



## COORDINATES

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## SKILLS

- Materials sciences
- Software engineering
- General engineering
- Maths & Physics
- Labskills: design/execution/analysis of experiments, electronic microscopy, reflectancespectroscopy.
- Software skills: MS Office, Jira, Siemens NX, Solidworks, Labview, Envi, 3D modelling/printing
- Programming skills: Full-stack dev, React, Express, TypeScript, Assembly, C, Python, MATLAB, Caml, IDL, R, machine learning/IA, Ada, Git
- Soft skills: fast learner, open-minded, confident in multidisciplinary and international teams.

## INTERESTS AND HOBBIES

- Materials engineering
- Space engineering
- Programming and computer science
- Astronomy, fundamental physics & maths
- History & Culture
- Music (self-taught piano and guitar)
- Video games

## LANGUAGES

### French

Langue maternelle

### English

Avancé (C1)

### Spanish

Intermédiaire (B1)

### Japanese

Élémentaire (A2)

# Rémi Rossello

## Aerospace / software engineer

## EDUCATION

### Engineering Degree from École des Mines de Nancy,

Department of Materials Science and Engineering, 09/2021 – 09/2024

Ranked among the top 5% of engineering schools in France. Advanced specialization in metallurgy and materials science. Broad curriculum including everything from computer sciences to theoretical maths and physics.

### Preparatory Classes for the Grandes Écoles,

MP (Mathematics/Physics) specialization at CIV Valbonne, 09/2019 – 06/2021

This demanding program, where I was the top student in my class during the first year, trained me to understand and solve complex physics and mathematics problems.

## CAREER

### Math expert for LLM training

12/2024 – Actuel

#### Scale AI

Writing, solving, and correcting original math problems at the undergraduate level, to train Large Language Models (LLMs) using Reinforcement Learning by Human Feedback (RLHF). During this time, I obtained multiple certifications in software development, including Full-Stack dev (React, Express, NodeJS, TypeScript) and the ADA language, while also learning about Assembly, C, and OS theory, among other things.

### Planetologist

CRPG - Nancy - Internship (August to September 2024)

Programming in IDL of a lunar mineral classification algorithm for a confidential lunar rover mission in collaboration with CNES. Self-taught IDL programming from scratch. I gained knowledge in lunar geology and spectral measurement by working with a team of planetologists to analyse lunar, martian, and meteoritic rocks at the CRPG (Center for Petrographic and Geochemical Research).

### Materials engineer

03/2024 – 05/2024

OffWorld Europe - Luxembourg - Internship (March to May 2024)

Subject: "Experimental assessment of microwave-based volatiles extraction systems for space applications."

- Materials selection for the Demo-1 lunar mission (initially planned for 2027). Specific evaluation of thermal expansion, ductile/brittle behaviour, chemical and radiation resistance of alloys and polymers.
- Experimental work on a low-pressure TRL3 microwave system to extract and condense volatile substances from lunar regolith simulants LHS-1 and LSP. The goal is to produce clean water and rocket fuel on the Moon from regolith.
- Assistance in the design and selection of commercial parts for TRL4 subsystems: hopper, microwave cavity, condenser, and heat recovery unit.
- Experiments, analysis, and documentation on microwave recycling of orbital station organic waste into biochar for soil fertilisation and other applications. Initiative to quickly create an image analysis program to map sample characteristics automatically.
- This contract for a 6-month internship only lasted 3 months due to unexpected financial problems at OffWorld EU.

### Research intern in metallurgy

06/2023 – 09/2023

Institut Jean Lamour - Nancy - Internship (June to September 2023)

Independent research on a project to separate and recycle elements in the aerospace alloy Inconel-100 through dissolution in liquid zinc and magnesium. Daily use of electron microscopy (SEM), sample preparation, formulation and presentation of hypotheses about the complex phase evolution and microstructure changes in the mixture.

## PROJECTS AND ASSOCIATIONS

### Projects at Mines de Nancy (09/2021 – 02/2024)

- Third-year project:** Research on recycling nickel superalloy through dissolution in liquid zinc and magnesium.
- Second-year project:** Team design of a cloud chamber using 3D printing and laser tools. Demonstration of particle detection in a lecture hall.
- First-year project:** Team design of a connected shelter for Boston Dynamics' SPOT robot dog, utilizing machine learning.

### Associations (10/2021 – 05/2023)

- Science & Mines:** Writing articles on nuclear fusion for Mines students and interviewing nuclear physicists from the IJL in Nancy.
- Astronomines:** Selling homemade cakes to support this amateur astronomy club.