



PhD position Bio-inspired fins for highly performant articulated autonomous underwater vehicles(IV-126/19)

About the position

We have an open PhD position related to the following topic:

“Bio-inspired fins for highly performant articulated autonomous underwater vehicles”

The Department of Marine Technology at NTNU and partners were awarded a Centre of Excellence by the Norwegian Research Council in 2013.

NTNU AMOS vision is to establish a world-leading research centre for autonomous marine operations and systems: To nourish a lively scientific heart in which fundamental knowledge is created through multidisciplinary theoretical, numerical, and experimental research within the knowledge fields of hydrodynamics, structural mechanics, marine biology, guidance, navigation, and control. Cutting-edge inter-disciplinary research will provide the necessary bridge to realize high levels of autonomy for ships and ocean structures, unmanned vehicles, and marine operations and to address the challenges associated with greener and safer maritime transport, monitoring and surveillance of the coast and oceans, offshore renewable energy, and oil and gas exploration and production in deep waters and Arctic waters.

The position reports to Professor Marilena Greco

Job description

- We are particularly interested in bio-inspired solutions for marine underwater vehicles. This will be the focus of this PhD position, with the following motivation, aim and research methodologies.

Motivation: Some fishes use morphing and retractable fins to enhance their performance as cruising and manoeuvring vessels. They are retracted in straight path to improve stability and achieve fast and efficient locomotion and are deployed with suitable shape to perform fast turning in their catching/escape strategies.

Aim: This research study should investigate fish-inspired fins, their shaping and retractable features, and transfer this knowledge to enhance the performances of articulated autonomous underwater vehicles (AUVs). An articulated AUV consists of rigid modules connected with articulated joints to allow for flexible motions of the overall vehicle.

Method: The research methodologies will be theoretical, numerical and experimental, in a complementary and synergic way. The focus is on hydrodynamic challenges, but the topic involves also elements of fish physiology and control theory.

Qualification requirements

PhD candidate:

The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background in Marine Technology, Aeronautical Engineering, Mechanical Engineering or equivalent education with a grade of B or better in terms of [NTNU's grading scale](#). Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and [national guidelines for appointment as PhD, postdoctor and research assistant](#)

Our research has civilian objectives. However, equipment restricted by export licenses and ITAR (International Traffic in Arms Regulations) is being used in the research project. Applicants that are citizens of Norway, Australia, Japan, New Zealand, Switzerland, EU or NATO countries are eligible. Other applicants are required to provide evidence of eligibility to use such equipment for their application to be considered/in their application.

Other qualifications

- Master students graduating summer 2019 can apply.
- Master students graduating by the end of June 2020 may apply for admission as integrated MSc and PhD.

- Excellent English skills, written and spoken, are required. Applicants from non-English speak countries outside Europe must present an official language test report. The acceptable tests are TOEFL, IELTS, and Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE). Minimum scores are:
 - TOEFL: 600 / writing 4.5 (paper-based test), 92 / writing 22 (internet-based test)
 - IELTS: 6.5, with no section lower than 5.5 (only Academic IELTS test accepted)
 - CAE/CPE: grade B or A.
- The application should contain information of educational background and prior training, exams, and work experience. Certified copies of academic diplomas and transcripts must be attached. Applicants from universities outside Norway are kindly requested to send a diploma supplement or a similar document, which describes in detail the study and grading system and the rights for further studies associated with the obtained degree.

Personal characteristics

- Hard working and dedicated
- Highly motivated to perform interdisciplinary research using different research tools (experimental/ numerical/ theoretical)
- Good analytical skills
- Strong ability to express research work and results in English, both written and orally
- Flexible and dependable
- Collaborative

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement

We offer

- Exciting and stimulating tasks in a strong international academic environment
- An open and [inclusive work environment](#) with dedicated colleagues
- Favourable terms in the [Norwegian Public Service Pension Fund](#)
- [Employee benefits](#)

Salary and conditions

PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 449 400 before tax per year. From the salary, 2 % is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years without required duties. Appointment to a PhD position requires admission to the PhD programme in Marine Technology (<https://www.ntnu.no/imt>).

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

General information

[Working at NTNU](#)

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

Questions about the position can be directed to Professor Marilena Greco, phone number +47 73595440, e-mail marilena.greco@ntnu.no

About the application:

Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

Please submit your application electronically via jobbno.no with your CV, diplomas and certificates. A brief outline of possible research topics/strategies, relevant for the present call, may be included. Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number IV-126/19 when applying.

Application deadline: 30.04.2019

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Marine Technology

We develop methods and technology related to the blue economy: oil and gas extraction at sea, ship technology and the equipment industry, fisheries and aquaculture. We also have a strong commitment to the development of sustainable solutions for offshore renewable energy, coastal infrastructure, and marine robotics. Marine technology helps to solve major global challenges related to the environment, climate, energy, food and efficient transport. [The Department of Marine Technology](#) is one of eight departments in [the Faculty of Engineering](#).

Jobbno-ID: 166752, Søknadsfrist: Avsluttet