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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.

6 PhD positions - Autonomous all-electric passenger ferries for urban water transport (Autoferry)

Autonomous all-electric passenger ferries for urban water transport (Autoferry) - Morten Breivik

[The Norwegian University of Science and Technology](#) (NTNU) is now launching a strategic research program called [Digital transformation](#) with nine research projects. One of these projects is about the development of autonomous all-electric passenger ferries for urban water transport (Autoferry).

The concept of small autonomous passenger ferries in urban areas is a more flexible, cost-effective and environmentally-friendly alternative to bridges or manned ferries. Autonomous ferries can also be coordinated with for instance autonomous buses in an urban intelligent transportation system, enabling reduced commuting time and improved quality of life for people living in cities.

Currently, there are a limited number of unmanned cable ferries at several locations in Norway. This project aims to remove the cable and enable such ferries to operate autonomously, which will open up new possibilities for both urban and coastal transport. In general, reducing the cost of ferry services using autonomous vessels will enable a revitalization and further development of coastal areas, where a large part of the Norwegian population lives. This also means that the development of autonomous ferries has the potential to create new markets which do not exist today due to high crew costs. Hence, autonomous ferries can be transformative both technologically, societally and in terms of new business opportunities.

NTNU has already developed a 5-m long (1:2 scale) prototype of an autonomous all-electric passenger ferry for urban water transport. It was constructed during the summer of 2017 and went through its first sea trials in November 2017. This prototype will be used as the main experimental platform in the project.

The main hypothesis of the project is that such ferries can operate safely alongside other vessels in confined and congested environments such as urban water channels. Verifying this requires a broad multi-disciplinary approach, where the research methods combine theory, simulations and experimental testing and validation. Therefore, the project involves 19 researchers from three faculties and all three NTNU campuses. These have competence in the fields of control systems, autonomous systems, sensor fusion, robotic vision, instrumentation systems, communication systems, artificial intelligence, cyber security, risk management, power systems and human factors, constituting a unique multi-disciplinary project team, which is required to solve the challenges of this project.

The project centers around six PhD positions, please click on the link to go to the announcement page for each position:

1. [Automation and autonomy](#)
2. [Multi-sensor tracking via shore- and ferry-based sensors](#)
3. [All-electric power and propulsion](#)
4. [Human factors, remote monitoring and control](#)
5. [Communications and cyber security](#)
6. [Risk management](#)

The external project partners are Trondheim Havn, DNV GL, Maritime Robotics and Kongsberg Seatex, who will provide additional competence, equipment and infrastructure in collaboration with the project team. A strong team of international researchers will also contribute to the project.

The candidates are expected to start in the autumn 2018.

All 6 successful candidates linked to this project are expected to work and collaborate closely through the duration of the project. Sharing knowledge, experience, and research is the key to a successful result.

Deadline for applications are May 27, 2018

Jobbnorge-ID: 151105, Søknadsfrist: Avsluttet