PhD position in Applied Statistics

About the position

A new PhD fellowship in applied statistics is available at the Department of Mathematical Sciences at NTNU. The position is financed by NTNU, and is part of the joint doctoral degree program together with the Technical University of Denmark (DTU). The candidate is required to spend at least one year in total at each of the institutions. The successful candidate will be offered a three-year position. The Department may offer a six to twelve months extension as a teaching assistant.

The term Big Data seems to be ubiquitous in many fields of applications and industrial production is no different. Yet sampling issues still abound in production. One such concern in production happens in optimization studies. The classic approach is the use of response surface methodology which employs a mixture of design of experiments and gradient based optimization tools. There has been growing interest in using Bayesian Optimization for this purpose instead. This has also been applied in many learning algorithms where tuning of hyperparameters for instance is an important optimization problem. While it may reach the optimum at a faster pace and be more effective in expensive sampling strategies, we believe the classical designs for controlled experiments provide more insight towards process understanding which is highly valued in industrial applications. A proper comparison of these approaches from both methodological and application points of view would ultimately be of great help to the production industry for choosing the right tool for the right task as well as for optimization problems within data science in general. In this project, we aim to explore the relative strengths and shortcomings of these two approaches through simulated and real industrial data. The project will involve an industrial partner for immediate applications of developed methodologies.

Duties of the position

- Research work in collaboration with the other members on the team (mentors included)
- Teaching (if the employee speaks a Scandinavian language, the position may be extended to a fourth year)
- Dissemination of results

Required selection criteria

The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is that you have completed a master’s degree or second degree (equivalent to 120 credits) with a strong academic background in mathematical sciences or equivalent education with a grade of B or better in terms of NTNU’s grading scale. If you do not have letter grades from previous studies, you must have an equally good academic foundation. If you are unable to meet these criteria you may be considered only if you can document that you are particularly suitable 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, post doctor and research assistant.

MSc students in their final year are also invited to apply. Employment will then be postponed until the master’s degree is finished.

Other required selection criteria

- a very strong background in data analysis, statistical modelling, and computing
- prior knowledge in software packages such as R and Python as well as proficient coding skills

Preferred selection criteria

- practical experience with large datasets and statistical learning
- applicants who do not master a Scandinavian language must document a thorough knowledge of English (equivalent to a TOEFL-iBT score of 100 or more).

Personal characteristics

- Dedicated to work in team and independently
- Curiosity driven
- Disciplined and hard working

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability.

We offer
Salary and conditions

PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 479 600 per annum before tax, depending on qualifications and seniority. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years. The Department may offer a six to twelve months extension as a teaching assistant.

Appointment to a PhD position requires that you are admitted to the [PhD programme in mathematical sciences](#) within three months of employment, and that you participate in an organized PhD programme during the employment period.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criteria in the latter law will be prohibited from recruitment to NTNU. After the appointment you must assume that there may be changes in the area of work.

It is a prerequisite you can be present at and accessible to the institution on a daily basis.

About the application

The application and supporting documentation to be used as the basis for the assessment must be in English.

The application must include the following:

- Information about education background and work experience.
- Any relevant publications. Joint work will only be considered provided that a short summary outlining the applicant's contributions is attached.
- Certified copies of relevant transcripts and diplomas. Candidates from universities outside Norway are kindly requested to send a Diploma Supplement or similar documentation, which describes in detail the programme of study, the grading system, and the rights to further studies associated with the degree obtained.
- Contact information for two references.
- Documentation of fluency in the English language.

Please note that applications are only evaluated based on the information available on the application deadline. You should ensure that your application shows clearly how your skills and experience meet the criteria which are set out above.

Joint works will be considered. If it is difficult to identify your contribution to joint works, you must attach a brief description of your participation.

General information

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the innovation capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

About DTU

DTU develops technology for people. With our international elite research and study programmes, we are helping to create a better world and to solve the global challenges formulated in the UN’s 17 Sustainable Development Goals. Hans Christian Ørsted founded DTU in 1829 with a clear vision to develop and create value using science and engineering to benefit society. That vision lives on today. DTU has 11,500 students and 6,000 employees. We work in an international atmosphere and have an inclusive, evolving, and informal working environment. Our main campus is in Kgs. Lyngby north of Copenhagen and we have campuses in Roskilde and Ballerup and in Sisimiut in Greenland.

DTU Compute conducts research and provides teaching in the fields of mathematics, modeling and computer science. The expanding mass of information and the increasingly complex use of advanced technology in society demand development of advanced computer based mathematical models and calculations.

The unique skills of the department are in high demand in IT innovation and production.

NTNU is committed to following evaluation criteria for research quality according to [The San Francisco Declaration on Research Assessment - DORA](#).

As an employee at NTNU, you must at all times adhere to the changes that the development in the subject entails and the organizational changes that are adopted.

Information Act (Offentleglova), your name, age, position and municipality may be made public even if you have requested not to have your name entered on the list of applicants.

If you have any questions about the position, please contact Professor John Tyssedal, email john.tyssedal@ntnu.no or Associate Professor Murat Kulahci, email muku@dtu.dk.

Please submit your application electronically via [jobbnorge.no](#) with your CV, diplomas and certificates. Applications submitted elsewhere will not be considered. Diploma Supplement is required to attach for European Master Diplomas outside Norway. Chinese applicants are required to provide confirmation of Master Diploma from [China Credentials Verification (CHSI)](#).
If you are invited for interview you must include certified copies of transcripts and reference letters. Please refer to the application number 2020/10416 when applying.

Application deadline: 15.05.2020.

NTNU - knowledge for a better world

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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 Mathematical Sciences

We are Norway’s largest university environment in mathematical sciences. The Department has a particular responsibility for all basis education in mathematical sciences for engineering and natural science students at NTNU. We focus on long-term basic research and applied research at a high international level.

Our aim is to meet the society’s needs for mathematical and statistical expertise in business and public administration as well as in the research and education sector. The Department of Mathematical Sciences is one of seven departments in the Faculty of Information Technology and Electrical Engineering.

Jobbnorge-ID: 185197, Søknadsfrist: 15. mai 2020