Ricardo Pereira de Magalhães Cruz
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- For the last five years, I have been working as a machine learning researcher at INESC TEC. I have just finished my Ph.D. thesis which I will defend very soon. Meanwhile, I have also been working at FEUP as a teacher assistant (TA): teaching Python and C++.

- As a machine learning researcher, I have worked mostly on deep learning applied to computer vision, using both TensorFlow and PyTorch. In the past, I have participated in many open-source projects and also did much freelance work: on web development (flask), databases (mongo, postgres), multimedia (sdl, gtk, qt), server administration (hpc) and others.

- In terms of education, I am about to finish my Ph.D. in computer science. I have a masters in applied mathematics and a bachelors in computer science.

⊟ Education

- (2021) **PhD in Computer Science (currently waiting for the defense!)**
  co-joint University of Porto, Minho and Aveiro
- 2015 **MSc in Applied Mathematics** (grade=18/20)
  Faculty of Sciences, University of Porto
- 2012 **BSc in Computer Science** (grade=16/20)
  Faculty of Sciences, University of Porto

⊟ Career

- 2018–2021 **Teacher Assistant (Python and C/C++)**
  Faculty of Engineering, University of Porto
- 2016–2020 **PhD Grant (deep learning and computer vision)**
  INESC TEC
- 2015 **Research Grant (machine learning)**
  INESC TEC
- 2014 **Research Grant (epidemiology modelling)**
  Mathematics Center of the University of Porto
- 2007 **Google Grant: Summer of Code (dynamic layouts)**
  OpenOffice.org
- 2006 **Google Grant: Summer of Code (YaST GTK port)**
  Novell / openSUSE

I have also done soma freelance work through the years; with emphasis on travel destinations search algorithms (Flykt) and I do regular consulting work for a geography team. See my github for my open-source projects: https://github.com/rpmcruz.

⊟ Awards

- 2021 **INESC TEC: Nominated researcher extraordinaire**
  https://bip.inesctec.pt/en/especiaisdecorrida/ricardo-cruz-ctm-2/
- 2021 **FEUP: Pedagogical Recognition Award**
  https://bip.inesctec.pt/en/noticias/feup-acknowledges-19-inesc-tec-researchers-on-feups-day/
- 2021 **FEUP: Sustainable Ideas Award**
- 2020 **Best Oral Presentation at RECPAD 2020 conference**
- 2018 **INESC TEC: Nominated for researcher limelight**
  http://bip-archive.inesctec.pt/en/196/fora-de-serie.html

☐ Publications

- 2021 **Active Supervision: Human in the Loop [submitted]**
  R. Cruz, ASM Shihavuddin, J. Cardoso
  ICANN

- 2021 **Ordinal Losses for Classification of Cervical Cancer Risk [accepted]**
  T. Albuquerque, R. Cruz, J. Cardoso
  PeerJ Computer Science

- 2021 **Background Invariance by Adversarial Learning [accepted]**
  R. Cruz, R. Prates, E. Filho, J. Costa, J. Cardoso
  25th International Conference on Pattern Recognition (ICPR), IEEE

- 2019 **Automatic Augmentation by Hill Climbing**
  R. Cruz, J. Costa, J. Cardoso
  28th International Conference on Artificial Neural Networks (ICANN), Springer
  https://link.springer.com/chapter/10.1007/978-3-030-30484-3_10

- 2019 **Averse Deep Semantic Segmentation**
  R. Cruz, J. Costa, J. Cardoso
  41st Engineering in Medicine and Biology Conference (EMBC), IEEE
  https://ieeexplore.ieee.org/abstract/document/8857385

- 2019 **Insulator visual non-conformity detection in overhead power distribution lines using deep learning**
  R. Prates, R. Cruz, A. Marotta, R. Ramos, E. Filho, J. Cardoso
  Journal Computers & Electrical Engineering, Springer
  https://www.sciencedirect.com/science/article/pii/S004579061930967X?dgcid=coauthor

- 2018 **A Class Imbalance Ordinal Method for Alzheimer's Disease Classification**
  R. Cruz, M. Silveira, J. Cardoso
  2018 International Workshop on Pattern Recognition in Neuroimaging (PRNI), IEEE
  https://ieeexplore.ieee.org/abstract/document/8423960/

- 2018 **Binary ranking for ordinal class imbalance**
  R. Cruz, K. Fernandes, J. Costa, M. Pérez Ortiz, J. Cardoso
  Journal Pattern Analysis and Applications, Springer
  https://link.springer.com/epdf/10.1007/s10044-018-0705-4?author_access_token=p2L5jwabAzmA-hENM_mugfe4RwlQNchNByi7wbcMAY42mOH72RPQeb098_tyy79R09eJLVa1A5i0Fl8_sgW1ks0WseTTuEtHZyi1eB8zBX3Z7vgZBxHJZ3x26EzyODMrDn4oUkmT-3D%3D

- 2018 **Deep image segmentation by quality inference**
  K. Fernandes, R. Cruz, J. Cardoso
  International Joint Conference on Neural Networks (IJCNN), IEEE
  https://ieeexplore.ieee.org/abstract/document/8489696/

- 2017 **Constraining type II error: building intentionally biased classifiers**
  R. Cruz, K. Fernandes, J. Costa, J. Cardoso
  International Work-conference on Artificial Neural Networks (IWANN), Springer
  https://link.springer.com/chapter/10.1007/978-3-319-59147-6_47

- 2017 **Fine-to-coarse ranking in ordinal and imbalanced domains: an application to liver transplantation**
  M. Pérez-Ortiz, K. Fernandes, R. Cruz, J. Cardoso
  International Work-conference on Artificial Neural Networks (IWANN), Springer
  https://link.springer.com/chapter/10.1007/978-3-319-59147-6_45

- 2017 **Combining ranking with traditional methods for ordinal class imbalance**
  R. Cruz, K. Fernandes, J. Costa, M. Pérez-Ortiz, J. Cardoso
  International Work-conference on Artificial Neural Networks (IWANN), Springer
  https://link.springer.com/chapter/10.1007/978-3-319-59147-6_46

- 2017 **Ordinal class imbalance with ranking**
  R. Cruz, K. Fernandes, J. Costa, M. Pérez-Ortiz, J. Cardoso
  Iberian conference on pattern recognition and image analysis (Ibpria), Springer
  https://link.springer.com/chapter/10.1007/978-3-319-58838-4_1

- 2016 **Tackling class imbalance with ranking**
  R. Cruz, K. Fernandes, J. Costa, J. Cardoso
  International Joint Conference on Neural Networks (IJCNN), IEEE
  http://ieeexplore.ieee.org/abstract/document/7727469/