



**Jobbnorge ID:** 235100  
**Deadline:** 2/15/2023  
**Website:** <http://www.hvl.no>  
**Scope:** Fulltime  
**Duration:** Temporary

## This is Western Norway University of Applied Sciences

With about 17,500 students, Western Norway University of Applied Sciences is one of the largest higher education institutions in Norway. A broad range of academic programmes are offered at Bachelor, Master and PhD levels, spread out on five campuses Førde, Sogndal, Bergen, Stord og Haugesund.

Our ambition is to build stronger and more solid academic and research environments that will interact nationally and internationally. The aim is to become a recognized actor on the international higher education arena. Increased international cooperation and engagement in externally funded projects will work towards this goal.

The Faculty of Engineering and Science has approximately 370 employees and approximately 3,260 students. The faculty has a broad educational offer at both bachelor's and master's level in engineering and science, as well as PhD education in computer technology. The Mohns Center for Innovation and Regional Development researches innovation and offers master's education in innovation and entrepreneurship. The diving education offers a one-year vocational school education.

The main part of the faculty's activities are in Haugesund, Bergen, Sogndal and Førde, but we also offer decentralized education in Florø, Kristiansund and Stord.

The faculty's activities are internationally based and take place in close collaboration with regional companies, clusters, health trusts and the public sector, including other institutions in the university and college sector. This applies to research, development, innovation and not least education with student projects at all levels.

## Two PhD Research Fellows in Formal Analysis for Concurrent Workflows for a period of 3 years

### The Department of Computer science, Electrical engineering and Mathematical sciences at Western Norway University of Applied Sciences (HVL) has 2 PhD research fellow positions in Formal Analysis for Concurrent Workflows

The PhD research fellow will be part of the PhD programme in Computer Science: Software Engineering, Sensor Networks and Engineering Computing (<http://ict.hvl.no>) at HVL, affiliated to Software Engineering Group (<https://ict.hvl.no/research/software-engineering/>). The research programme in Computer Science currently includes around 20 professors and associate professors, 40 PhD and post-doctoral research fellows, and a large number of master's students.

Workplace is Bergen.

### About the PhD project:

The two positions are part of the Norwegian Research Council Young Research Talents project CroFlow (Enabling Highly Automated Cross-Organisational Workflow Planning). The goal of the project is to develop an innovative model-driven methodology and framework that facilitates automation of planning concurrent workflows with highly automated analyses and tool support.

Cross-organisational workflows involve multiple concurrently running workflows coming from different organisations. While tasks in these individual workflows may run independently in parallel, there are very often dependencies between them, e.g., execution orders or shared resources, which makes planning such workflows particularly challenging and error prone. The project aims to leverage various techniques in formal methods to model and analyse cross-organisational workflows in terms of concurrent programs, and to automate workflow revisioning upon changes in the dependencies. These are exciting positions for candidates interested in topics such as software verification, static analysis and formal modelling languages.

The two prospective PhD students will work together and contribute to the project from three perspectives:

- to design a formal modelling language for concurrent workflows with explicit notions of dependencies with respect to execution orders or shared resources,
- to reconstruct existing workflows in the form of a formal model based on event logs, and
- to develop automated formal analyses for the concurrent workflow models.

The PhD students will collaborate with the project external partners of CroFlow, including Haukeland University Hospital in Bergen, Uppsala University in Sweden and the University of Lübeck in Germany.

## Research environment

The Computer Science research environment at Western Norway University of Applied Sciences has a strong focus on use-inspired and applied research, and on ICT as an enabling technology. The research environment has cooperation with many national and international research groups, and with national and regional industry partners. The research programme includes the research themes of software engineering, engineering computing, sensor networks and measurement technology, grid computing and physics data analysis, machine learning, and interactive and collaborative systems. The prospective PhD candidates will work in close cooperation with staff, current PhD candidates and master students in the software engineering research group (<https://www.hvl.no/en/research/group/software-engineering/>), which has a strong track record in model-based software development and undertakes research on applications in areas such as healthcare, cloud technology and internet-of-things, industrial automation, and robotics.

The PhD research fellows receive an annual work expense funding which can be used for conference participation, research visits, and equipment. The place of employment is Campus Bergen, however, the candidates are expected to spend 3-6 months in a different academic environment during the research period.

## Qualifications:

- a master's degree in Computer Science or in a closely related field such as computing/informatics/software engineering
- candidates who are in the final stage of completing a master's degree (but who has not yet been awarded a master's degree) may also qualify for the position. In this case, a draft of the master thesis and a transcript showing grades of currently completed course work must be submitted with the application. If the candidate is called for an interview, then the final version of the master thesis and a complete transcript of grades on the master's degree must be provided at the time of the interview.
- a solid background in software verification, program analysis and/or formal modelling is compulsory for this position
- knowledge in event-recording automata will be considered as an advantage
- a possible outline of a research plan related to this PhD project will also be taken into account.

In addition to the required educational background, the following criteria will be evaluated: competence and grades on completed course work, quality of the master's thesis (excellent grade, equivalent of grade B or better on the ECTS grading system), publications (if any), communication skills, research and teaching experience, practical software engineering skills and experience.

The candidate must be diligent and display the ability to work independently, supplemented with regular guidance, and is expected to carry out high-quality research and to publish the results in national seminars, international workshops, conferences, and journals.

Candidates already holding a PhD within this field are not eligible for this position.

The PhD research fellow must enrol in the PhD programme in Computer Science: Software Engineering, Sensor Networks and Engineering Computing at Western Norway University of Applied Sciences, and must meet the formal admission requirements for admission into the PhD programme. The employment period may be reduced if the successful applicant has held previous employment as a research fellow.

The PhD candidate will be assigned one academic supervisor at Western Norway University of Applied Sciences and a co-supervisor. An application for enrolment should first be submitted after an appointment is made, and the supervisor(s) will help with this procedure. The candidate must be enrolled as a PhD student within three months from the start of the employment.

## Application procedure:

Applications will be evaluated by an expert panel of three members.

Applicants are asked to submit their application and CV online. Please use the link "Apply for this job" ("Søk stillingen").

The following documentation should be uploaded as an attachment to the online application:

- Transcripts of bachelor's and master's degree
- master thesis, or an abstract of the master thesis for the candidates who have not yet submitted their master thesis within the application deadline
- a CV with a complete list of academic publications
- diplomas and certificates
- if any, copies of selected academic publications (no more than 5)
- a research plan for the PhD research (no more than 2 pages)

If the documents submitted are not in a Scandinavian language or in English, the applicants must submit certified translations of these. The transcripts must specify the topics, the course works, and the grades at the bachelor's and master's degree levels.

Applicant whose education is from another country than Norway, need to also attach a certified translation of the diploma and transcript of grades to English or a Scandinavian language, if the original is not in any of these languages. It is required that the applicant enclose a review from NOKUT whether the education (bachelor and master's degree) is of a scope and level that corresponds to the level of a Norwegian master's degree.

Please see [www.nokut.no/en](http://www.nokut.no/en) for more information about NOKUT's general recognition. This may take some time and we recommend you to apply as soon as you know you will apply for this position. If no answer within the application deadline, please enclose documentation from NOKUT that they have received your application.

Applicants should note that the evaluation will be based on the documentation submitted electronically via Jobbnorge within the submission deadline. The applicants are responsible for ensuring that all the documentation is submitted before the closing date. It is of utmost importance that all publications to be considered in the evaluation are uploaded as an attachment with the application, since these are sent electronically to the expert panel. Applications cannot be sent by e-mail or to individuals at the university.

## Salary:

- Good occupational pension, insurance and loan schemes from The Norwegian Public Service Pension Fund
- Exciting academic environment with the possibility of competence enhancement and development
- Opportunities for training within the working hours

Salaries will be offered at grade 54 (code 1017) in the Civil Service pay grade table scale.

There is a compulsory 2 % deduction to the pension fund (see <http://www.spk.no> for more information). The successful applicant must comply with the guidelines that apply to the position at any time.

## General information:

The appointment will be made in accordance with the regulations for State employees Law in Norway ("Lov om statens ansatte"). Organizational changes and changes in the duties and responsibilities associated with the position must be expected.

State employment shall reflect the multiplicity of the population at large to the highest possible degree. Western Norway University of Applied Sciences Bergen has therefore adopted a personnel policy objective to ensure that we achieve a balanced age and gender composition and the recruitment of persons of various ethnic backgrounds.

Information about the applicant may be made public even though the applicant has requested not to be named in the list of applicants. The applicant will be notified if his/her request is not respected.

Short-listed applicants will be called in for an interview.

Employed on condition that you are granted a work and residence permit (**must be considered individually**).

## Contacts:

1) Associate Professor Violet Ka I Pun, phone: +47 55 58 70 84, e-mail: [Violet.Ka.I.Pun@hvl.no](mailto:Violet.Ka.I.Pun@hvl.no)

2) Professor Håvard Helstrup, Coordinator of PhD Program on Computer Science, phone: +47 55 58 75 61, e-mail: [Havard.Helstrup@hvl.no](mailto:Havard.Helstrup@hvl.no)

## Interaction, Sustainability, Innovation

Western Norway University of Applied Sciences shall be a university with a clear professional and working life-oriented profile.

Through education, research and development we create new knowledge and expertise, anchored internationally and with solutions that work locally.

[Homepage](#)

Video: [https://www.youtube.com/watch?v=f\\_NjRp\\_Zoyo](https://www.youtube.com/watch?v=f_NjRp_Zoyo)

## Additional information

### Place of service:

campus Bergen 5063 Bergen (Bergen Municipality)