Giovanni Pagliarini

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Education

PhD in Computer Science and Mathematics

Ferrara, Italy

University of Parma

08/2020 – present

- Main topics: Interpretable Machine Learning (IML), Time Series Classification, Computer Vision, Pattern Recognition, Spatial Reasoning
- Side topics: Data Science, Efficient and Parallel Computing
- My main research project aims at the formalization of *spatial symbolic learning*, a novel theory for training effective and *interpretable* models for computer vision and spatial reasoning
- Carrying out different "sidequests" with new IML methods: COVID-19 diagnosis from cough/breath sounds; ECG/EEG signal interpretation; gas turbine trip prediction; land cover classification

Master Degree in Computer Science

Gothenburg, Sweden

University of Gothenburg

08/2018 – 06/2020

- ECTS: 120, Grade: G
- Main subjects: machine learning, bioinformatics, discrete optimization, logic, compilers
- Thesis: *Interactionwise – Semantic Awareness for Visual Relationship Detection*
- Exchange to the *National University of Singapore* (6 months)

Bachelor Degree in Computer Science

Ferrara, Italy

University of Ferrara

09/2015 – 07/2018

- ECTS: 186, Grade: 110/110 with honors
- Main subjects: algorithms, computability and complexity, parallel computing, computer architecture, operating systems
- Thesis: *Optimization of Lattice Boltzmann simulations for Intel Xeon Phi 'Knights Landing'*

Experience

Findwise AB

Gothenburg, Sweden

Machine Learning Developer – Master Thesis work

01/2020 – 06/2020

- Researched in the field of "Visual Relationship Detection", namely the detection of object-object interactions in images
- Improved an existing architecture by implementing my ideas for making the model "semantic-aware"
- Large use of machine learning techniques for computer vision and natural language processing (NLP)
- Carried out most of the work in remote, cross-border

University of Gothenburg

Gothenburg, Sweden

Teaching Assistant

01/2020 – 03/2020

- Been part of a the teaching team for an introductory course on Algorithms
- Graded home assignments
- Held an excercise session

University of Ferrara

Ferrara, Italy

Research Trainee – Bachelor Thesis work

09/2017 – 06/2018

- Optimized code for fluid dynamics simulations for highly parallel architectures
- Measured performance of different data layouts and memory access patterns

Mercato delle Terre Estensi

Ferrara, Italy

IT Technician

01/2016 – 08/2018

- Freelancer technician and developer for this local food cooperative
- Designed a website from scratch (pure HTML/CSS/Javascript)
- Built a web-based management/billing system

Programming skills

Low-level	C is my mother tongue; parallel computing with MPI, OpenMP, pthread, CUDA
Machine learning	Python (pytorch, computer vision, natural language processing, web scraping)
Functional	Julia, Haskell
Object-oriented	C++, Java, Python
OS & task automation	Linux programming, Unix shell
Full-stack	MySQL, PHP, Javascript
Other	LaTeX, Matlab, R, Go (basic knowledge), Linear programming

Relevant projects

Transparent COVID–19 Diagnosis from audio samples of breath and cough *University of Ferrara*
- Build a framework for interpretable/transparent classification of data with dimensional component, such as audio recordings, images, videos, ECG and EEG *2021*

Class Semantic Awareness (CAS) for neural networks –
- A personal project pursued in my spare time *2020*
- Improving the standard softmax-based classification framework for neural networks

Where's Waldo? – Finding characters in comics with non-deep object detection models *National University of Singapore*
- Project for the course 'Computer Vision and Pattern Recognition' *11/2019*
- Use of techniques such as mean shift, gaussian pyramid, data augmentation

Dimensionality reduction: a performance comparison of PCA, LDA and FJLT *National University of Singapore*
- Project for the course 'Algorithms at Scale' *10/2019*

Backosauro – A compiler for a Java-like language, written in Haskell *University of Gothenburg*
- Project for the course 'Compiler Construction' *05/2019*

EasyG – Classifying Electrocardiograms using deep learning *University of Gothenburg*
- Project for the course 'Introduction to Artificial Intelligence' *02/2019*

Languages

Italian Native speaker
English IELTS Academic score: 7.0

Personal interests

Learning Touch typing, ergonomics, codes, languages
Music Arrangement, Professional studies of jazz guitar and piano
Entertainment Video-editing, improv
Sport Climbing, Table tennis

Honors & Awards

2021 **Finalist,** Huawei Italy University Challenge
2021 **TV & news appearance,** Focus on a Research work I conducted on TV program "Oggi è un Altro Giorno"

Personal Data

In compliance with the GDPR and Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize the recipient of this document to use and process my personal details for the purpose of recruiting and selecting staff and I confirm to be informed of my rights in accordance to art. 7 of the above mentioned decree.