.)

Worked on semantic segmentation with 2D and 3D U-Nets (see project tomo2seg [o]).
Presented results in two seminars [j,k], lectured in a week-long course [m], and wrote a paper [1].

Mindsay [g] — Paris, France
Research Intern — Apr. 2020 – Sep 2020 (5 mos.)

Evaluated explainability methods with layperson-maintained Natural Language Processing (NLP) models.
→ Links: internship report, internship defense presentation

3. Work (others)

Datadog [h] — New York, USA
Data Scientist Intern — 2019 (7 mos.)

Developed algorithms for time series and tag analysis [p], and contributed to the project Correlations [p].
Maintained high-impact production Python codebase and automated test pipeline.

Kelda Drilling Controls [i] — Porsgrunn, Norway
Software Engineer Intern — 2018 – 2019 (8 mos.)

Contributed with new features to the project Bivrost [q].

4. Talks

44th edition of the Journée ISS France [j] — Online
Deep learning for automated segmentation of tomographic images — Feb. 2021
→ Link to my slides

Seminar at the Center for Mathematical Morphology (CMM) [k] — Online
MINES ParisTech – PSL University — Jan. 2021
Fiber composite 3D segmentation with neural networks
→ Link to my slides

5. Publications

[1] J. P. C. Bertoldo, E. Decencière, D. Ryckelynck, and H. Proudhon, "A modular U-Net for automated segmentation of X-ray tomography images in composite materials," work in progress.

6. Mentoring

Yasser Ghellab, Research Intern [l] — Paris, France
MINES ParisTech – PSL University — March – April 2021 (2 mos.)

Automation for X-ray tomography image segmentation

7. Teaching

Computer vision and machine learning for the material scientist (CVML2021) [m] — Paris, France
Member of the teaching team — 2021 (1 week)

Lectured about convolutional neural networks applied to semantic segmentation of composite material tomography.

→ *Link to my slides*

University of São Paulo (USP) [n] São Carlos, Brazil
Teaching assistant (part-time) 2015 (6 mos.)
Elaborated and conducted workshops on numerical analysis using MATLAB.

8. Projects

tomo2seg [o] since Sep. 2020 [f,e]
Developed an X-ray tomography (XCT) semantic segmentation tool using 2D and 3D U-Nets.
Applied it during an experiment at the Soleil Synchrotron, France.
Data, models, and a complementary tutorial (WIP) are publicly available.
→ Link to tomo2seg on GitHub

Correlations [p] 2019 (7 mos.) [h]
Contributed to build *Correlations*: an automated debug tool for complex infrastructures capable of finding correlated accidents in time series.
→ Link to Correlations on Datadog's website

Bivrost [q] 2018 – 2019 (8 mos.) [i]
Maintained and implemented new features in *Bivrost*: a web application for high-resolution time series visualization used for drilling systems monitoring.
Designed and implemented a time series annotation tool for supervised machine learning.
→ Link to Bivrost's page on Kelda Drilling Controls's website

Min'light: sunlight simulator [r] 2017 – 2018 (9 mos.) [b]
A robotic cable-controlled sunlight physical simulator.
Led the project for 6 mos., and developed a 3D motion digital twin in Python.
→ Link to *minlight* on GitHub

9. Skills

Languages

English Fluent.
Obtained TOEFL 117/120 (2020). Worked in English-speaking companies (1 yr.) [h,i].

French Fluent
Read subjects in French (3 yrs.) [a,b,c]. Worked in French organizations (1 year) [e,f,g]. Lectured in French [j,k,m].

Portuguese Native

Turkish Beginner

Programming and computer skills

Python Fluent
Machine/Deep learning Keras/TensorFlow [o], Scikit-learn
Data analysis Numpy, Scipy, Pandas, IPython, Matplotlib, Seaborn
Miscellaneous Anaconda, virtualenv, nose, unittests, Streamlit, Jupyter Lab/Notebook

Other programming languages MATLAB [n], JavaScript [i], C/C++ (basics)

Databases PostgresSQL [b], MongoDB [i], InfluxDB [i]

Miscellaneous Git, Linux, Bash/Zsh, SSH, Weka, LaTeX, Zotero, Pycharm, VSCode

Tomography Fiji (ImageJ), Avizo

10. Interests

Academic

Deep learning

Computer Vision, AI applied to the Sciences and Art, 3D X-ray tomography
Attention Is All You Need (Vaswani et al., 2017)
The Lottery Ticket Hypothesis (Frankle and Carbin, 2019)

Newsletters Papers with Code, DeepAI, The Variable, The Batch (DeepLearning.AI)

Miscellaneous Papers *without* Code, Towards Data Science, Distill

Personal

Travel & international environments Have been in 18 countries.

Skydiving Member of a skydiving association (ASPU)

Podcasts

(PT) Cafe da manhã, Foro de Teresina
(EN) Do you really know?, Impact
(FR) Les couilles sur la table, Maintenant vous savez, Le moment Meurice, Le monde devant soi

Channels Two Minute Papers, 3Blue1Brown, Vox, The Economist, Porta dos Fundos, Choque de Cultura