

Jobbnorge ID: 278184
Deadline: 4/27/2025
Website: <http://www.ntnu.no>
Scope: Fulltime
Duration: Temporary

The Department of Structural Engineering has a vacancy for a

PhD Candidate in computer vision for bridge condition monitoring

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 43,000 students work to create knowledge for a better world.

You will find more information about working at NTNU and the application process [here](#).

Video: <https://youtu.be/Xt-yHCN5QS0>

About the position

Are you motivated to take a step towards a doctorate and open up exciting career opportunities? As a PhD Candidate with us, you will work to achieve your doctorate, and at the same time gain valuable experience that qualifies you for a further career in higher education and research, in and outside academia.

The [concrete group](#) together with the [structural mechanics group](#), is searching for motivated candidates for a PhD position in the field of computer vision for bridge measurements.

The goal of this doctoral position is to use computer vision for structural condition evaluation of concrete bridges. During this research position, the PhD candidate will improve computer vision technology and apply it to quantify structural health in practice. The first task will be to improve existing algorithms for identifying and mapping structural conditions (e.g., cracks) and for measuring structural responses without using markers (displacements, rotations). The second task will be to explore the best strategy to use this information to quantify the structural capacity and evaluate its safety. As part of this work, it is expected to participate in various measurement campaigns of several bridges. These tasks will be complemented by numerical simulations of specific bridges. Therefore, the PhD work will be a combination of current practices review, simulation, programming, and on-site monitoring.

This research project is funded by NTNU's department of structural engineering. However, it is expected that this work will contribute to other projects and participate in international research collaborations.

Your immediate leader is Associate Professor Daniel Cantero and co-supervisor Researcher Tengjiao Jiang. You will work also together with Associate Professor Gunnstein Frøseth and Prof. Terje Kanstad.

Duties of the position

- Complete the doctoral education until obtaining a doctorate
- Improve computer vision algorithms for detection and tracking of structural features.
- Organize and participate in measurement campaigns.
- Create numerical models of existing bridges and validate them with measurements.
- Review of existing bridge assessment practices, with focus on concrete bridges.
- Write reports, conference publications and journal articles to disseminate the results.

Be prepared for changes to your work duties after employment.

Required selection criteria

- Master's degree (or equivalent) in Structural Engineering or a closely related field. The degree must be equivalent to a five-year Norwegian program (120 ECTS at master's level).
- Strong academic performance, with an average grade equivalent to B or better on NTNU's grading scale (<https://i.ntnu.no/wiki/-/wiki/English/Grading+scale>) (or a comparable level of achievement).
- Applicants must meet the criteria for admission to NTNU's PhD program (<https://www.ntnu.edu/phd>).

- You must meet the requirements for admission to the Doctoral Programme of the Faculty of Engineering (<https://www.ntnu.edu/iv/doctoral-programme>).
- Experience working and developing computer vision technology.
- Experience programming with Python.
- Good written and oral English skills.

The appointment is to be made in accordance with [Regulations for the Universities and Colleges Act \(university and colleges regulations\)](#) and [Regulations for the degrees philosophiae doctor \(ph.d.\) and philosophiae doctor \(ph.d.\) in artistic development work at the Norwegian University of Science and Technology \(NTNU\)](#) for general criteria for the position.

Preferred selection criteria

- Experience participating in field measurements
- Good programming skills
- Experience using Finite Element Software
- Driving license
- Knowledge of any Scandinavian language (Norwegian, Swedish or Danish)

Personal characteristics

To complete a doctoral degree (PhD), it is important that you are able to:

- Motivated and interested in research
- Able to work effectively, both individually and in a team
- Structured and thorough
- Excellent communication skills

Emphasis will be placed on personal qualities.

We offer

- Exciting and stimulating tasks in a strong international academic environment
- An open and [inclusive work environment](#) with dedicated colleagues
- [Mentor programme](#) as a [new employee at NTNU](#)
- As a public employee, you have favourable benefits as a member of the [Norwegian Public Service Pension Fund \(SPK\)](#)

You will be employed as a PhD Candidate at NTNU and will have access to [employee benefits and discounts](#).

Diversity

Diversity is a strength, and at NTNU we aim to be an employer that reflects the diversity in society and that makes use of the potential of the population's collective skills. Our vision is [Knowledge for a better world](#) and [our values are creative, critical, constructive and respectful](#). We believe that an organization that is equal, diverse and gender-balanced is essential for us to achieve our goals.

We strive to attract employees with different skills, life experiences and perspectives to contribute to even better problem solving of our societal mission in research and education.

If you think this position is relevant and interesting, we encourage you to apply, regardless of gender, functional ability and cultural background, or whether you have been out of work for a period of time.

At NTNU we want to increase the proportion of women in scientific positions. We have a number of [measures](#) to promote equality.

Salary and conditions

In the position of PhD Candidate, code 1017, your gross salary will normally be NOK 536 200,- per annum depending on qualifications and seniority. A 2% statutory contribution to the State Pension Fund is deducted from the salary.

The employment period is 3 years. If learning Norwegian (level A2 corresponding to at least 15 credits) is to be completed before the end of the employment period, the employment period can be extended by 10 weeks after completed and documented the Norwegian course.

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

As an employee at NTNU, it is important that you keep yourself up to date with academic and organizational changes and adapt to them.

For the necessary academic and social interaction, it is a prerequisite that you are physically present and available to the institution on a daily basis.

The appointment is carried out in accordance with the principles of the [State Employees Act](#), and [Export control](#) (legislation that regulates the export of knowledge, technology and services). Candidates who, after assessment of the application and attachments, are considered to be in conflict with the criteria in the latter act, will not be able to be employed.

About the application

The attachments (including a description of your scientific work) must accompany the application as these documents form the basis of the application assessment. The documents must be in Norwegian/a Scandinavian language or English.

Please note: the application will only be assessed on the basis of the information we have received by the application deadline. Therefore, make sure that your application clearly shows how your skills and experience meet the criteria described above. The application and all attachments must be sent electronically via Jobbnorge.no. If you are invited to an interview, you must bring certified copies of certificates. The application must include: (decide on what must be included - remove what does not fit):

- CV and certificates
- Transcripts and diplomas for bachelor's and master's degrees. If you have not completed the master's degree, you must submit a confirmation that the master's thesis has been submitted.
- A copy of the master's thesis. If you recently have submitted your master's thesis, you can attach a draft of the thesis. Documentation of a completed master's degree must be presented before taking up the position.
- Motivation letter
- Name and contact information of at least two referees
- If you have publications or other relevant research work

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both Bachelor's and Master's education, in addition to other higher education. If your institution uses "diploma supplement" (normal for most European institutions), you must attach this. A description of the documentation required can also be found [here](#). If you already have a statement from [Norwegian Directorate for Higher Education and Skills \(HK-dir\)](#), please attach this as well.

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

When assessing the best qualified, we emphasize necessary qualifications such as education, experience and personal suitability. Motivation for the position, ambitions and potential for research will also count when assessing the candidates.

NTNU recognizes a wide range of academic contributions and has committed itself to The San Francisco Declaration on Research Assessment and CoARA (responsible assessment of research and recognition of a greater breadth of academic contributions in accordance with NTNU's social mission).

General information

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you wish to be exempt from entry on the public applicant list, this must be justified. Assessment will be made in accordance with [current legislation](#). You will be notified if the exemption is not granted.

If you think this position looks interesting and in line with your qualifications, you are welcome to apply.

If you have any questions about the position, please contact Associate Professor Daniel Cantero, email: daniel.cantero@ntnu.no.

If you have any questions about the recruitment process, please contact HR Consultant June Hovde, e-mail: june.b.hovde@ntnu.no.

Application deadline: 27.04.2025

For practical information about [working at NTNU, please visit this webpage.](#)

[The city of Trondheim](#) is a modern European city with a rich cultural scene. [Trondheim is the tech 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.

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 Structural Engineering

We teach mechanical engineering, engineering and ICT, and civil and environmental engineering. The Department conducts internationally leading research and participates in several large national research projects. [The Department of Structural Engineering](#) is one of eight departments in [the Faculty of Engineering](#).

Additional information

Place of service:

