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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.*

# DNV-GL Professorship/Associate professorship in “Performance of Artificial Intelligence Systems”

The Faculty of Information Technology and Electrical Engineering (IE, cf. [www.ntnu.no/ie](http://www.ntnu.no/ie)) at the Norwegian University of Science and Technology (NTNU, cf. [www.ntnu.edu](http://www.ntnu.edu)) invites applications for a full-time professorship or associate professorship in Performance of Artificial Intelligence Systems, affiliated with the Department of Computer Science ([www.ntnu.no/idi](http://www.ntnu.no/idi)). The professorship will be funded by DNV-GL ([www.dnvgl.com](http://www.dnvgl.com)) for the first five years, after which NTNU takes over the funding responsibilities.

## Information about the department

The new professor will be organizationally placed in the Data and Artificial Intelligence (DART) research group at the Department of Computer Science (IDI) at IE. (S)he is expected to establish collaboration with relevant colleagues at other departments at the faculty.

IDI has about 200 employees including 28 professors, 11 associate professors, 13 adjunct associate professors, 14 postdoctoral researchers, approximately 60 active Ph.D. students, and 20 technical/administrative staff. Six of the tenured scientific positions are held by women, while ten are from other countries than Norway. More than 7,000 students study one or more courses at the department each year.

To find out more about the department's research and educational activities please visit <https://www.ntnu.edu/idi/research/> and <https://www.ntnu.edu/idi/studies/>.

Artificial Intelligence and Big Data are currently strategic research areas of NTNU, IE, and IDI, involving many professors and researchers from different departments (see e.g. [www.ntnu.edu/ime/bigdata](http://www.ntnu.edu/ime/bigdata) and [www.ntnu.edu/ailab](http://www.ntnu.edu/ailab)).

Our ambition is to be internationally leading within Artificial Intelligence and Machine Learning research and education. With this particular position we have the following ambition:

- To attract the best possible, internationally leading candidate within the field at hand
- To complement and strengthen the already strong Artificial Intelligence and Machine Learning research environment at IE and the Department of Computer Science
- To extend and strengthen our international network
- To hire a person that can take a lead in initiating and acquiring new research projects (incl. EU and NFR funded projects) within AI.

## Fields of research and teaching for the professorship

The main field of research will be within Artificial Intelligence and Machine Learning, with a particular emphasis on performance (quality, reliability, trustworthiness and robustness) of AI methods. The professor is expected to play a leading role in research and research based education within this field, in cooperation with existing staff.

IDI's research in Artificial Intelligence and Machine Learning is driven by an interest in contributing to the state-of-the-art at the level of individual methods and algorithms, coupled with an interest in studying and developing fruitful combinations of methods related to domain types. For example, data-intensive methods are combined with knowledge-based methods in order to produce user explanations for decision support. For this particular position, focus will be put on verification of AI algorithm performance.

The research activities are expected to have a strong international profile and impact. Our strongest contributions to the international research front so far have been within Bayesian learning and probabilistic reasoning, evolutionary learning and neural networks, and instance-based learning and case-based reasoning. In addition, we have ongoing activities within large-scale data and information management at an international level. Over the last years there has been an increased interest in combined methods, e.g. combining Bayesian and instance-based learning methods, or more recently combining deep neural networks with reinforcement learning, applied to large volumes of data.

For the new professorship, it will be important to find candidates that complement (and build on) the competence already present at IDI and the IE Faculty.

Within this scope possible research areas are:

- Methods to measure and verify performance of AI Systems
- Integrated/combined Machine Learning methods, with special focus on developing ML methods for autonomous systems, sensors and IoT and for streaming and sequential data
- ML Model evaluation methods
- Continuous, life-long learning
- transfer learning

Application areas will be decided in dialogue with DNV GL. Cyber-physical systems, autonomous systems, industrial control systems, and natural language processing are examples of application areas of particular current interest.

## Responsibilities and duties

The professor will be a regular member of the department's scientific staff, with privileges and duties following from that. One of the important tasks of the professor will thus be to supervise master and PhD students.

Master and PhD candidates from the study programs of the IE faculty are expected to be competitive in an international job market. The professor will play a leading role in developing the educational profile in performance of AI systems, and in ensuring an excellent learning environment, in collaboration with colleagues, students, and external stakeholders. The faculty's study programs should have a strong international profile, and the professor is expected to be able to contribute to the development of international alliances and collaboration. The professor is expected to teach relevant courses at all levels and should supervise MSc and PhD students. Continued education is included in the portfolio of educational activities.

The research activities of the department rely crucially on external funding, and the development of educational programs may also receive external funding. The professor is expected to work actively to receive research grants and other external income from the Research Council of Norway, Nordic and European research and educational agencies, relevant industry, and other available sources.

Involvement in the activities of NTNU's new AI-Lab (cf. [www.ntnu.edu/ailab](http://www.ntnu.edu/ailab)) is expected. The AI-lab is intended to be a centre for the study and development of a large range of advanced AI methods, covering statistical methods, knowledge-based methods, and bio-inspired methods. Central application foci of the lab will be on data mining and data analytics, pattern detection, information management, personalization of digital services, verification of artificial intelligence software performance and active decision support -not excluding other application areas. Involvement in the AI-lab will allow for cross-disciplinary collaboration, access to existing and already established resources and infrastructure, and close involvement in all research-related activities including conducting artificial intelligence and machine learning research with other staff members. In addition to research and education, a professor is expected to disseminate relevant parts of her/his research to a wider audience.

The professor is expected to participate in the formal management of research, education, and other relevant areas of activity in agreement with the Department Head.

### **Qualifications**

The applicant should demonstrate professional qualifications within essential areas of artificial intelligence technologies, and profound scientific competence in the field "performance of AI systems". (S)he should be internationally recognized and able to lead and initiate research at a high international level. The applicant should demonstrate international experience and have a strong publication record in terms of papers in peer-reviewed journals and other relevant international publication channels. (S)he should document the ability to obtain external funding of research from relevant sources.

The applicant should demonstrate the ability to develop educational activities and the learning environment. (S)he should have experience in the supervision of master and doctoral students, or similar experience qualifying for such work. The applicant should demonstrate communicative skills that qualify for excellent teaching, supervision, and dissemination.

### **Application requirements**

The application should contain:

- CV including information pertaining to the given qualifications and a full list of publications with bibliographical references
- Testimonials and certificates
- The most important publications that are relevant for the evaluation of the applicant's qualifications (maximum 10 publications)
- A brief description of the scientific/technological relevance of the candidate's research
- Research proposal for the first five years of employment (maximum 10 pages)
- Information about educational experience, including development of study programs, curricula, teaching experience, and development of teaching methods and the learning environment. See "Documentation of an applicant's pedagogical qualifications": <http://www.ntnu.edu/vacancies/pedagogical-qualifications>
- Information about dissemination activities
- Other documents which the applicant would find relevant.

Joint works will also be evaluated. If it is difficult to identify the contributions from individuals in a scientific collaboration, applicants are to enclose a short summary of her/his contribution.

The Faculty of Information Technology and Electrical Engineering wants to attract outstanding and creative candidates who can contribute to our ongoing research activities. We believe that diversity is important to achieve a good, inclusive working environment. We encourage all qualified candidates to apply, regardless of the gender, disability or cultural background.

The applications will be evaluated by an international expert committee. The applicants that have been short-listed, will be invited for interviews and trial lectures.

### **Formal regulations**

Academic staff employed without prior formal pedagogical qualifications in university-level teaching, are required to complete a recognized course that gives a pedagogical qualification within two years of taking the appointment. The University offers such courses.

The professor should adhere to regulations that concern changes and developments within the discipline and/or the organizational changes concerning activities at the University.

Proficiency in the English language should be documented. New members of the academic staff who do not already master a Scandinavian language are expected to achieve proficiency in Norwegian or another Scandinavian language within three years. This proficiency should correspond to level three in the Norwegian for Foreigners courses provided at the Department of Language and Literature at NTNU.

The appointment is to be made in accordance with the regulations for State Employees and Civil Servants in Norway.

Further details about the position can be obtained from Head of department, Professor John Krogstie phone: +47 934 17 551 e-mail: [john.krogstie@ntnu.no](mailto:john.krogstie@ntnu.no) or from Associate Professor Heri Ramampiaro phone: +47 990 27 656 e-mail: [heri.ramampiaro@ntnu.no](mailto:heri.ramampiaro@ntnu.no)

The position as professor follows code 1013 and is remunerated according to the wage levels 69 on the Norwegian government state salary scale, with gross salary from NOK 609.300 a year. The position as Associate professor follows code 1011 and is remunerated according to the wage levels 57 on the Norwegian government state salary scale, with gross salary from NOK 488 900 a year. 2 % of the salary will be deducted as an obligatory premium to the Norwegian Public Service Pension Fund.

Under Section 25 of the Freedom of Information Act, information about the applicant may be made public even if the applicant has requested not to have his or her name entered on the list of applicants.

Applications are to be submitted electronically through this page. Preferably, all attachments should be combined into a single file.

Reference no: IE 093-2017

Application deadline: 2017-08-20.

