

transforming
tomorrow



ArcelorMittal

Where will you have your next challenging professional experience?

ArcelorMittal is the world's number one steel company, with **260,000 employees in more than 60 countries**. It has led the consolidation of the world steel industry and today ranks as the only truly global steelmaker with an industrial presence in 27 countries.

ArcelorMittal is the **leader in all major global markets**, including automotive, construction, household appliances and packaging.

We are visionary thinkers creating opportunities every day. This entrepreneurial spirit brought us to the forefront of the steel industry.

Join ArcelorMittal Global R&D and envision the steel of tomorrow!!

ArcelorMittal Global R&D is spanning the Globe with 11 sites dedicated to research (operating in process, products, application and steel solutions) within 7 countries and more than 20 nationalities. Because quality outcomes and innovation spirit depend on quality people, we seek to attract and nurture the best people to deliver superior and innovative solutions to our customers.

Would you want to integrate a multicultural company with challenging missions and passionate people, ArcelorMittal is for YOU!

We are looking for Interns, VIE, apprentices willing to work in a multicultural environment in different domains.

English will be a plus.

Location		Contact			
Research center:	RDMP	Last name:	PERRICHON	E-mail:	armelle.perrichon@arcelormittal.com
Cluster:	MC	First name:	Armelle	Phone number:	+33 (0) 3 87 70 42 79
Department:	SPI	Job title:	Research engineer		

Training offer

Mission title: Applying deep learning technologies for steel surface inspection (image recognition)

Start date: February to April 2021

Duration: 6 months

Work location : Maizières-lès-Metz, France

Areas

- | | |
|--|---|
| <input type="checkbox"/> Purchasing
<input type="checkbox"/> Commercial / Marketing
<input type="checkbox"/> Finance / Audit
<input type="checkbox"/> Legal / Communication
<input type="checkbox"/> Supply Chain / Logistic
<input type="checkbox"/> Maintenance | <input type="checkbox"/> Production / Process / Exploitation
<input checked="" type="checkbox"/> Research & Development / Metallurgy Innovation
<input type="checkbox"/> Recycling / Process and Product Development
<input type="checkbox"/> Human resources / Health / Safety / Environment
<input type="checkbox"/> Strategy & Business Development
<input type="checkbox"/> Information System / Industrial Computer Science |
|--|---|



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The purpose of the mission:

The Measurement and Control department conducts various research activities in the field of steel surface inspection. The purpose of this internship is to **optimize the use of deep learning tools and algorithms for automated surface defects detection/classification**. The result of this work will be tested and implemented on an **industrial prototype**.

The mission:

This internship is fully integrated in a well-advanced research project including various external partners such as a laboratory research specialized in machine learning (CEA), or a surface inspection system supplier (Primetals Technologies). The work implies the following tasks:

- Database (defect images) optimization based on the use of dedicated tools specifically developed for this research project. The objective is to **assess and maximize the benefit of data augmentation**. With this task the trainee learns and understands progressively the basics regarding steel surface defects/quality.
- **Optimize the neural network training**: applying the relevant transformations, following the KPIs, optimizing hyperparameters, custom scoring.
- Test on an industrial prototype: assess **real-time detect detection/classification performance** and define **axes for improvement**.

A **close collaboration with the project leader** is fundamental to ensure a good complementary between the different fields of expertise.

The environment

The internship is based in Maizières-Lès-Metz within ArcelorMittal biggest research facilities (>500 persons). The trainee will be integrated in the Measurement and Control Department, in the Surface Properties, Vision and Pyrometry service, within a team of people with an extensive expertise in the field of surface characterization, sensor development, image processing. This work could be discussed as well within our internal Data Science Cluster.

Language: English or French

Trainee's profile

Studies level: Master 2

Discipline: Data science, Image processing

School/University: Engineering school, University

Required profile and competencies

High-level student, **autonomous**, dynamic, result-oriented with experimental skills
Knowledge in **machine learning and python programming** is mandatory.
Knowledge in **deep learning and image processing** is a plus.

To put back to appropriate trainee correspondent