ArcelorMittal

transforming tomorrow

Where will you have your next challenging professional experience?

*ArcelorMittal is the world's number one steel company, with **320,000 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 everyday. 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 research centers (operating in process, products, application and steel solutions) within 8 countries and more then 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:**	Fricout		**E-mail :**	gabriel.fricout@arcelormittal.com
Cluster :	MC	**First name:**	Gabriel		**Phone number:**	+33 3 87 70 41 97
Department:	DSP	**Job title:**	Research Engineer			

Training offer

Mission title: Defect detection in industrial images	
Start date: February 2014 (flexible start date)	**Duration: 6 month**
Worklocation:	

Areas

Purchasing	Production / Process / Exploitation
Commercial / Marketing	Research & Development / Metallurgy Innovation
Finance / Audit	Recycling / Process and Product Development
Legal / Communication	Human resources / Health / Safety / Environment
Supply Chain / Logistic	Strategy & Business Development
Maintenance	Information System / Industrial Computer Science

The purpose of the mission :

The successful candidate will be in charge of adapting an existing prototype of image processing algorithm to a production environment:
- The existing image processing code is now running on production line but with a lack of robustness: we expect the system to deliver a good result on 95% of the products.
- The existing system should also be adapted for a similar application at a slight different position on the production line, so the applications parameters will have to be adapted to this new application.

The mission : accountabilities and activities

During previous studies we have developed an image processing algorithm that can analyze the "fish tail shape" of a steel strip after its cropping on the production line. This cropping is necessary in order to assess the perfect shape of the steel strip for further processing, but the cropped part should be as small as possible to increase the yield of the line. Today, the software gives good results based on several data sets obtained using a video camera positioned on the production line. The code can run in real time during the process, but many aspects should be improved to assess the reliability of the code on more than 95% of the product.
During its training period, the candidate will have to:
- Understand the existing code
- Modify it to make it more robust (adjust automatically the region of interests after a change in the camera position for instance.
- Define calibration procedure to assess the validity of the measurement

The environment

The training will take place in ArcelorMittal R&D center in Maizieres-lès-Metz, within the measurement and control department and more precisely the data and signal processing team. However, part of the internship will be spent in Florange, on the offices of the hot-strip mill, in order to assess the practical efficiency of the developed algorithms.

The candidate will be supervised by research engineers specialist in image processing in a highly multi-disciplinary environment but also by plant engineers responsible for the efficiency of the production line.

Trainee's profile	
Studies level: Master 2, Bac+5	**Discipline : Applied mathematics, computer sciences**
School/University : Engineering school or computer science university	

Required profile and competencies

The candidate will be required to have competencies in the field of image processing:
- Knowledge of classical image processing tools: convolution, mathematical morphology …
- Prior experience with a dedicated software (openCv, Aphélion, Matlab…) could be an advantage

and computer programming skills (C/C++, Python, …): the developments will be made using the specific Halcon scripting language, which will have to be learned by the candidate, but a previous knowledge of one or several other language would make this learning easier.

In addition, the candidate will have to have good relational skills to integrate the work team which will involve also people from the production line and sensor development team. As the environment is highly multi-cultural a good knowledge of English will be very important.

To put back to appropriate trainee correspondant