Giovanni Pagliarini

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Briefly

I have cultivated the passion for computer science since the age of 5. I have a training as a computer scientist acquired between universities in Italy, Sweden and Singapore. During my PhD, I am specializing in *Machine Learning*, participating to different projects, and acquiring a more comprehensive approach to design thinking. Recently, to give a broader sense to my profession, I have been approaching the world of green entrepreneurship.

Education

PhD in Computer Science and Mathematics
University of Parma, Italy
11/2020 – Present

- Topics: machine learning, computer vision, time series classification, data science, efficient and parallel computing
- My main research line aims at the formalization of modal symbolic learning, a novel methodology for obtaining *interpretable* intelligent models for computer vision and spatial/temporal pattern recognition
- I'm working on various projects for testing the effectiveness of new machine learning methods: COVID-19 diagnosis from cough/breath sounds; EEG signal interpretation; gas turbine trip prevention; land cover classification from satellite imagery; speech recognition

Master Degree in Computer Science
University of Gothenburg, Sweden
08/2018 – 06/2020

- ECTS: 120, Grade: G
- Topics: machine learning, computer vision, bioinformatics, discrete optimization, logic, compilers
- Thesis: *Interactionwise – Semantic Awareness for Visual Relationship Detection* 📄
- I enrolled into an student exchange program (6 months), which took me to the *National University of Singapore (NUS)*, where I deepened my knowledge on computer vision

Bachelor Degree in Computer Science
University of Ferrara, Italy
09/2015 – 07/2018

- ECTS: 180, Grade: 110/110 with honors
- Topics: algorithms, computability and complexity theory, parallel computing, computer architecture, operating systems
- Thesis: *Optimization of Lattice Boltzmann simulations for Intel Xeon Phi 'Knights Landing'*

Experience

Freelance Consultant
Ferrara, Italy
01/2021 – Present

- I am doing consulting, mostly on Artificial Intelligence topics
- I program some web scraping utilities and build datasets for research projects

Machine Learning Developer
Gothenburg, Sweden
Findwise AB
01/2020 – 06/2020

- I tackled a problem of detection of interactions between objects in digital images (*Visual Relationship Detection*)
- I made extensive use of machine learning techniques for computer vision and natural language processing (NLP)

Teaching Assistant
Ferrara, Italy & Gothenburg, Sweden
01/2020 – Present

- I held excercise sessions, prepared exercise documents, and graded home assignments
- Courses: *Algorithms I*, *Computability and Complexity*, *LaTeX Advanced*

Research Trainee
University of Ferrara, Italy
09/2017 – 06/2018

- I optimized a C code for fluid dynamics simulations, targeting highly-parallel architectures
- I measured performance of different data layouts and memory access patterns

IT Technician
Ferrara, Italy
Mercato delle Terre Estensi
01/2016 – 08/2018

- I built a website and a management/billing system in HTML, PHP, CSS and Javascript

Technical skills

Machine learning	pytorch, computer vision, natural language processing
OS & task automation	Linux programming, UNIX shell, data processing & cleaning
Functional	Haskell, *Julia*
Object-oriented	C++, Java, Python
Low-level	C (parallel computing with MPI, OpenMP, pthread, CUDA), LLVM
Other	LaTeX, TikZ, MySQL, PHP, Javascript, Web scraping, REST APIs, Matlab, R, Go, linear programming

Relevant projects

Sole.jl – Third Millennium Symbolic Learning in Julia 🕹
University of Ferrara
2022

The first framework for symbolic/interpretabile machine learning and modeling. Accepted at JuliaCon2023.

ModalDecisionTrees.jl – Novel Decision Trees in Julia 🕹 ▶
University of Ferrara
2021

Interpretable classification of data with dimensional components, such as audio recordings, images, videos, and EEG signals. Presented at JuliaCon2022.

Transparent COVID–19 diagnosis from audio samples of breath and cough 📄
University of Ferrara
2020

Modal decision trees allow the extraction of knowledge in *explicit* form, able to explain the relation between vocal patterns in cough/breath samples and the presence of COVID-19 in a human subject.

Pitòn - Rule extraction from MySQL databases 🕹
University of Ferrara
2020

Laravel Package (PHP) for training rule-based classification models from data stored in MySQL databases.

Class Semantic Awareness for neural networks 🕹
University of Gothenburg
2020

Attempt at improving the standard softmax-based classification framework for neural networks.

Dimensionality reduction: a performance comparison of PCA, LDA and FJLT 🕹 📄
National University of Singapore
2019

EasyG – Classifying Electrocardiograms using deep learning 🕹 📄
University of Gothenburg
2019

Honors & awards

2023   **Member**, it-ER Ambassador network

2022   **Winner**, Acceleration Programme @ MAGICA Summer School

       Participant, JuliaCon – Official Julia conference (online edition)

       Participant, Technological Contest @ 37th Italian Conference on Computational Logic (CILC)

2021   **Finalist**, Huawei Italy University Challenge

       Participant, Talents for Open Innovation

       TV & news appearance, Focus on a research work I conducted on TV program "Oggi è un Altro Giorno"

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

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.