JOB OFFER

Researcher in Machine Learning for Hyperspectral Imaging (junior to experienced profile)

Mathematics department > 4D Perception Lab

Project ARIES

Publication: 01/12/2025

CONTEXT

In the framework of the study ARIES (Advanced Resolution and Intelligence for Explosive Sensing), we are looking for a full-time researcher with a Master degree in Engineering Science, Applied Sciences, Civil Engineering, Physics, Computer Science, Mathematics or related discipline.

The Royal Military Academy is fully recognized as a university, fulfilling the same criteria as civilian universities. The RMA is also conducting scientific research at university level for projects funded by the Belgian Defense department or external sources.

We value diversity and equal opportunities. We firmly believe that diversity enriches our community, and we encourage all qualified candidates to apply.

PROJECT

You will work within the 4D Perception Lab (https://4dpl.rma.ac.be/) of the department of Mathematics within the Faculty of Polytechnics of the RMA and in close collaboration with other departments at RMA and with military and industrial partners. You conduct scientific research at university level on a project entitled ARIES.
ARIES aims at the development of a sensor fusion-based surface mine detection framework for different operational scenarios by investigating new technology developments such as new types of sensors, the fusion of these sensors and state-of-the-art image processing techniques.

- In this project we will:Investigate the performance of hyperspectral and multispectral sensors to detect and categorize spectral signatures of landmines.
- Compare/Develop traditional vs. AI driven sensor processing algorithms for high accuracy detection and identification of relevant targets
- Develop sensor fusion algorithms to combine hyperspectral, multispectral and other sensor modalities for mine detection.
- Build a spectral imaging signature library of relevant targets.

MAIN TASKS

- Development of a mine detection sensor system based on hyperspectral sensor fusion and advanced AI/ML processing techniques
- Organisation of measurement campaigns, partly on military grounds, using state of the art (hyper)spectral sensors
- Writing of scientific publications
- Exploring opportunities to leverage the results of this project.

SKILLS AND EXPERIENCE:

Degree(s) required / ideal degree(s): Master degree in Engineering Science, Applied Sciences, Civil Engineering, Physics, Computer Science, Mathematics or related discipline.
This position is open for junior to experienced profiles. While the job offer is open for people with 0 to 3 years of experience, more experience will count as a bonus. However, already holding a PhD will count as a malus.

"MUST HAVE" skills:

- Training or experience in Artificial Intelligence, Machine Learning and/or Deep Learning.
- Strong mathematics/physics background.
- Experience with electro-optical data processing.

"NICE TO HAVE" skills:

- Hyperspectral and spectroscopy knowledge
- Experience with OpenCV, PyTorch or Tensorflow
- Experience with capturing electro-optical data during laboratory or field trials

Personal skills:

- You conduct scientific research in an independent and upright way within a multidisciplinary environment and communicate your results in a clear, concise and precise manner.
- You take initiative, solve problems autonomously and find alternatives or solutions.
- You are flexible for change and adapt yourself.
- You commit yourself in your job by giving the best of your aptitudes in striving toward the highest quality standards and persevere when needed.
- You will be working very closely together with the industrial partner and will get insight in their proprietary intellectual property. Confidentiality is therefore an absolute must.

Other skills:

- The applicant shall have good knowledge of English (oral / written).
- Minimum knowledge of French or Dutch is an added value for collaboration with peers.
- A driver's license (but not necessarily a car) is highly recommended

Specific Requirements

- The researcher may be exposed to classified information and will therefore have to obtain the required security clearance. The candidate must consent with the background check required to obtain this clearance, which will be executed by Belgian Defense.
- Only applicants with a nationality of a country that is both part of NATO and the EU will be eligible.
- Working for the Patrimony requires living in Belgium for the duration of the study.

APPLICATION

Please send by email a CV to Dr Ing Hannes DE MEULEMEESTER (hannes.demeulemeester@mil.be), Prof Dr ir Rob HAELTERMAN (rob.haelterman@mil.be) and to ERM-DEAO-STAFF-HRMGT-PATRIMONY@mil.be.
Please mention clearly the **reference of the project** in your email: "ARIES" and **please also precise your nationality. Applications other than via email to all of the above addresses will not be accepted.**

Application deadline: 31 December 2025**.**

The interviews will take place at the Royal Military Academy, Hobbemastraat 8, 1000 Brussels. If needed, on-line interviews can be organized. The date and time of the interview will be communicated to the preselected candidates.

CONTRACT

- Probable date of recruitment: From 2 March 2026, in consultation with the applicant.
- Status: Full-time employment based on an open-ended contract with the Patrimony of the Royal Military Academy (you will not be a civil servant).
- Please note that your contract will be open-ended, but the financing of the contract will be tied to the funding project, which is guaranteed until 1 March 2028. The financing of your contract beyond that period is therefore not 100% guaranteed. However, the Patrimony has a policy to keep the good elements on board and the research focus of this job offer fits within our core research activities, so there is a possibility that we will be able to offer you follow-up projects beyond that date if you decide to stay.
- Wage scale: class A1 (holder of a Master's degree in Science or equivalent), class A2 (holder of an Ir degree or equivalent Master's in Engineering Sciences recognized in Belgium as Ir, doctor's degree in the same area of expertise). RMA-Patrimony applies a merit-based research career track, allowing researchers to advance in wage scale based upon annual evaluations.
- Holiday pay.

EXTRA LEGAL BENEFITS

- Possibility to benefit from a bilingualism allowance (Dutch/French) following a SELOR test;
- End-of-year bonus;
- Free DKV hospitalization insurance. Possibility of additional affiliation for one or more persons living under the same roof: spouse, child(ren) (50% of the price per additional member);
- Bike allowance / Free public transport (home-work commute);

- Meal vouchers (6€ / day);
- Free access to campus sports facilities outside working hours;
- On-campus restaurant and cafeteria with democratic prices (discount on the daily menu);
- Flexible working hours within the 38-hour week;
- Teleworking possible with allowance (2 days / week max);
- Holidays:
    - 29 days holiday / year from the 1st year of contract (then from 45 years: +1 day holiday every 5 years)
    - 1 week OFF every year between Christmas and New year's Eve (independent of the annual balance of holidays).
- Advantages and interesting offers thanks to the Benefits@work card (discounts, vouchers...);
- Entitlement to services offered by the 'Office Central d'Action Sociale et Culturelle de la Défense' (OCASC): among others holiday centres, discount on travel organised by the tour operator...;
- Possibility to benefit from the nursery funded by Belgian Defence (subject to availability).

WORKPLACE

Royal Military Academy, Avenue de la Renaissance 30, 1000 Brussels. Occasional travels abroad for scientific conferences, measurement campaigns, etc.