



Paris, May 2021

Recommendation Letter

To whom it may concern,

I, the undersigned, David Ryckelynck, professor of mechanics at Mines ParisTech PSL, certify that João Paulo Casagrande Bertoldo is an excellent scientific engineer. He has all the aptitudes to do research in order to prepare a PhD in deep learning, in particular in the field of artificial intelligence for science or engineering.

He was my student at the Digital Engineering of Complex Systems (IDSC) minor at Mines ParisTech PSL, of which I am in charge, during the year 2019-2020 and worked with me as an intern from September 2020 until March 2021 at the Bigméca chair, of which I am co-holder. Having obtained excellent results during the internship, he was given a position as a research engineer in continuity of his internship.

João wishes to pursue a research career in deep learning and I strongly encourage him to do so. He followed the IDSC option and completed a master's degree in artificial intelligence in parallel to the last year at Mines ParisTech PSL. Having also completed a research internship in deep learning, I am convinced that he is qualified to pursue a thesis in this field.

I therefore recommend him for a Ph.D. Position in data science and particularly in deep learning.

Yours sincerely,

A handwritten signature in black ink, appearing to read "David Ryckelynck", with a stylized flourish at the end.

David Ryckelynck

Professor at Mines ParisTech PSL



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



Henry Proudhon
CNRS research director
Centre des Matériaux, MINES ParisTech
63-65 rue Henri desbruères, BP 87
F-91003 EVRY Cedex, France
henry.proudhon@mines-paristech.fr

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 line extending from the bottom right.

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