

# Nebolosi Lorenzo

MSC IN COMPUTER SCIENCE ENGINEERING · COMPUTER VISION AND ROBOTICS

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## Summary

MSc in computer science engineering, focus on Robotics, Data analysis and computer vision. During my years of high school and University I had the opportunity to learn work with different frameworks and tools, such as git, github, docker, and maven. Currently working in a start up company that was founded as a spin-off from Politecnico di Milano. As a software engineer I define and implement different architectures for the software used to perform 0D/1D CFD simulations of internal combustion engines.

## Work Experience

### SurSum | Politecnico di Milano

Milan, Italy

SOFTWARE ENGINEER

Sep. 2024 - Present

- Design and implementation of post processor for visualize and analyze data coming from CFD simulation of internal combustion engines
- Upgrade of python commercial software for defining the structure of the engine to be simulated, from python2 to python3

## Projects

### Thesis project for BSc

Milan, Italy

GRAPH NEURAL NETWORKS APPLIED TO MATHEMATICS

Sep. 2023 - Sep. 2024

- Research on Applications of graph neural network to partial differential equations
- Implementation of Graph Neural Network model using HydraGNN package and tensorflow geometric, developed by Oak Ridge National Laboratory (ORNL). Definition of the model structure, input conversion and hyperparameter tuning.
- Generation of the dataset using Finite Element Methods and FEM software to recreate a topology optimization problem as a case study
- Testing and validation of the obtained model and analysis of the obtained results.

### Final projects for MSc

Milan, Italy

JAVA, C AND VHDL

Sep. 2020 - Sep. 2021

- Digital version for the board game Maestri Del Rinascimento
  - Implementation in Java of a board game with a client-server architecture
  - MVC Pattern and asynchronous requests to the server
  - Collaboration tools such as git and software life cycle handled with Maven
- Algorithms and data structures project in C
  - Study and implementation of different algorithms such as Dijkstra's
  - Memory efficient and time efficient optimization
- VHDL Design, implementation and report of a board component included and tested in a bigger architecture

### Other projects during my MSc

Milan, Italy

ROBOTICS, NEURAL NETWORKS, COMPUTER VISION AND SENSOR SYSTEMS

Sep. 2020 - Sep. 2021

- Robot odometry calculation and location (SLAM) using ROS and bag of real data from encoders and sensors for Robotics course (Grade 30/30)
- Elaboration of computer vision dataset with multiplane homographies and benchmarking of different algorithms with OpenCV (Grade 27/30)
- Design and implementation of two different Neural Network architectures for image classification and time series analysis (Grade 29/30)
- Multiple projects using STM32 microcontroller, multiple sensors and other circuit components such as capacitors (Grade 26/30)

## Education

### Politecnico di Milano

Milan, Italy

MSC IN COMPUTER SCIENCE AND ENGINEERING

2021 - 2024

- Focus on Robotics, data analysis and computer vision
- Many projects in a vast variety of fields such as computer vision, electronics and neural networks

### Politecnico di Milano

Milan, Italy

BSc IN COMPUTER SCIENCE AND ENGINEERING

2018 - 2021

- Basics of computer science engineering such as OOP, compiler architectures, physics, electronics and statistics

## New Albany High school

Indiana, Usa

### EXCHANGE YEAR CERTIFICATION

2016 - 2017

- During my exchange year in the United States I've had the opportunity to learn new cultures, confrontate myself with different points of view and grow as a student and as a person

## ISII G. Marconi

Piacenza, Italy

### TECHINICAL HIGH SCHOOL DIPLOMA

2013 - 2018

- Many hands on project on popular framework such as .NET
- Server administration using SQL
- Web development with Node.js, HTML and JavaScript
- Automation projects using arduino, electronics components and boards

## Competitions

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2017    **3rd Place**, IUPUI Coding competition

Indiana, USA