



João P C Bertoldo

26, Brazilian

[Online CV](#) | [One-page CV](#)

[joaopcbertoldo.github.io](https://github.com/joaopcbertoldo)

April, 2021

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CURRICULUM VITAE

SUMMARY

Education

Double degree MSc. in artificial intelligence [a]

Double degree MSc. in engineering [b,d]

Work (others)

2 years of experience as Software Engineer [i,j], Data Scientist [h,j], and Teaching Assistant [l].

Experience in software development with diverse technologies.

Research

1 year of experience [f,g]

Currently working as research engineer [e].

Projects, Skills, etc

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

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

1. EDUCATION

Paris-Dauphine – PSL University ^(a)

MSc. in Artificial Intelligence, Systems, Data (IASD)

Paris, France

2019 – 2020

Double degree with [b]

Subjects: Machine Learning, Deep Learning, Optimization, Image Analysis

MINES ParisTech – PSL University ^(b)

MSc. in Executive Engineering – Minor: Data Science

Paris, France

2017 – 2020

Double degree with [d]

Subjects: Software Engineering, Databases, Probability, Statistics, Operations Research

ENSIAME – INSA Hauts-de-France ^(c)

Mechatronics Engineering

Valenciennes, France

2015 – 2016

1-year scholarship for an international academic exchange programme

University of São Paulo (USP) ^(d)

Mechatronics Engineering

São Carlos, Brazil

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)

MINES ParisTech – PSL University

Research Engineer

Grenoble, France

Paris, France

since March 2021

Working on X-ray diffraction tomography (DCT) semantic segmentation.

MINES ParisTech – PSL University ^(f)

Research Intern

Paris, France

2020 – 2021 (6 mos.)

Worked on semantic segmentation with deep learning (2D and 3D U-Nets) applied to X-ray tomography (XCT).

Published the code [o], data [1], and models [2].

Presented results in two seminars [m,n], and lectured in a week-course [k].

Mindsay ^(g) Paris, France
 Research Intern 2020 (5 mos.)
Evaluated explainability methods layperson-maintained Natural Language Processing (NLP) classification models.
References: LIME (Ribeiro et al., 2016), SHAP (Ribeiro et al., 2018), Anchors (Lundberg et al., 2017)
 → Links to: [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 [q], and contributed to a knowledge graph project.
Maintained high-impact production Python codebase and optimized an automated test pipeline.

Kelda Drilling Controls ⁽ⁱ⁾ Porsgrunn, Norway
 Software Engineer Intern 2018 – 2019 (8 mos.)
Designed a web application for time series supervised annotation [r].

Stone Co. ^(j) Rio de Janeiro, Brazil
 Backend Developer / Data Scientist Intern 2017 – 2018 (3 mos. / 2 mos.)
Developed a .NET web Rest API for a MongoDB and lectured about Design Patterns.
Explored transactional data to predict churn risk with decision trees-based methods.

4. TEACHING

Computer vision and machine learning for the material scientist (CVML2021) ^(k) Paris, France
 Member of the teaching team 2021 (1 week)
Lectured about convolutional neural networks applied to semantic segmentation of composite material tomography.
Assisted students during practical sessions.
 → [Link to my slides](#)

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

5. TALKS

44th edition of the Journée ISS France ^(m) Online
 Deep learning for automated segmentation of tomographic images Feb. 2021
 → [Link to my slides](#)

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

6. PROJECTS

tomo2seg ^(o) since Sep. 2020 [f,e]
 Developed an X-ray tomography (XCT) semantic segmentation tool using U-Nets.
 Applied it during an experiment at the [Soleil Synchrotron](#), France.
[Data](#) [1], [models](#) [2], and a complementary [tutorial](#) (WIP) are publicly available.
 → [Link to tomo2seg on GitHub](#)

pymdr ^(p) 2020 (1 mo.) [a]
 Python implementation of *Mining Data Records* (Liu et al., 2003)

→ [Link to pymdr on GitHub](#)

Correlations ^(q)

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 ^(r)

2018 – 2019 (8 mos.) [i]

Maintained and implemented new features in *Bivrost*: a web application for high-resolution time series visualization used for real-time drilling systems monitoring.

Designed an integrated time series annotation tool for supervised machine learning.

→ [Link to Bivrost's page on Kelda Drilling Controls's website](#)

Min'light: sunlight simulator ^(s)

2017 – 2018 (9 mos.) [b]

Led a project for 6 mos. to build a robotic cable-controlled sunlight physical simulator.

Developed a 3D motion digital twin in Python.

→ [Link to minlight on GitHub](#)

MKafeina: web-controlled coffee machine ^(t)

2016 (4 mos.) [d]

Designed a coffee machine controlled over the internet.

Developed a web server in .NET (C#) and an Arduino controller (C++).

→ [Link to mkafeina on GitHub](#)

7. SKILLS

Languages

English Fluent

Obtained TOEFL 117/120 (2020) and worked in English-speaking companies for more than 1 year [h,i].

Wrote Master's end-of-studies internship report in English [g].

French Fluent

Read subjects in French for 3 years [a,b,c] and worked in French organizations for 1 year [e,f,g].

Lectured in French [m,n,k].

Portuguese Native

Turkish Beginner

Programming

Python Fluent

Data processing/viz. Numpy, Scipy, Pandas, IPython, Matplotlib, Seaborn

Machine/Deep learning Keras/TensorFlow [o], Scikit-learn [j]

Prototyping Streamlit [g], Jupyter Lab/Notebook [f,g,h]

Miscellaneous Anaconda, virtualenv, nose, unittests

Other programming languages

MATLAB [l], JavaScript (React, Redux) [i], C/C++ (basics) [d,t], Java (basics) [b]

Databases

PostgreSQL [b,j], MongoDB [i,j], InfluxDB [i]

Computer skills

IDEs Pycharm, Visual Studio Code (VSCode)

Tomography ImageJ (Fiji), Avizo

Miscellaneous Git, Linux, Bash/Zsh, SSH, Markdown, Weka

Content creation/management

LaTeX Fluent.

Wrote Master's end-of-studies internship report with LaTeX [g].

Google Suite (Docs, Slides, Sheets)

Presentations prepared with Google Slides: [k], [m], [n], [g].

Zotero Extensively using for more than 1 year.

8. INTERESTS

Academic

Deep learning

Attention Is All You Need (Vaswani et al., 2017)

The Lottery Ticket Hypothesis (Frankle and Carbin, 2019)

Computer Vision, AI applied to the Sciences and Art, 3D X-ray tomography

Newsletters

[Papers with Code](#), [DeepAI](#), [The Variable](#), [The Batch](#) (DeepLearning.AI)

Miscellaneous

[Papers with Code](#), [Papers without Code](#), [Distill](#), [Towards Data Science](#)

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) [Maintenant vous savez](#), [Débat du jour](#), [Le moment Meurice](#), [Le monde devant soi](#), [Les couilles sur la table](#), [Madame meuf](#), [Programme B](#)

Youtube channels

[Two Minute Papers](#), [3Blue1Brown](#), [Vox](#), [The Economist](#), [Porta dos Fundos](#), [Choque de Cultura](#)

PUBLICATIONS

- [1] J. Bertoldo, E. Decenci re, D. Ryckelynck, and H. Proudhon, *Glass fiber-reinforced polyamide 66 3D X-ray computed tomography dataset for deep learning segmentation*, eng, Mar. 2021. DOI: [10.5281/zenodo.4587827](https://doi.org/10.5281/zenodo.4587827).
- [2] J. Bertoldo, E. Decenci re, D. Ryckelynck, and H. Proudhon, *Glass fiber-reinforced polyamide 66 3D X-ray computed tomography segmentation segmentation U-Nets*, eng, Mar. 2021. DOI: [10.5281/zenodo.4601560](https://doi.org/10.5281/zenodo.4601560).



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March, 2021
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References

MINES PARISTECH - PSL UNIVERSITY

Subject: 3D tomography image segmentation with convolutional neural networks.

Address: 60 Boulevard Saint-Michel, 75272 Paris, France.

Period: 2020 – 2021.

Henry Proudhon, CNRS Researcher

Phone: (+33) 01 60 76 30 70

E-mail: henry.proudhon@mines-paristech.fr

Address: Materials Center, 63 Rue Henri Auguste Desbruères, 91000 Corbeil-Essonnes, France.

Etienne Decenciere Ferrandiere, Senior Researcher

Phone: (+33) 01 64 69 48 09

E-mail: etienne.decenciere_ferrandiere@mines-paristech.fr

Address: Center for Mathematical Morphology, 35 rue Saint-Honoré, 77305 Fontainebleau CEDEX, France.

MINDSAY

Subject: explainability methods (Lime, SHAP, Anchor) applied to NLP classification models.

Address: 18 Rue du 4 septembre, 75002 Paris, France.

Period: 2020.

Dimitri Lozeve, Data Scientist

Phone: (+33) 06 14 24 68 24

E-mail: dimitri@lozeve.com

Mathieu Seris, R&D Software Engineer

Phone: (+33) 06 37 18 06 63

E-mail: mathieu.seris@gmail.com

DATADOG

Subject: time series, tag analysis, Correlations project, knowledge graph project.

Address: 620 8th Ave, New York, NY 10018, USA.

Period: 2019.

Stephen Kappel, Lead Data Scientist

E-mail: stephen@datadoghq.com

Jonathan Lenaghan, Director Of Engineering

E-mail: jonathan.lenaghan@datadoghq.com

KELDA DRILLING CONTROLS

Subject: Bivrost project, full stack web development, time series annotations for machine learning.

Address: Hydrovegen 6, 3912 Porsgrunn, Norway.

Period: 2018 – 2019.

Geir Arne Evjen, Leading Expert at Kelda

Phone: (+47) 906 01 558

E-mail: gevj@kelda.no

Glenn-Ole Kaasa, CEO at Kelda

Phone: (+47) 913 04 775

E-mail: gok@kelda.no



CMM

Centre de Morphologie Mathématique

13 January 2021

Letter of reference for João P C Bertoldo

To whom it may concern,

I met M. Bertoldo in January 2020, when he enrolled in the course “deep learning for image analysis” I teach in the master’s program “Artificial Intelligence, Systems, Data,” a highly selective Parisian master’s degree. He obtained a final score of 33.5/40, ranking among the best students.

From September 2020 until now, I have been co-supervising his final year project, which should end in March. João is working on the automatic segmentation of 3D tomography images. He has already obtained excellent results from the application point of view. In the process, he has suggested several original ideas, and implemented them efficiently – he is proficient in Python. His deep learning skills are already very good, and he is also open to other disciplines. He plans, for instance, to combine deep learning with mathematical morphology to improve his current results. He has a researcher’s attitude: he aims at fully understanding what is going on, remaining critical about his work.

Last but not least, João is also motivated and enthusiastic, and his communication skills are excellent. He has a wonderful rapport with people.

In conclusion, I highly recommend M. João P C Bertoldo for a Ph.D. position in image analysis or deep learning.

A handwritten signature in blue ink, consisting of a stylized 'E' and 'D' intertwined.

Etienne Decencière
Directeur de recherche / Research
Director



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CNRS research director
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January 18, 2021

Recommendation of Mr. João P. C. Bertoldo

To whom it may concern:

I'm writing this letter to support the application of Mr. Bertoldo. I am a CNRS researcher in Centre des Matériaux MINES Paristech developing new multimodal X-ray-based characterizations for structural materials. I'm leading the BIGMECA chair, a research initiative between MINES ParisTech and Safran to develop AI-based methods in Mechanics of Materials, notably using X-ray images of microstructure and defects. It is in this framework that I proposed Mr. Bertoldo to work on *deep learning for automated segmentation of tomographic images*, and he started in late September 2020.

João was very dedicated to his work and achieved publication-ready results in just three months. During this time, he proved to already be an autonomous thinker and managed his project on his own, asking for guidance whenever needed. I also wanted to mention the excellent programming skills of Mr. Bertoldo; he seems to be able to take down any problem thrown at him. João rank within the top 3% of the students I had to supervise; if I had the funding to propose a Ph.D. thesis to João in his field, it would do it immediately.

João has been a great asset to my group; I did not hesitate to propose to João to contribute to the doctoral course *Computer vision and machine learning for the material scientist*¹, and he accepted enthusiastically.

I very strongly recommend the application of Mr. Bertoldo for a Ph.D. position in data science. Do not hesitate to contact me for further information.

Sincerely,
Henry Proudhon

A handwritten signature in black ink, appearing to read "HProudhon", with a long horizontal stroke underneath.

¹http://dms.mat.mines-paristech.fr/Donnees/data05/503-CVML_new_2021.pdf

September 6, 2019

Re: Letter of Recommendation for João Paulo Casagrande Bertoldo

To whom it may concern:

I was João's manager when he worked as a Data Science Intern at Datadog in New York City from February 2, 2019 through September 6, 2019.

At Datadog, most of João's time was spent helping our team build a new feature that we announced in July and started rolling out to customers in August. Therefore, in addition to exploring data and developing data-based algorithms to support the feature, João also contributed by writing a significant amount of production code and troubleshooting/optimizing issues in our production systems.

João brings a healthy curiosity and restlessness to the problems he works on. He consistently raises ideas for incremental improvements and alternative approaches to the solutions he is implementing. When working with more senior members of our team, he always interrogates their proposals, making sure he has a strong understanding of the rationale for decisions made.

João is comfortable collaborating with whomever he needs to in order to get his job done. He reaches out to engineers both on the same team and on other teams, as appropriate. João is happy to share/present his work with the team to gather ideas and make sure everyone is on the same page.

I was very impressed with João's commitment to personal development. He voluntarily joined with a teammate in taking a course on our learning platform, and he consistently asked for feedback from myself. Most importantly, João listens carefully to feedback and seems intent on acting on it to grow. Needless to say, this is a very valuable trait for any engineer, especially at the beginning of his career.

Sincerely,

A handwritten signature in cursive script that reads "Stephen Kappel". The ink is dark and the signature is fluid, with a large 'S' and a stylized 'K'.

Stephen Kappel
Team Lead, Data Science
Datadog