VACANCY NOTICE

Junior Data Scientist (220684)

Primary Location: Italy-La Spezia
NATO Body: Centre for Maritime Research and Experimentation (CMRE)
Schedule: Full-time
Application Deadline: 25-Sep-2022
Salary (Pay Basis): 4,193.62Euro (EUR) Monthly
Grade: NATO Grade G11
Clearance Level: NS

Appointment will be subject to receipt of a NATO SECRET security clearance (provided by the national Authorities of the selected candidate) and approval of the candidate’s medical file by the CMRE Medical Adviser.

CMRE’s Maritime Unmanned Systems (MUS) for Anti-Submarine Warfare (ASW) project is looking for a junior scientist with experience in advanced signal processing for cataloguing and exploiting previously acquired data to develop a Machine Learning (ML) capability for classifying submarines.

GENERAL BACKGROUND

The Centre for Maritime Research and Experimentation (CMRE) is part of the NATO Science and Technology Organization (STO). CMRE is an established, world-class scientific research and experimentation facility that organizes and conducts scientific research and technology development, centred on the maritime domain, delivering innovative and field tested Science & Technology (S&T) solutions to address defence and security needs of the Alliance.

CMRE has more than 60 years of experience and has produced a cadre of leaders in ocean science, modelling and simulation, acoustics and other disciplines, as well as producing critical results and understanding that have been built into the operational concepts of NATO and the Nations.

POST DESCRIPTION

Location: La Spezia, Italy, 80 Km north of Pisa, on the Gulf of La Spezia
Division: Research Division

POST CONTEXT

This is a position at the Centre for Maritime Research and Experimentation (CMRE), which is part of the Science and Technology Organization (STO) of the North Atlantic Treaty Organization (NATO).
CMRE is an established, world-class scientific research and experimentation facility that organizes and conducts scientific research and technology development, centered on the
maritime domain, delivering innovative and field-tested Science & Technology (S&T) solutions to address defense and security needs of the Alliance.

The position is within the Research Division (RD), which is responsible for identifying, developing and delivering Science & Technology (S&T) to the needs of the Alliance in the maritime domain.

The Division leads the development of CMRE’s scientific strategy and through its capability in ocean sensing, numerical modelling, big data analytics, artificial intelligence and autonomy, delivers the Centre's S&T goals while maintaining CMRE’s reputation within the scientific community.

The Research Division is comprised of the four following sections:

• Anti-Submarine Warfare (ASW);
• Mine Countermeasures (MCM);
• Data & Environmental Knowledge and Operational Effectiveness (D-EKOE);
• Maritime Unmanned Systems Enablers (MUSE).

This junior data scientist position is in the ASW Section and supports the Maritime Unmanned Systems for ASW project. In this project, advanced signal processing algorithms are developed and tested for the detection, localization, classification and tracking in the context of ASW. This work is performed for both passive and active ASW. The Data Science part of the ASW Section aims at cataloguing and exploiting previously acquired data with the objective to go towards a Machine Learning (ML) capability for submarine classification in order to improve overall sonar system performance and lowering false alarm rates.

**PRINCIPAL DUTIES**

Under the management of the ASW Section Head, the incumbent will perform duties such as the following:

• Apply data science techniques, such as e.g. data analytics, statistical modelling and machine learning in the context of ASW;
• Work with the other scientists in the ASW Section to combine the use of conventional signal- and data processing techniques with AI algorithms;
• Adopt data- and metadata formats which fit the needs of the Research Division and CMRE;
• Harmonize software development efforts with respect to CMRE software best practices;
• Measure the results of AI-based algorithms when applied to CMRE data, and present them to ASW stakeholders;
• Acquire basic knowledge in the field of passive and active sonar processing concepts.
• Support the CMRE sea experiments planning with focus on scientific data collection and processing;
• Generate high quality CMRE reports containing details of algorithmic approaches developed for the project and summarizing achieved performance using commonly
recognized metrics;
• Publish in peer-reviewed scientific literature.

SPECIAL REQUIREMENTS AND ADDITIONAL DUTIES

a. Flexibility Clause
• The incumbent may be required to perform other related duties even in other parts of the organization as directed;
• As required by the Program of Work, the incumbent may be asked to participate in working groups or project teams and to coordinate and organize the work of other scientists and staff.
All other related duties should correspond with the required competencies for the job.

b. Deployment/Travel
The incumbent may be required to perform his/her duties onboard Centre or chartered vessels. The incumbent may be required to undertake TDY assignments within and outside NATO boundaries.

ESSENTIAL QUALIFICATIONS

a. Professional/Experience
• Proven work experience as a Data Scientist, Data Analyst or similar role;
• Proven work experience in statistical analysis and signal processing;
• Proven work experience in Machine Learning, Neural Networks using e.g. TensorFlow, PyTorch, scikit-learn or other modern machine learning frameworks;
• Experience with Agile methodologies;
• Experience in modern software architecture and software development (Python, SQL, R and/or Matlab);

b. Education/Training
• A Bachelor of Science degree from a recognised University in machine learning, advanced data analytics or related disciplines and up to 3 years post-related experience.

c. Language Requirements
• A thorough knowledge of one of the two NATO languages, both written and spoken, is essential and some knowledge of the other is desirable;
• English SLP 3333.
NOTE: Work at CMRE is conducted in the English language.

d. Certification
The incumbent needs to be holder a fit for sea certificate in line with the International
Science and Technology Organization
Centre for Maritime Research and Experimentation
La Spezia - Italy

Maritime Organization (IMO) and International Labour Organization (ILO) standards before taking up duty or capable of getting it during the first 6 months of employment.

DESI RABLE QUALIFICATIONS

- A MSc or a PhD in machine learning, advanced data analytics or related disciplines;
- Experience with scientific data and meta data formats such as NetCDF, GRIB, Geo-TIFF, HDF, Flac, NMEA, GML, NATO AML, S-57, Dublin Core, ISO-19115, ISO-19139, NATO Geospatial Metadata Profile, etc.;
- Experience with data sharing protocols such as OPeNDAP, Open Geospatial Consortium Web Services, etc. and relative software implementations;
- Experience in physics-based predictive modelling;
- Experience with Computer-Aided Classification and/or Automated Target Recognition techniques from sonar data;
- Expertise in developing (passive or active) sonar signal- and array processing algorithms specific for ASW applications;
- Sea-going experience in the context of scientific research and/or military exercises;
- Working experience in a military environment;
- Working experience in an international environment.

REMARKS:

The successful candidate will be offered a 3-year definite duration contract, which may be renewed.

HOW TO APPLY:

Applications are to be submitted using the NATO Talent Acquisition Program (NTAP) https://nato.taleo.net/careersection/2/jobdetail.ftl?job=220684&lang=en Applications submitted by other means are not accepted. NTAP allows adding attachments.

Essential information must be included in the application form. Particular attention should be given to Education and Experience section. Each question should be answered completely. Expressions such as “please see annex / enclosed document” or invitations to follow links to personal webpages are not acceptable and will be disregarded. All answers should be in English preferably, or French.