Matteo De Pellegrin

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About me

I love physics, programming and nature. I get excited by difficult problems and strive for finding elegant, simple and creative solutions. I'm looking for an opportunity to contribute on cutting edge innovations while learning new skills and expanding my toolset.

• **Some of my interests**: Computational Science, Modeling of complex systems, Renewable Energy, AI, IoT, Robotics, BlockChain Technology and Open Source Software.

Skills

• **Programming**: C, C++, Python, Shell scripting, Matlab. Eager to learn new ones.
• **Markup**: LaTeX, Markdown, html and css.
• **Tools**: Git, Gnu/Linux and Unix-like OS, Jira, vim, ssh, Office suite.
• **Languages**: Italian (mother tongue), English (Main language for 3 years).

Other Activities

• **Scouting (2010-2018)**: teamwork, leadership, self improvement.
• **Hobbies**: I enjoy bouldering, rock climbing, hiking, camping and handcrafting. I play guitar and saxophone. I also love automating things in my Linux setup.

Experience

Jul 2020 - Jul 2021 — **Software Engineer** part time — **Agri Data innovations**

Maintained and developed computer vision and data analysis code (improved the code I worked on my previous internship).
Trained and Tuned instance segmentation neural network.
Used the TensorFlow Object Detection API to train and test different models and compare results.
Worked on refactoring of scripts and libraries.
Supervised interns.

Jan 2020 - Jul 2020 — **Computer Vision Intern** — **Agri Data innovations**

Built and collaborated on a variety of computer vision and data analysis software.
Fine-tuned and tested instance segmentation neural network and implemented an API to use it for leaves segmentation.
Used the API for other applications, like tracking leaves growth over time.

Mar 2019 - Aug 2019 — **Dynamics Intern** part time — **Witted s.r.l.**

I built a dynamics model in Matlab-Simulink which fits for an underwater robot with any number of thrusters, using all the 6 coupled DOFs and without constraints on the various parameters (e.g. center of mass, center of buoyancy, inertia matrix, etc...).
I developed and tested a method for measuring the 3-dimensional center of mass.

Education

Sep 2020 - Oct 2022 — **MSc in Applied Physics** — **Delft University of Technology**

During my Master I dived deeper in the topics of Statistical Mechanics, Quantum Mechanics and Solide State Physics, as well as gaining practical knowledge on physics applications in the renewable energy domain and quantum devices. My Master Thesis investigates *Electron Transport in Cable Bacteria*, in particular, I explore the temperature and gate dependence of the conductance that is displayed in these microorganisms. Along the journey I had the opportunity to improve my analysis and critical thinking skills, team working and communication, as well as improving my knowledge of C++ and Python. Supervisor: Herre S.J. van der Zant.

Sep 2019 - Jan 2020 — **Online course** — **Coursera**

Deep Learning Specialization

Sep 2016 - Nov 2019 — **Bachelor in Physics** — **University of Trento**

My Bachelor thesis is titled *Quantum Monte Carlo study of Circular Quantum Dots*. The project consists in writing a C++ program to calculate ground states and first excited levels of 2D circular quantum dots using a Quantum Variational Monte Carlo method. Supervisor: Pederiva Francesco.

2011 - 2016 — **High School** — **Liceo Corradini, Thiene(VI)**

Applied science education.