



Job offer
Royal Military Academy - Patrimony



Research Scientist / Engineer signal/data processing and modelling (M/F/X)

Department of Communication, Information, Systems & Sensors
Project "CISS - Modular Lightweight Minesweeper, Next Generation
CISS - MLM-NG"

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Job description and associated tasks

We are looking for a **full-time research scientist/engineer (m/f/x) in the field of signal/data processing and modelling with a master's degree in Applied Sciences / Engineering / Physics / Mathematics / Computer Science**, to work at the department of Communication, Information, Systems and Sensors ([CISS](#)) of the Faculty of Applied Sciences of the Royal Military Academy of Belgium.

The Royal Military Academy (RMA) of Belgium is a military institution responsible for the basic academic and military training of future officers, and for the continuing advanced training of officers during their active career in the Belgian Defence department (www.rma.ac.be). RMA also conducts scientific research at university level for projects funded by the Belgian Defence department or external sources and is fully recognized as a university, fulfilling the same criteria as civilian universities. The RMA is strongly committed to promoting diversity and gender equality.

At the RMA, researchers help push the boundaries of cutting-edge science and technology, working on complex and sometimes sensitive projects in land, sea, and air – and between cyber and space, to create innovations that will help ensure our continued peace and security. Researchers at RMA see the real-world impact of their research as innovative results are put into action by the Ministry of Defence or project related entities.

One fundamental discipline at the core of those innovations is Signal Processing, a fascinating area where R&D opportunities are larger than ever. Signal processing lays the foundation for many research projects developed in the CISS department. The Faculty counts more than 140 motivated scientists and engineers; and to facilitate the growth of our ambitions, we are looking for a full-time research scientist/engineer in the field of signal/data processing and modelling with a master's degree in Applied Sciences / Engineering / Physics / Mathematics / Computer Science.

The successful candidate will work in a joint research project of the European Defence Agency (EDA) developing acoustic and electromagnetic models and data processing algorithms for maritime mine countermeasures; and will contribute to the planning of sea trials and analysis of collected data. The candidate will conduct scientific research at university level and will work in close collaboration with researchers, scientists and engineers from the other consortium partners, as well as with the Belgian Navy. The candidate will work at the CISS department of RMA, under the supervision of Prof. Xavier Neyt and Dr. Olga Lopera Tellez.

Project

The MLM-NG project is part of the Unmanned Maritime Systems (UMS) programme of the EDA and will be carried out in three years' time in collaboration with other research institutions and industry from five Member States.

MLM-NG focuses on influence minesweeping, which is the practice of the detonation of naval mines using distant sources that mimic the sound and magnetism of vessels. The aim for the next generation of influence minesweeping solutions is to develop lightweight sweep sources towed by unmanned surface vehicles (USV). The MLM-NG project will push relevant technology demonstrators for lightweight influence sweep systems towards higher technology readiness level, with an additional focus on operational capability inside the UMS programme. Trials at sea will include a technological and conceptual evaluation, as well as an operational assessment.

Main Tasks

- Develop a source simulator to help defining the sweep settings for the sea trial evaluation;
- Contribute to the design of a command and control (C2) system that handles USV-based influence sweep;
- Contribute to the assessment of Planning and Evaluation methods and tools for USV-based influence sweep operations;
- Prepare internal reports and contribute authoring scientific articles to be published in international peer-reviewed journals;
- Contribute to the project deliverables.

Required skills

Technical skills

- The applicant shall have a master's degree in Applied Sciences, Engineering, Physics, Mathematics or Computer Science;
- Training or experience in mathematical modelling and data analysis is absolutely required;
- Good programming skills in Python and other relevant programming languages (C++, MATLAB) is required.
- Training or experience in basic or applied research in the maritime environment is an added value.

Personal skills

- Ability to conduct scientific research at university level;
- Ability to work independently and in a multi-national and multidisciplinary research team;
- Excellent written communication skills, both for scientific communications and for general public communications;
- Good oral communication skills, both for scientific communications and for general public communications.
- Innovative and driven. Always displaying sound judgement;
- Very good time management and organizational skills.
- Display core values of integrity, impartiality, loyalty, accountability, and professionalism.

Other skills

- The applicant shall have an excellent command of the English language (to read and write scientific publications and reports and to communicate with peers);
- Knowledge of Dutch and French is an asset.

Specific requirement

- The researcher will 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 the Belgian Defence.
- This project is an EDA project. Please note that we can only accept applications from nationals of EU/NATO member countries.
- This project calls for both theoretical and practical developments. The researcher will need to participate to validation campaigns in Belgium or abroad (count a couple of weeks during the last 18 months). Flexibility to travel is therefore required.
- Working for the Patrimony requires living in Belgium for the duration of the project.

Application

Because of the nature of our work, all our successful candidates will need to undergo a security verification. To be considered, please fill the security form out and add it to your application. The form can be downloaded from: <http://www.rma.ac.be/nl/aanvraag-veiligheidsverificatie>

Candidates should send:

- A motivation letter;
- A complete CV;
- A scan of your ID card (both sides);
- The above-mentioned form, filled and signed (<http://www.rma.ac.be/nl/aanvraag-veiligheidsverificatie>)

to Dr Olga Lopera Tellez (olga.loperatellez@mil.be), to Prof. Xavier Neyt (xavier.neyt@elec.rma.ac.be) and to the RSWO service (erm-deao-rsw@mil.be).

Please mention clearly the reference of the project, “**CISS - MLM-NG**”

Application deadline: **26 Feb 2024**

A first pre-selection will be conducted based on the received documents. Preselected applicants meeting the requirements will be invited to an interview at the Royal Military Academy, rue Hobbema 8, 1000 Brussels (optional online in case of a non-Belgian application). The date and time of the interview will be communicated to the preselected candidates.

Additional Information

Contract

- Probable date of recruitment: April 2024 (or later), in consultation with the applicant;
- Status: Full-time employment (38h/week) based on an open-ended contract with the Patrimony of the Royal Military Academy (you will not be a civil servant). Please note that the financing of your contract is tied to the EDA

MLM-NG project. An extension is possible subject to the availability of funding, R&D needs, satisfactory performance and the need to rotate skills and talent within the Faculty.

- 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);
- 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 of receiving 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);
- Bicycle allowance / Free public transport (home-work commute);
- 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;
- 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 of benefiting from the nursery funded by Belgian Defence (subject to availability).

Workplace

- Royal Military Academy, 30 avenue de la Renaissance, 1000 Brussels;
- A reasonable amount of the work will need to be executed at the premises of the BE Navy (Zeebrugge and Ostend area);
- Occasional travels abroad for scientific conferences, meetings at partners' premises;
- RMA provides a stimulating work environment;
- RMA enables synergy with regional and global academic/research institutes and industry.

Points of contact

- Concerning the research project: Dr Olga Lopera Tellez (olga.loperatellez@mil.be) and Prof. Xavier Neyt (xavier.neyt@elec.rma.ac.be),
- Concerning the recruitment modalities: Mrs Helena Bruyninckx (erm-deao-rsw@mil.be)
- For more information about the Royal Military Academy, see <http://www.rma.ac.be>