

Carlos Lassance

Ph.D. student “Graphs for Deep Learning Latent Representations”

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Professional Experiences

- 10/2017- **Ph.D. Graphs for Deep Learning Latent Representations**, *IMT Atlantique - BrAIn*, Brest.
- 10/2020 Ph.D. program in the intersection of Graph Signal Processing (GSP) and Machine Learning. During this three years period, I've interned at the Mila research lab in Montreal for one year and was a visiting scholar at the universities of South California (USA), Rochester (USA) and Adelaide (Australia).
- 01/2017- **Internship**, *PUC-Rio - Learn*, Rio de Janeiro.
- 07/2017 Development of an asset allocation robot as a micro-service using Flask, deployed via Amazon cloud and integrated with Amazon Redshift database for BTG Pactual (Brazilian Investment Bank)
- 10/2015- **Research Engineer**, *IMT Atlantique - Neucod*, Brest.
- 09/2016 Development of clique-based associative memories in CUDA and of Deep Neural Networks (DNNs) for handwritten digit identification with Theano
- 03/2015- **Internship**, *Centrale-Supelec - Inria - CIDRE*, Rennes.
- 09/2015 Development of a proof-of-concept Android application and driver for NFC identification with distance bounding protocols for defense against man-in-the-middle NFC attacks
- 08/2011- **Internship**, *PUC-Rio - Labbio/BioBD*, PUC-Rio.
- 08/2013, Development of a Java program to migrate an insurance database to a new schema and DBMS. Development of
- 10/2016- PHP websites for: (i) the administration of a summer camp; (ii) Administration of social programs; (iii) university
- 10/2017 course registrations; (iv) dashboard for a twitter crawler; (v) dashboard for the university's private bus.

Teaching Experiences

- IMT- 27.5 hours of teaching for the Algorithmics and Discrete Mathematics course, 21 hours of teaching for the
- Atlantique Artificial Intelligence course and 7.5 hours of teaching for the Deep Learning course.
- Mooc Creation of jupyter notebook exercises for the Advanced Algorithmics and Graph Theory with Python
- course on edX (<https://www.edx.org/course/advanced-algorithmics-and-graph-theory-with-python>)
- PUC-Rio Teaching assistant for the databases course for 5 semesters, creation of 3 tutorials for the the Machine
- Learning course and worked on the creation of *Pandas* exercises for the Applied Computing course

Ph.D. Graphs for Deep Learning Latent Representations

- Goal Better understand the intermediate representations of DNNs and use that knowledge to improve them.
- Most relevant projects
 - Matching CNN without priors about data (IEEE DSW2018 arxiv.org/pdf/1802.09802);
 - Increasing the robustness of DNNs (Colaboration with USC. Archival only: arxiv.org/abs/1805.10133);
 - Evaluating robustness of DNNs (Colaboration with Mila and USC. IEEE DSW2019 arxiv.org/abs/1909.05095);
 - Improving visual based localization with graphs (Colaboration University of Adelaide. Submitted to ICRA2020);
 - Neural network compression with graph distillation (Colaboration with Mila and USC, Submitted to ICASSP2020).

Formation

- 2017-2020 **Ph.D.**, *IMT Atlantique (Télécom Bretagne)*, Brest, Title: Graphs for Deep Learning Latent Representations.
- 2010-2017 **BSc/MEng in Computer Engineering**, *PUC-Rio/Télécom Bretagne*, Double degree.
- 2014-2015 **MSc in Informatics**, *Télécom Bretagne*, Track: Mobile and Communicating Object-Based Systems.

Technical and Linguistic Skills

- Programming • Python • SQL • Git • Java • PHP • C
- Frameworks • Pytorch • Pandas • Numpy • scikit-learn • TensorFlow • Flask
- Languages • Portuguese: Native • English: Fluent • French: Fluent

Interests

- Informatics Artificial Intelligence, neural networks and Graph Signal Processing (GSP).
- Others Soccer, Basketball, Video-games