



**PhD student – project “A4S” (M/V/X)**  
**Department of Communication, Information, Systems & Sensors (CISS)**  
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In the framework of a triple helix research project between the Royal Military Academy, Gent University (UGent), industry and the Belgian Navy, we are looking for a **full-time research scientist/engineer with a master's degree in Engineering / Applied Sciences / Physics / Computer Science / Mathematics, to carry out a PhD in the field of Artificial Intelligence for Maritime Surveying.**

## Context

The Royal Military Academy of Belgium (RMA) is a military institution of university education responsible for the basic academic, military and physical training of future officers, and for the continued advanced training of officers during their active career in the Defense department ([www.rma.ac.be](http://www.rma.ac.be)). RMA is also conducting scientific research at university level for projects funded by Defense or by external sources.

## Study

The project “Automatic, small-scale sea-floor characterization from high-resolution sonar data, (A4S)” consists in developing an AI-based model to extract information from high-resolution sonar data in order to characterise environmental parameters in (near)real-time. From that information, Additional Military Layers\* are to be created to enhance environmental awareness for mine-search and maritime surveying applications.

The successful candidate will have, under the supervision of the project (co-)directors and (co-)supervisors, to devise the necessary algorithms, implement, evaluate their performance and validate them. The candidate is also expected to publish the relevant results in the scientific literature while taking the industrial valorisation of these results into account.

The successful candidate will be integrated in the “Image Processing” research cell of RMA and in the research Group for Artificial Intelligence and Sparse Modeling (GAIM) at the Department Telecommunications and Information Processing of UGent.

The successful candidate will be supervised by Prof. Xavier Neyt from RMA and Prof. Pizurica from UGent; and assisted by Dr Ir Lopera, from the “Image Processing” research unit.

More information at: [olga.loperatellez@mil.be](mailto:olga.loperatellez@mil.be), [aleksandra.pizurica@ugent.be](mailto:aleksandra.pizurica@ugent.be), [Xavier.neyt@elec.rma.ac.be](mailto:Xavier.neyt@elec.rma.ac.be)

\*AML are a range of digital geospatial products. Endorsed by NATO and coordinated by the UKHO, AML provide tactical advantage in military and humanitarian operations by using geospatial intelligence.

The project “A4S” is foreseen to last 4 years and would start at the beginning of July 2021.

## Skills/Qualifications

### Required

The applicant shall have:

- A master's degree in Engineering, Applied Sciences, Physics, Computer Science or Mathematics;
- Training or experience in (elements of) machine learning;
- Good programming skills (Python, Matlab or C++);
- Experience in pattern recognition and image processing is an added value.

### Personal skills

- Ability to conduct scientific research at university level;
- Ability to work independently and in a multidisciplinary research team;
- Excellent written communication skills, both for scientific communications and for general public communications;
- Good oral communication skills for scientific communications.

### Other skills

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

### Specific requirements:

- 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.
- The researcher will be working very closely together with the industrial partner and will get insight in their proprietary intellectual property. The candidate must consent with the corresponding non-disclosure agreement and professional confidentiality regarding this intellectual property.
- This project calls for both theoretical and practical developments. The researcher will need to perform field validation campaigns on Belgian or Dutch Navy vessels (count a few weeks each year). Flexibility to travel is therefore required.

## Application

You will be working in a military environment. For this reason, you will be subject to a security screening.

**Please add to your job application a duly completed copy of the following security screening document that you can download from the web-site of RMA (currently available only in Dutch or French):**

<http://www.rma.ac.be/nl/aanvraag-veiligheidsverificatie>

Applicants shall send :

- a motivation letter (indicating also the date when the applicant could be able to start);
- a complete CV and the transcript of records from bachelor and master studies;
- a scan of their ID card (both sides) or passport;
- a completed and signed copy of the security-screening document, mentioned above.

Please mention clearly the reference of the project, "A4S", and send your application to Prof. Xavier Neyt ([xavier.neyt@elec.rma.ac.be](mailto:xavier.neyt@elec.rma.ac.be) ), Prof. Aleksandra Pizurica ([aleksandra.pizurica@ugent.be](mailto:aleksandra.pizurica@ugent.be)), to Dr Olga Lopera ([olga.loperatellez@mil.be](mailto:olga.loperatellez@mil.be)) and to the service RSWO ([erm-deao-rsw@mil.be](mailto:erm-deao-rsw@mil.be))

Application deadline: **June 4<sup>th</sup>, 2021**

A first pre-selection will be conducted based on the received documents. Preselected applicants meeting the requirements will be invited to a face-to-face interview (optional online; depending on the COVID-19 situation) at the Royal Military Academy, rue Hobbema 8, 1000 Brussels. The date and time of the interview will be communicated to the preselected candidates.

## Additional information

### Contract

- Probable date of recruitment: as soon as possible, in agreement with the applicant.
- Status: **Full-time employment (38h/week)** based on an **open-ended contract** with the Patrimony of the Royal Military Academy. This does not imply that the candidate will be a civil servant. The financing of this contract is tied to the project, which lasts four years.
- Wage scale: A11 (holders of a Master Degree) / A21 (Ir or holders of a Master Degree in Engineering Sciences (Applied Sciences)).

### Extra-legal benefits

- Possibility to obtain a bonus for bilingualism (Dutch/French);
- Holiday allocation;
- End-of-year bonus;
- Hospitalization insurance;
- Free public transport (home-work commute within Belgium) or bike allowance;
- Free access to the on-campus sport infrastructure;
- On-campus restaurant and cafeteria with reduced price for employees.

### Workplace

- Royal Military Academy, Avenue de la Renaissance 30, 1000 Brussels and Ghent University, Department Telecommunications and Information Processing (TELIN), Sint-Pietersnieuwstraat 41, 9000 Ghent

- A reasonable amount of the work will need to be executed at the premises of the end user partner (Zeebrugge and Ostend area)
- Occasional travels abroad for scientific conferences, meetings at partners' premises.

### Points of contact

- Concerning the research project: Olga Lopera ([olga.loperatellez@mil.be](mailto:olga.loperatellez@mil.be)), Aleksandra Pizurica ([aleksandra.pizurica@ugent.be](mailto:aleksandra.pizurica@ugent.be)) & Xavier Neyt ([Xavier.neyt@elec.rma.ac.be](mailto:Xavier.neyt@elec.rma.ac.be))
- Concerning the recruitment modalities: Helena BRUYNINCKX ([erm-deao-rsw@mil.be](mailto:erm-deao-rsw@mil.be))
- For more information about the Royal Military Academy, see <http://www.rma.ac.be>, for the SIC <http://www.sic.rma.ac.be/>, and for the GAIM <https://gaim.ugent.be/>