

# Alessio Sepicacchi

JUNIOR MECHANICAL ENGINEER

Rome, Italy

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## Summary

I'm a Junior Mechanical Engineer with a passion for the design aspect of engineering. I love using computer-aided design tools to bring ideas to life. Data-driven decision making and programming are my go-to tools for boosting efficiency and automating processes. Additionally, I have a personal blog where I enjoy sharing my work, as well as my passions within the field of mechanical engineering. Recently, I've developed competence in pressure equipment verification and assessment. I'm eager to apply my knowledge and contribute to exciting projects.

## Education

### Università degli Studi di Roma Tor Vergata

MASTER'S DEGREE IN MECHANICAL ENGINEERING - 110/110 WITH HONORS

Rome, Italy

Sep. 2020 - May. 2023

### Universidad de Cantabria

MASTER'S DEGREE IN INTEGRITY, DURABILITY OF MATERIALS, COMPONENTS AND STRUCTURES - ERASMUS PROGRAMME

Santander, Spain

Sep. 2021 - Feb. 2022

### Università degli Studi di Roma Tor Vergata

BACHELOR'S DEGREE IN MECHANICAL ENGINEERING

Rome, Italy

Sep. 2015 - Jun. 2020

## Skills

### Programming Languages

Python | Matlab | Simulink

### Software

ABAQUS CAE | Ansys Workbench | Solidworks | RecurDyn | Blender

### Technical

3D Printing | CNC Machining | Soldering

## Experience

### Pressure Vessel Engineer

INDEPENDENT CONSULTANT

Rome, Italy

May. 2023 - Present

- Conduct thorough verifications and assessments of pressure components to ensure compliance with relevant standards and codes.
- Utilize industry-specific knowledge and expertise to interpret and apply applicable standards, codes, and regulations in the assessment process.
- Prepare comprehensive reports outlining findings, assessments, and recommendations based on verifications conducted.

## Notable Projects

### Reactor Strength and Cyclic Load Assessment

MASTER THESIS

Rome, Italy

Nov. 2022 - Apr. 2023

- Conducted strength and cyclic load validation for petrochemical industry reactors using finite element models developed with ABAQUS, ensuring compliance with design analysis requirements as per ASME BPVC and EN 13445 codes.
- Developed a Python script that automated the ratcheting assessment process, significantly reducing the time required from 4-5 hours of manual work to just seconds.
- Utilized transient thermal simulation to provide design considerations for the reactor, resulting in a 10% saving of insulant material.

### 2D Linear Isoparametric FEA Code

PERSONAL PROJECT

Rome, Italy

Feb. 2022 - May. 2022

- Developed a fully capable 2D linear finite element analysis code in Python using only numerical and data visualization libraries.
- Validated the work by comparing it with both analytical and numerical solutions from established fea codes, resulting in a maximum deviation of 5%.

### Impact of a Photovoltaic Panel on Quadcopter Flight Time

UNIVERSITY GROUP PROJECT

Rome, Italy

Nov. 2020 - Jan. 2021

- Developed a Simulink model to study the impact of using a photovoltaic panel on a quadcopter's flight time.
- Implemented electronics and fluidodynamic calculations in the model to simulate quadcopter performance in the different scenarios.
- Conducted a cost analysis, taking into account the degradation of the battery over time.

## Languages

English B2

Spanish B1

Italian Mother tongue