Pedro Neto

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EDUCATION

FEUP - Faculty of Engineering, Porto, Portugal
PhD - Doctor of Philosophy, Eletrical and Computer Engineering , Present
Aalto University, Espoo, Finland
MSc - Master of Science, Computer Science, April 2020 Average: 4.24 out of 5
ISEP - Porto School of Engineering, Porto, Portugal
BSc - Bachelor of Science, Informatics Engineering , July 2018 Average: 17 out of 20

EXPERIENCE

Machine Learning Research Assistant — INESC TEC
Porto, Portugal — 10/2020-Present
- CADPath scholarship: Developing deep learning solutions to diagnose colorectal cancer from whole slide images.

Research Intern — Feedzai
Porto, Portugal — 07/2020-09/2020
- Integrated the TRAFFIC (TRAnsformers For Fraud IdentifiCation) project.
- **TensorFlow** and **Keras** implementation of **transformers** on financial fraud use cases.
- Goals ranging from good **metric performance, fast computations** and **autoregressive training**.

Machine Learning Research Assistant — Aalto University
Espoo, Finland — 09/2019-04/2020
- Implemented a **convolutional neural network** to classify prostate cancer clinical significant lesions with **0.87 AUC**.
- Implemented a **3D UNet** model to segment the prostate from **3D mpMRI** using **T2W** and **ADC** sequences, with **0.915 overlapping area**.
- Used a **3D ResNet-18** model to segment prostate cancer lesions. Publication.

Summer Machine Learning Intern — INESC TEC
Porto, Portugal — 07/2019-08/2019
- Implemented a **real-time face recognition system** using **Pytorch**, **Opencv** and a **customized dataset** to authorize staff into the lab building.

Summer Intern — Armis Group
Porto, Portugal — 06/2017-09/2017
- Developed the backend in **C#** and the **Swift** frontend of an **iOS** application to track in real-time Handball games results and scorers.

PROJECTS

Street semantic segmentation with Deep Learning:
- Developed a **U-Net** in **Pytorch** for **semantic segmentation** of streets to detect and segment vehicles, roads, sidewalks and people. Trained the network on the **BDD100K** dataset. Currently experimenting different architectures. Github

Deep Push up counter:
- Developed in **24 hours** a deep learning algorithm to count push ups from videos using **Keras** and **optical flow** for preprocessing. Github and Demo

Train a feature descriptor on a VGGFace 2 subset :
- Trained a **ResNet-50** feature descriptor for faces on **12%**, **20%** and **60%** of the VGGFace 2 dataset.
- Achieved **90%**, **92%** and **93%** accuracy on a **customized evaluation setup** in a **zero-shot learning** configuration using the **test set**. Github and Demo .

Universal Adversarial Perturbations:
- Implemented the **Universal Adeversarial Perturbations** paper for the **Advanced Topics in Deep Learning** special course with success. Github and Papers With Code

Popular Deep Neural Networks:
- **Pytorch** implementation of **Neural Network** architectures that became **SOTA at ImageNet**, or that introduced new ideas, that are now widely used. Github

RNA Folding with Deep Reinforcement Learning:
- **Pytorch** implementation of the **Reinforce** algorithm to predict the fold of the secundary structure of a **RNA** sequence.
- Comparison of **Monte Carlo** and **Temporal Difference** updates. Github

Uniquiz:
- Developed using **Go** a fully-featured **microservice based** social network.
- Built a **scalable microservice** to manage personalized news feed using **NoSQL Document** and **Key-Value databases** with messaging across 5 other microservices.
- Used ElasticSearch to search for user and quizzes in millions of samples in **less than 1 second**.