2022/23 Call for Applications

Postgraduate Fellowships

Institute for Maritime Technology (IMT)

Date of Issue	26 May 2022
Closing Date	24 June 2022 at 16h30
Place of Submission	bursaries@armscor.co.za
Enquiries	012 428 2444
Armscor's Business Hours	07h30 – 16h20

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1. Introduction

1.1. Armscor is the acquisition agency for the Department of Defence (**DOD**). Renowned for its acquisition expertise, Armscor has enhanced and expanded its service offering to the **DOD** as well as to stakeholders across the African Continent in line with its vision to be the premier defence technology and acquisition service provider for the South African Government and our allies on the African continent and the world.

1.2. The Research and Development (R&D) Business Unit specialises in providing operational and scientific research as well as vehicle and artillery testing and evaluation services. Our research and development institutes continue to produce innovative technology products and services which go through rigorous testing and evaluation processes that are recognised internationally.

2. Background

2.1. The Institute for Maritime Technology (IMT) a division of the R&D Business Unit is a strategic facility that provides technical research and development support services to the South African National Defence Force (SANDF), primarily to the South African Navy (SAN) and other clients. Furthermore, the institute also provides services for industrial or commercial purposes to the Oceans Economy, Government Departments and other industries.

2.2. IMT has four Postgraduate Fellowship opportunities in the following domains:

- Two positions in Maritime Domain Awareness (MDA);
- One position in Underwater Sensors and Signatures (UWSS); and
- One position in Naval Electro-Optics (NEO).

2.3. Postgraduate Fellowship is a strategic position aimed at attracting postgraduate students from academia and industry to join IMT in conducting Maritime technology research and development.

1. Overview of Requirements

The requirements for Postgraduate candidates are as follows:

1.1. Only South African citizens are eligible, but priority will be given to candidates from the designated groups, in order to address previous imbalances and institutional targets through the development of a cohort of potential future Scientists and Engineers.

1.2. The expertise and research focus of the Postgraduate Fellow should indicate the potential to contribute to a noticeable increase in good quality research outputs for the IMT's domain.

1.3. Applicants must have completed relevant Masters' or completing their Masters' Degree during the 2022 academic year.

1.4. PhD candidates will have an added advantage.

2. Application Process

2.1. Candidates must submit their applications electronically. Their applications should be composed of the following documentation:

2.1.1. Comprehensive Curriculum Vitae (CV);

2.1.2. Full academic transcript;

2.1.3. ID Copy;

2.1.4. Copies of Academic Qualifications; and

2.1.5. Motivation letter (maximum of one page).

2.2. Applications must be sent to bursaries@armscor.co.za by the closing date and the subject title must include "SURNAME Name + IMT Postgraduate Fellowships".

2.3. The deadline for applications is on **24 June 2022**; only applications sent within the deadline will be taken into consideration.

3. Evaluation of Applicants

3.1. All applications received will be screened for eligibility and compulsory documentation submitted with the application.

3.2. Applications that are deemed not eligible or do not have **ALL** the required attachments will not be processed further.

3.3. Successful candidates will be subjected to security clearance processes.

3.4. Applicants who do not receive confirmation or feedback within 3 (three) months after the closing date for applications must accept that their applications were unsuccessful.

3.5. Kindly note that, due to the expected large volume of applications to be processed, receipt of applications will not be acknowledged.

4. Duration of Postgraduate Fellowships

4.1. The Postgraduate Fellowship seeks to provide recent graduates an opportunity to gain meaningful work experience for a period of twenty-four (24) months.

4.2. At the end of the Postgraduate Fellowship, there is a possibility of Postgraduate Fellows being offered permanent employment based on their performance during the fellowship program.

4.3. Due to your position as a Postgraduate Fellow, you are expected at all times to remain aware of the specific duties, deliverables and outcomes expected of you and to maintain the standards of performance required of you.

4.4. If at any time during the duration of your contract at Armscor, it becomes apparent to Armscor that you have failed to perform at the standard required of you, Armscor will be entitled to consider the termination of the contract on the basis of your poor work performance.

5. Remuneration of Postgraduate Fellowships

Competitive market-related.

6. Place of Work

All the positions are based in IMT which is in Simon's Town, Western Cape.

7. Job Specifications

Please see Appendix A

APPENDIX A

Software Engineer or Data Scientist (Two Positions)			
About the Unit	**Key Responsibilities**	**Required Qualifications**	**Skills and Experience**
The **Maritime Domain Awareness (MDA)** focuses on maintaining and developing network systems and developing software tools to analyse and display “real-time” situational awareness data to several Navy sites.	• Deployed across various technology domains (Radar, Sonar, Electronics, Electro-Optics, Maritime Communication) to apply principles and techniques of engineering towards software projects; and to provide expert systems and technology support to the South African Navy (SAN) and other clients. • Draft proposals to generate funding for project work. • Setup, design, develop and test computer algorithms and models in order to simulate and interpret results and perform mathematical verification. • Define, investigate and analyse medium complex engineering problems, and design and develop cost-effective solutions to the identified technical problems. • Establish and maintain maritime domain awareness sites in support of the South African Navy client. • Demonstrate new software technologies (i.e. hardware/computer-based algorithms) to SAN clients. • Network with industry, and academia, and stay abreast of the latest technology in the Naval and Maritime environment.	• A Masters’ degree (or in the final year of completing the Masters’ degree) in Electronic Engineering or Computer Engineering or Computer Science or equivalent • A PhD or currently pursuing a PhD in Electronic Engineering or Computer Engineering or Computer Science or equivalent will be an advantage.	• Knowledge of network systems or artificial intelligence will be advantageous • Knowledge of using Microsoft Visual Studio, Linux, and/or LaTeX • Experience with Python, C#, and C++ programming languages • Research and report-writing skills • Problem-solving skills • Solution-seeking orientation • Excellent facilitation and interpersonal skills • A goal-oriented approach • Ability to work independently as well as in teams

Scientist (One Position)			
About the Unit	**Key Responsibilities**	**Required Qualifications**	**Skills and Experience**
The **Underwater Sensors and Signatures (UWSS)** domain focuses on testing and evaluation of sensors using Sonar, Magnetic, and Acoustics methods. .	• Develop and maintain strategic capabilities and facilities in the underwater sensor signatures domain. • Detect, analyse, and interpret underwater signals through the use of underwater acoustics, sonar, magnetic, pressure, and electric fields. • Perform transducer and sonar array calibration and acceptance, as well as general testing of various underwater systems. • Develop and verify sonar models to predict sonar performance modelling in the highly variable underwater environment. • Develop sonar target noise diagnostic tools and apply them to underwater signature management, as well as target classification. • Develop computer-assisted sonar target classification to assist in submarine operations. • Perform underwater signatures for local and external clients through IMT's facilities. • Interact with maritime community, local and international clients • Draft proposals to generate funding for project work. • Generate technical reports, standard operating procedures, and manuals for SAN clients.	• A Masters' degree (or in the final year of completing the Masters' degree) in Physics (Sonar or Magnetics or Acoustics) • A PhD or currently pursuing a PhD in Physics (Sonar or Magnetics or Acoustics) will be an advantage	• Knowledge of using Microsoft Visual Studio • Experience with MATLAB, Maple, Mathematica, Python, or C++ programming language • Research and report-writing skills • Problem-solving skills • Solution-seeking orientation • Excellent facilitation and interpersonal skills • A goal-oriented approach • Ability to work independently as well as in teams

Scientist (One Position)			
About the Unit	**Key Responsibilities**	**Required Qualifications**	**Skills and Experience**
The **Naval Electro-Optics (NEO)** domain focuses on the maintenance and development of Electro-optic sensors within the domain's facilities.	• Perform image and data analysis applications using commercial/open source platforms. • Develop image processing algorithms using MATLAB (image processing toolbox) and open source i.e., Python (scipy, numpy). • Convert old image processing algorithms written in licensed software into an open source platform. • Generate technical reports, standard operating procedures, and manuals for SAN clients. • Support various domains i.e., Maritime Domain Awareness with maintenance and development of Electro-Optics sensors installed within coastal maritime awareness sites in support of South African Navy sites. • Demonstrate new hardware or technology demonstrators to SAN clients. • Interact with clients and provide guidance and training concerning Naval Electro-Optics technologies. • Evaluate new Electro-Optic sensor technologies that can be used on-board ships or in the harbour (for mission optimization and improved self-protection). • Maintain good contact, co-operation, and joint research activities with the local and international defence industry and academic institutions (e.g. through technology demonstrator development and product test- and evaluation).	• A Masters' degree (or in the final year of completing the Masters' degree) in Electronic Engineering or Physics (Lasers and Optics) or equivalent • A PhD or currently pursuing a PhD in Electronic Engineering or equivalent will be an advantage.	• Knowledge of optics or image processing or other artificial intelligence skills • Knowledge of using Microsoft Visual Studio • Experience with MATLAB, Maple, Mathematica, Python, or C++ programming language • Research and report-writing skills • Problem-solving skills • Solution-seeking orientation • Excellent facilitation and interpersonal skills • A goal-oriented approach • Ability to work independently as well as in teams

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