CONTACT

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SALVATORE PETROLO

COMPUTER ENGINEER

ABOUT

I am a MSc Artificial Intelligence and Machine Learning Engineer. I am very determined and enthusiastic, I have developed good planning and organizational skills.
I'm confident working independently or as part of a team, I enjoy facing new challenges and developing my own solution for them. I'm resilient and very curious, I love learning new things, every day.

EDUCATION

Master's Degree: Artificial Intelligence and Machine Learning

Univeristy of Calabria, Arcavacata (CS) | *2020 - 2022*

Thesis: "Deep Anomaly Detection on ECGs for identifying arrythmias".

Degree Score: 110/110 with honors and academical mention.

Bachelor's Degree: Computer Engeneering

Univeristy of Calabria, Arcavacata (CS) | *2016 - 2020*

Thesis: "Object Oriented Data Language: a language for devoloping dynamic data collection web app".

Degree Score: 110/110 with honors.

Diploma: Technical Institute in Computer Science

IIS Vibo, Vibo Valentia (VV) | *2011 - 2016*

Degree Score: 100/100.

SOFT SKILLS

Problem Solving

Communication

Presentation

Self Starter

Leadership

Teamwork

Resilience

HARD SKILLS

Over time, I've been continuously increasing my knwoledge.

Programming Languages

- Assembly
- C
- C++
- Cuda C/C++
- C#
- Python
- Lisp
- Swift
- Java
- Php
- Javascript
- Typescript

Machine & Deep Learning Libraries

- NumPy
- Pandas
- Scikit-Learn
- SciPy
- OpenCV
- PIL
- TensorFlow
- Keras
- PyTorch
- TorchVision
- Matplotlib
- Seaborn

Operating Systems & Shells

- Linux
- Mac Os
- Windows
- Bash
- Zsh
- PowerShell

Cloud Services

- Microsoft Azure
- Google Cloud Platform
- Amazon Web Services

LANGUAGES

Italian: Native Speaker

Englig: IELTS B2

Mobile Software Development

- Android: Android Studio, Java
- iOS: Xcode, Swift

Big Data Management

- Apache Spark
- Apache Kafka
- Hadoop Map Reduce
- HDFS
- NFS
- MongoDB

Web Development

- JavaEE
- EJB
- JPA
- JSF & JSP
- Angular
- JBoss
- Apache Tomcat
- Hibernate
- PostgreSQL
- MySQL

Tools

- Nano
- Vim
- Visual Studio (Code)
- Intellij Idea
- PyCharm
- Codeready Studio
- Eclipse
- Xcode
- Android Studio
- Gradle
- Maven
- Git
- VMWare Fusion
- Virtual Box

CERTIFICATIONS

Cisco CCNA 1: Routing and Switching

Cisco IT Essential

IELTS B2

THESIS PROJECTS

Below is a brief description of my Bachelor's and Master's Thesis projects. A more detailed description can be found on the corresponding GitHub repo.

OODL Project

Bachelor's Degree Project

Object Oriented Data Language (OODL) is an imperative programming language I developed for my Bachelor's Degree thesis. OODL makes developing a web application for collecting data as easy as instantiating an object in any object oriented programming language.
OODL was designed to allow developers to build dynamic web applications for data collections (also very complex ones) which execute client-side.

DPNet Project

Master's Degree Project

Development of an Artificial Intelligence System which is able to identify arrhythmia episodes in arbitrary length 15-leads ECGs. The problems of identifying arrhythmias in ECG has been addressed as Semi-Supervised Anomaly Detection Task. So, in this context, arrhythmias can be seen as anomalies into normal ECGs.
The system's core is a Deep Convolutional AutoEncoder to whom I've given the name DPNet.

ACADEMICAL PROJECTS

Below is a list and a brief description of some of my academical projects. A more detailed description along with source code can be found on the corresponding GitHub repo.

Artificial Intelligence & Knwoledge Rapresentation and Reasoning Project

Team Project

Java implementations of an automatic player for the Murus Gallicus game. A parallel implementation of the well-known MiniMax algorithm with Alpha Beta pruning has been provided.

Images and Videos Analysis Project

Team Project

Multi-Class and Multi-Label Classification on an unbalanced film trailer dataset in Python. In this project the well-known image classification architectures ResNet and Vgg have been used as part of a custom modular architecture. PyTorch has been used as Gradient Computing library.

Distributed Systems and Cloud Computing

Individual Project

Bl3, whose name derives from Bluetooth low energy, is a distributed system that allows Covid-19 contact tracing. The system consists of an Android Application and a JavaEE Backend.

Data Mining Project

Team Project

The project consists in Data Analysis, Exploration and Multi-Class Classification on a Google Play Application Dataset in Python.

Architectures and Programming of Processing Systems Project

Individual Project

Various C & Assembly optimized version of the Stochastic Gradient Descent x SoftSVM x Polynomial Kernel Method algorithm. Provided optimizations make use of advanced programming concept such us SIMD parallelism, which is exploited by using Intel SSE and AVX instruction sets, and Cache Blocking.

Big Data Management Project

Individual Project

Implementation of a query tool in Python using the Big Data Processing tool, Apache Spark and the No-SQL datastore MongoDB. PySpark and PyMongo were used to interface with Spark and MongoDb.

GPGPU Project

Individual Project

CUDA C parallel implementation of the Merge operation. Algorithm's parallelization is based on the co-rank function provided by Siebert et al. in their work Efficient MPI Implementation of a Parallel, Stable Merge Algorithm.

Machine and Deep Learning Project

Individual Project

Application of Machine and Deep Learning techniques in Python on images and texts. On both datasets two tasks were addressed: Multi-Class Classification and Anomaly Detection. The TensorFlow library has been used for developing Deep Learning models.

Software Platforms for Web Applications

Individual Project

Implementation of ShopCart web application. In this project the following technologies were used: Anguar (to define a Single Page Application), JavaEE + JAX-RS + EJB (to provide REST web serving and defining business logic), JPA + Hibernate (for persistency).

Social Networks and Medias Analysis

Individual Project

Sentiment Analysis in Python on an amazon english reviews dataset using various Transformer architectures from Hugging Face. PyTorch has been used as Gradient Computing Library.

Software Engineering Project 1: Scheduler

Individual Project

Java Implementation ofScheduler with constraints based on the backtracking algorithm. Several Design Pattern were used. A GUI has been provided too.

Software Engineering Project 2: Sudoku

Individual Project

Java Implementation of Sudoku Solver based on the backtracking algorithm. Several Design Pattern were used. A GUI has been provided too.