

# Marco Ulise Tighiliu

ENGINEER & MAKER

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*I use the best tool for the job, if the best tool for the task at hand is not already in my toolset, I learn it while actively pursuing the task.*

## Personal Profile

A heartfelt engineer who strives to gain a full understanding of systems. I believe that the more you learn, the more you realize how much you don't know. I relish working in Software development and Mechatronics engineering, always juggling between Full-Stack Development, 3D object design and manufacturing, and Robotics.

## Education

### Fontys School of Applied Sciences

Eindhoven, NL

Bachelor in Mechatronics

Since 2021

- **Fontys Simulated Industrial Manufacturing**, a 3-quarter project featuring a Robotic Arm vehicle able to displace objects. We designed and manufactured a **3D printed Inverse-Kinematics Robot Arm** with free 360°+ rotation, commanded via **Bluetooth**. Presented the project to a medium audience, showcasing my **presenting** skills by utilizing human movement as an easy to grasp example of inverse-Kinematics. Followed the industry-proven **V-model Systems Development Life-cycle**. Employed **computer vision** and **OCR** technologies to identify the payload landing zone.
- **Human Detection model**, part of a bigger project, Industrial Automated Cleaning Robot, in collaboration with a respected local firm. A Machine learning model that detects people in frame using a live-feed camera, developed & implemented on a official **NVIDIA** development board. Learned to work with **machine learning** models on the **GPU** using official **PyTorch CUDA Drivers**.
- **Relevant modules:** Calculus, CAD, Robotics System Design, IoT, AI, Machining, Electrical Engineering.

### Certified SOLIDWORKS Associate in Mechanical Design

Eindhoven, NL

Computer Aided Design with a focus on Mechanical Systems

2023

For further references <https://www.solidworks.com/certifications/mechanical-design-cswa-mechanical-design>

### Software Development Academy

Bucharest, RO

Java from Scratch Course

Graduated on 26th of October 2020

- Full-Stack Java programming course taught in an Agile environment, with focus on Spring, Angular, and design patterns.
- For further references <https://sdacademy.ro/lista-de-cursuri/java/>

### C.A. Rosetti High School

Bucharest, Romania

Romanian Baccalaureate Diploma

Sept 2017 - June 2021

- Studied Imperative Programming in C++, Graph Theory, Calculus.

## Experience

### Rainbow Bucharest

Bucharest, RO

Back-End Developer, Mechanical Designer

Freelance projects in 2023

- Recovery of potential clients from newsletter subscription failure.
- **IMAP Javascript** bot to **Asynchronously** scrape client data from automated newsletter subscription notifications.
- Worked alongside lead of marketing and CEO to solve the issue.
- Designed custom replacement parts not available on the market using **CAD** software, including two **Motor Stator** models used in the Rainbow D4 & eSeries intended for **production 3D printing**.

### Fontys School of Applied Sciences

Remote from Eindhoven NL &

Bucharest RO

Scientific Writer Helper

Freelance project in 2023

- Wrote the answer book for the Mechatronics Math2 course modules & learned **LaTeX** on short notice to solution the task at hand in due time.

### Passion Projects

GitHub

Lemon2311

- **MicroAPIgRESTion**, a library designed for easy **HTTP** route handling on **microcontrollers** with less than **21kB memory** available. Useful for creating asynchronous **REST APIs** and **serving websites**, enables microcontrollers to make their resources accessible to other devices efficiently.
- **IoT Fleet.js**, easy-to-use solution for **robotics applications** in which multiple devices need to communicate seamlessly **over-air** with **non-blocking IO**.
- **ZestOnScreenCapturer.py**, a high-frame-rate application frame capture solution designed to capture **live video feed** from applications in Python at **60 fps**. This **exceeds** the **25** frames per second offered by **OpenCV**. Initially developed for smooth video game feed acquisition for **AI model** gameplay implementation and training.
- **RewindMaze**, a game I made for the **Brackeys game jam** with the theme rewind featuring **randomly generated mazes**, and the ability to rewind time. Featured on **Google Play** till the 16th of March 2024.

## Skills

### Programming

C++, JavaScript, TypeScript, Python, Java, SQL, HTML, CSS.

### Technologies

Node.js, bun.js, Tensorflow, OpenCV, Angular, Spring, Hibernate, Unity Game Engine with C#, Web-Sockets, Multi-Threading, Computer Vision, Git, Linux, AWS, Google cloud, Bluetooth, Solidworks, 3D printing, Machining, Welding, LaTeX, Markdown.

### Critical

Pathfinder, Machine Learning, Robotics System Design, Cooperation & Peer Value Understanding, Dynamic Perspective Shifter.

### Soft Skills

Fast Learner, Strong Problem Solving, Self-driven, Logical reasoning, Compassionate Team Player, Conflict management.