Pedro Morgado

Curriculum Vitae

✉ *pmorgado@andrew.cmu.edu*
https://pedro-morgado.github.io

Research Interests

Computer Vision & Deep Learning.

Multi-modal understanding.

Data and label efficient learning (self-supervised, zero-shot and low-shot learning).

Education

2015–2021 **PhD, Electrical and Computer Eng.**, *University of California*, San Diego.
Advisor: Prof. Nuno Vasconcelos.
Thesis: *"Learning to see and hear without human supervision."*

2011–2012 **MSc, Electrical and Computer Eng.**, *Instituto Superior Técnico*, Lisbon, Portugal.
Advisors: Prof. Margarida Silveira & Prof. Jorge S. Marques
Thesis: *"Automated Diagnosis of Alzheimer's Disease using PET Images."*

2008–2011 **BSc, Electrical and Computer Eng.**, *Instituto Superior Técnico*, Lisbon, Portugal.

2007–2008 **Aerospace Eng.**, *Instituto Superior Técnico*, Lisbon, Portugal.

Work Experience

2021–Now **Postdoctoral Fellow, Robotics Institute**, *Carnegie Mellon University*, Pittsburgh.
Advisor: Abhinav Gupta.

2015–2021 **Research Assistant, Statistical Visual Computing Lab (SVCL)**, *Dept. Electrical and Computer Engineering, University of California*, San Diego.
- Multi-modal self-supervision.
- Transfer learning, few-shot and zero-shot learning.
- Scalable image retrieval.
- Image semantics for zero-shot learning (boosting and CNN architectures).

Summer 2019 **Research Intern, Facebook AI Research**, New York, NY.
- Audio-visual correspondence as a source of self-supervision for visual representation learning.

Summer 2017 **Research Intern, Adobe Research**, Seattle, WA.
- Spatial audio generation conditioned on 360 video.

2012–2014 **Research Assistant, Signal and Image Processing Group (SIPG)**, *Institute for Systems and Robotics*, Lisbon, Portugal.
- Longitudinal co-registration of multiple imaging modalities.
- Feature extraction and selection for Alzheirmer's disease (AD) diagnosis.
- Classification of AD, Mild Cognitive Impairment (MCI), and MCI to AD conversion.

Refereed Conference & Journal Publications

2021 Robust Audio-Visual Instance Discrimination.
P Morgado, I Misra, N Vasconcelos.
Conference on Computer Vision and Pattern Recognition (CVPR), 2021.
Selected for oral presentation.

Audio-Visual Instance Discrimination with Cross-Modal Agreement.
P Morgado, N Vasconcelos, I Misra.
Conference on Computer Vision and Pattern Recognition (CVPR), 2021.
Best paper award candidate.

2020 Learning Representations from Audio-Visual Spatial Alignment.
P Morgado, Y Li, N Vasconcelos.
Neural Information Processing Systems (NeurIPS), 2020.

Deep Hashing with Hash-Consistent Large Margin Proxy Embeddings.
P Morgado, Y Li, JC Pereira, M Saberian, N Vasconcelos.
International Journal on Computer Vision (IJCV), 2020.

Solving Long-tailed Recognition with Deep Realistic Taxonomic Classifier.
TY Wu, **P Morgado**, P Wang, CH Ho, N Vasconcelos.
European Conference on Computer Vision (ECCV), 2020.

2019 NetTailor: Tuning the architecture, not just the weights.
P Morgado and N Vasconcelos.
Conference on Computer Vision and Pattern Recognition (CVPR), Long Beach, 2019.

PIEs: Pose Invariant Embeddings.
Chih-Hui Ho, **P Morgado** and N Vasconcelos.
Conference on Computer Vision and Pattern Recognition (CVPR), Long Beach, 2019.

2018 Self-Supervised Generation of Spatial Audio for 360 Video.
P Morgado, N Vasconcelos, T Langlois, O Wang.
Neural Information Processing Systems (NeurIPS), Montreal, 2018.

2017 Semantically Consistent Regularization for Zero-Shot Recognition.
P Morgado, and N Vasconcelos.
Conference on Computer Vision and Pattern Recognition (CVPR), 2017.

2016 Mining big data sets of plankton images: a zero-shot learning approach to retrieve labels without training data.
E Orenstein, **P Morgado**, E Peacock, H Sosik, and J Jaffe.
American Geophysical Union, Ocean Sciences Meeting, 2016.

2015 Minimal neighborhood redundancy maximal relevance: Application to the diagnosis of Alzheimer's disease.
P Morgado, and M Silveira.
Neurocomputing, 2015.

Predicting conversion from MCI to AD with FDG-PET brain images at different prodromal stages.
C Cabral, **P Morgado**, DC Costa, and M Silveira.
Computers in Biology and Medicine, 2015.

2013 Efficient selection of non-redundant features for the diagnosis of Alzheimer's disease.
P Morgado, M Silveira, and JS Marques
International Symposium on Biomedical Imaging (ISBI) 2013.
Selected for oral presentation

Texton-based diagnosis of Alzheimer's disease.
P Morgado, M Silveira, and DC Costa.
International Workshop on Machine Learning for Signal Processing (MLSP) 2013.

Diagnosis of Alzheimer's disease using 3D Local Binary Patterns.
P Morgado, M Silveira, and JS Marques.
Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, 2013.

Extending Local Binary Patterns to 3D for the diagnosis of Alzheimer's disease.
P Morgado, M Silveira, and JS Marques.
International Symposium on Biomedical Imaging (ISBI) 2013.

3D Texture Analysis using Local Binary Patterns.
P Morgado, M Silveira and JS Marques.
Portuguese Conference on Pattern Recognition (RecPad) 2013.

Invited Talks

Feb-Mar 2020 Learning to see and hear without human supervision.
@TTI-Chicago – @Virginia Tech – @University of Pittsburgh – @University of California, Merced – @University of Wisconsin, Madison – @University of Utah – @University of Illinois, Chicago

Jan 2020 Learning to see and hear from audio-visual co-occurrences.
@Pixel Cafe Seminar, UCSD

Jun 2018 Self-supervised spatial audio generation.
@Center for Visual Computing Retreat, UCSD

Teaching Experience

Spring 2019 **ECE 271C - Statistical Learning III**, *Teaching Assistant*, UCSD.
Winter 2019 **ECE 271B - Statistical Learning II**, *Teaching Assistant*, UCSD.
Spring 2016 **ECE 161C - Digital Signal Processing II**, *Teaching Assistant*, UCSD.

Awards and recognition

Reviewer recognition. Outstanding reviewer at ICCV'17. Top reviewer at NeurIPS'19. Top 10% reviewer at NeurIPS'20. Outstanding reviewer at CVPR'21.

2015 **FCT Graduate Fellowship (SFRH/BD/109135/2015)**. Four year fellowship for full-time doctoral studies awarded by the Portuguese Ministry of Sciences, Technology and Education.

2014 **UCSD Graduate Fellowship**, Electrical and Computer Eng. departmental fellowship for the academic year of 2014-2015.

2013 **Research Grant**, Portuguese Ministry of Sciences, Technology and Education.

2012 **Scientific Initiation Grant**, Portuguese Ministry of Sciences, Technology and Education.

Community service

Reviewing ICCV'17, ICCV'19, NeurIPS'19, ICASSP'20, CVPR'20, NeurIPS'20, CVPR'21, ICASSP'21, NeurIPS'21.

TPAMI, TBigData.

Mentoring Summer Research Internship Program 2018 & 2019 (Mentored 8 UCSD undergraduate and graduate students on research projects.)