ANDREA MAZZEO

andrea.mazzeo95@gmail.com | +39 3498664241 | LinkedIn | Portfolio

Results-driven Software Engineer with 4 years of experience specializing in C++ and Python programming languages. Adept at tackling complex challenges, I have a strong background in computer vision and deep learning. Proven ability to deliver innovative solutions by leveraging my expertise in these technologies.

SKILLS

- C++, Python, C, Javascript, HTML, CSS, VHDL, Verilog, Rust, CUDA
- Qt, OpenCV, Tensorflow, Pytorch
- Git, Jira, CMake, Premake, Jenkins, Docker, Node.js
- English, Italian

EXPERIENCE

Software Engineer | Smart Robots | Milan, Italy | May 2021 - Current

- Implemented and optimized the detection and tracking algorithms for the Smart Robots product, allowing a real-time detection of markers based on various features. The algorithm has been written with a combination of *C++* and *Python* languages.
- Engineered a detection algorithm, written in *C++*, that accurately recognizes a 2mm thin lens array using a depth camera with an accuracy of over 98%.
- Deployed a data analytics platform, utilizing *PySpark* and *JavaScript*. Proficiently designed the system to interpret aggregated data across various metrics, enhancing the organization's data-driven decision-making processes.
- Designed the desktop application's user interface using the *Qt* framework and *QML* language, ensuring an enhanced user experience through the implementation of a modern layout.
- Developed with *C++* a 3D multi vision support which aggregate data from multiple sensors, significantly expanding the Smart Robots product's capabilities and adaptability in diverse operational scenarios.

Researcher | Politecnico di Milano| Milan, Italy | February 2020 - May 2021

- Designed a Generative Adversarial Network (GAN) using the *PyTorch* framework. The GAN has been trained to generate fault models simulating a Single-Event Upset occurring on an image processing application.
- Enhancement of a motion detection application using a *Python*-developed Convolutional Neural Network and optimized for an ARM-based embedded systems. The strengthened introduces an overhead of less than 30% compared to state of art techniques.
- Implemented a Fault-Injection platform for Virtex-7 and Zynq FPGAs using High Level Syntesis and *Verilog* language. It allows to emulate Single-Event Upset effects over an image processing application employed in satellite applications.

Teaching Assistant | Politecnico di Milano| Milan, Italy | September 2020 - February 2021

- Supported didactic activities for the academic course "Fundamentals of Computer Science".

EDUCATION

M.Sc. Computer Science and Engineering | Politecnico di Milano | Milan, Italy | September 2017 – December 2019

- Grade: 110 with honors / 110

B.Sc. Computer Science and Engineering | Politecnico di Milano | Milan, Italy | September 2014 – July 2017

- Grade: 105 / 110

CERTIFICATIONS

Features and Boundaries | First Principles of Computer Vision | October 2023

- Columbia University

Camera and Imaging | First Principles of Computer Vision | September 2023

- Columbia University

PUBLICATIONS

Usability-based Cross-Layer Reliability Evaluation of Image Processing Applications | October 2021

- IEEE International Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology Systems (DFT)

Approximation-Based Fault Tolerance in Image Processing Applications | August 2021

- IEEE Transactions on Emerging Topics in Computing

Error Modeling for Image Processing Filters accelerated onto SRAM-based FPGAs | August 2020

- IEEE International Symposium on On-Line Testing and Robust System Design