



## Ricardo Pereira de Magalhães Cruz

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My PhD topic is on using deep learning for computer vision. I use TensorFlow and PyTorch, and I have several fundamental publications on the area. I have been teacher assistant at FEUP, teaching Python, C and C++. I have participated in several projects working on web development (flask), databases (mongo, postgres), multimedia (sdl, gtk, qt) and others.

### [-] Education

- (2021) PhD in Computer Science (currently waiting for 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

### [-] Other related work

- 2018-2020 Consulting for a geography team at FLUP  
In total, I have done seven scraping and automation jobs.
- 2018-2019 Mentor at Coursera  
Andrew Ng's course on Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
- 2014 Consulting at Flykt  
Search algorithms for travel destinations.

### [-] Awards

- 2020 Best Oral Presentation: Training Convolutional Neural Networks to be Background Invariant  
RECPAD 2020 conference
- 2021 Pedagogical Recognition Award  
Faculty of Engineering, University of Porto
- 2021 Sustainable Ideas  
Faculty of Engineering, University of Porto

## ☐ Publications

- **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
- **2019** Averse Deep Semantic Segmentation  
R. Cruz, J. Costa, J. Cardoso  
41st Engineering in Medicine and Biology Conference (EMBC), IEEE
- **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
- **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
- **2018** Binary ranking for ordinal class imbalance  
R. Cruz, K. Fernandes, J. Costa, M. Pérez Ortiz, J. Cardoso  
Journal Pattern Analysis and Applications, Springer
- **2018** Deep image segmentation by quality inference  
K. Fernandes, R. Cruz, J. Cardoso  
International Joint Conference on Neural Networks (IJCNN), IEEE
- **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
- **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
- **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
- **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
- **2016** Tackling class imbalance with ranking  
R. Cruz, K. Fernandes, J. Costa, J. Cardoso  
International Joint Conference on Neural Networks (IJCNN), IEEE

Recommendation contacts will be provided if requested.