Postdoctoral Position with the SMS-Cyber-Physical Systems research group (currently consisting of 1 full professor, 2 assistant professors, 1 postdoc, 8 doctoral students), The Faculty of Science and Engineering, University of Groningen, the Netherlands.

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The Norwegian University of Science and Technology (NTNU, http://www.ntnu.edu/) is establishing a new professorship in Assurance of Autonomous Systems, in collaboration with the leading quality assurance and risk management company DNV GL (https://www.dnvgl.com/).

The position will be affiliated with the Department of Engineering Cybernetics (Institutt for teknisk kybernetikk, ITK – http://www.ntnu.edu/itk) at NTNU's Faculty of Information Technology and Electrical Engineering in Trondheim, Norway.

ITK has 29 professors, 15 adjunct professors, about 15 postdocs and researchers as well as 80 PhD candidates. Approximately 170 candidates graduate annually from the three MSc programs in cybernetics, which comprise over 800 students in total. The department is involved in numerous research projects and centers, including the Centre of Excellence for Autonomous Marine Operations and Systems (NTNU AMOS, http://www.ntnu.edu/amos).

The term assurance is defined as being "ground for justified confidence", and the level of required confidence depends on a system's criticality. Confidence is established by providing evidence that the system meets defined requirements, and this evidence should be complete, correct, relevant and objective. The challenges of being able to address assurance of autonomous systems is related to their inherent complexity, since their requirements call for advanced knowledge/model representations with mechanisms such as learning, adaptation, reasoning and optimization leading to complex software and human-machine interaction.

Together with specifications and requirements, performance metrics will form the basis for standards, rules, regulations, testing, verification, validation and certification. The professor should have competence and motivation for research in this area, with impact both on improving the performance of autonomous systems in terms of safety, robustness and reliability, as well as developing a solid foundation for testing, verification and validation of such systems. In particular, research competence in the following areas is regarded as relevant for the position:

- Autonomous systems, robotics and artificial intelligence
- Optimization, systems and control theory
- Big data analytics
- Decision support systems
- Human-machine interaction
- Risk modelling, analysis and management
- Safety and reliability engineering
- Simulation technology
- Software testing
- Systems engineering
- Embedded and real-time software engineering
- Industrial computer systems

Research activities are expected to have a strong international profile and impact, with a long-term perspective and to be concentrated around basic challenges and enabling technologies with relevance and importance for applications and industry. The department has strong relationships to Norwegian and international industry, with numerous joint research projects including applications in the maritime, offshore, energy, process, aquaculture and medical industries.

The research activities at the department rely mainly on external funding, and the development of educational programs may also receive external funding. The successful applicant is expected to engage extensively in applications for external research funding, e.g. from the Research Council of Norway, European research and educational agencies, the industry sector, and other available sources. The candidate will join a research community at ITK which was rated "excellent from an international perspective" in the Norwegian Research Council's evaluation of 53 ICT communities in Norway in 2012, as one of only three ICT communities to receive such a rating in the Norwegian university and college sector. Currently, two of ITK's professors are IEEE Fellows.

The full announcement can be found at https://www.jobbnorge.no/en/available-jobs/job/164047/professorassociate-professor-in-assurance-of-autonomous-systems