

Considerations regarding the position as Associate Professor in Agricultural Robotics

The vision of the robotics group at NMBU is to be internationally leading in research and education within the area of agricultural robotics. The group conducts research in mechanical design, electronics, control, autonomous navigation, machine vision, and machine learning applied to the agricultural domain. In addition, the group is responsible for a full 5-year Master of Science in Applied Robotics starting from 2019.

Teaching responsibilities

The Master Programme in Applied Robotics will teach the students how to develop robotic solutions for the real world with focus on applications and hands-on implementation and testing. The course will have a theoretical foundation in robotics, navigation and autonomy, traditional machine learning and deep learning, and also give the students a good intuition on how the algorithms work by implementing the theory on real systems. The students will therefore be encouraged to work on implementation of these algorithms very early in the study. This hands-on experience will be accompanied with a strong theoretical background, which will give the students a unique chance to see how theory works in practice.

The candidate for this position will be responsible for teaching the class TEL200 – Introduction to Robotics. This is an important part of the Applied Robotics Master Programme. The candidate will thus need the following competences:

- Good communication skills in Norwegian and in English
- Practical skills and capable of developing a hands-on and practical course also outside the classroom. Good overview of the field of robotics, both theoretical and practical.

The candidate will also be responsible for teaching classes at higher level, such as agricultural robotics, navigation for mobile robots, autonomy, etc.

Research responsibilities

The main research responsibilities will be in the areas of agricultural robotics. The robotics group at NMBU is world leading in this area, and we are looking for candidates that wish to contribute in the same direction, i.e., working with robotics applied to the agricultural domain. Experience from agricultural robotics will be very positive.

The robotics group is looking for an Associate Professor that can build and operate robots such as the Thorvald platform developed by NMBU. The candidate must therefore have an in-depth knowledge in all areas of robotics, including mechanical design (SolidWorks), electronics and motor control (Roboteq controllers), programming (ROS, C++ and Python), sensor systems (LIDAR, cameras, IMUs, GNSS, etc), and have shown the ability to have robots operate in the agricultural environment for longer periods of time. The candidate must demonstrate that he or she has developed *and implement* all parts needed to get robots to work in the field, both hardware and software. The candidate must show that he or she can operate the Thorvald platform and implement this in research and education projects relatively short after commencing the position, and no later than August 2019 when students arrive. We have several research projects that depend on these robots running at all time, and the candidate must convince the committee that he or she can make sure the robots are operational for these research projects at all times.