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.
- **IoTFleet.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.