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Nettside: <http://www.hiof.no>
Omfang: Heltid
Varighet: Engasjement

Digitalisation and Society

Doctoral Research Fellows (PhD): Digital Twins as a vehicle for collaboration

About the position

A Doctoral research Fellowship in research on digital twins for industrial production is available at the Faculty of Computer Sciences, Engineering and Economics at Østfold University College (ØUC).

The research will be done in the context of the research group on cyber-physical systems and will contribute to ongoing work related to our local industry partners in their quest for Industry 4.0.

The doctoral position is part of the research initiative "[The Digital Society](#)" at ØUC.

Project description

A digital twin is a virtual representation of some actual system of which we want to know more and potentially impact. Digital twins have the potential to become versatile tools for understanding and exploring the real world. The challenge is to create digital twins that are simple, but still fulfilling their purposes.

The research group on cyber-physical systems applies digital twins as vehicles for collaboration between professionals of different trades. This PhD project will target improved industrial productivity achieved by improved and enhanced collaboration utilizing digital twins. It will include close collaboration with our local industrial partners in chemical or mechanical production.

The project will be multi-disciplinary, and the candidate will enrol in our [PhD programme "Digitalisation and Society"](#).

This PhD project will include activities with the following three aspects of digital twins:

Exploration: A digital twin representation serves to systemize observations, usually in the form of a graphical representation on screens. Sound or sensory feedback may also be included. This may turn into dashboards and other means to support interdisciplinary human collaboration with operators, engineers and planners.

Simulation: A digital twin representation is executed to provide a virtual behaviour corresponding to that of the actual system of interest. "What-if" questions result in predictions and future scenarios. Artificial Intelligence is a relevant tool for such simulations, and the PhD project will put emphasis on industrial use of AI.

Control: A digital twin representation assesses incoming (sensor) information and may provide decisions controlling the actual system through actuators such as switches, accelerators, and gears. Applying the digital twin combining real-time sensor data, historical data, tacit domain competence and industrial purpose, is important for utilizing digital twins in industrial applications.

It is expected that the project will apply and enhance suitable AI techniques. The [Østfold AI Hub](#) is ØUC's multi-disciplinary umbrella for research and exploration of AI, and the PhD project will be associated with this community.

The PhD project is expected to include creation and experimenting with a digital twin in a realistic context. The specific digital twin application will be selected and specified based on the candidate's background and research interests. The applicant should indicate such interests and competencies, along with a brief sketch of intended relevant project activities that would form a basis for a PhD project along the above description.

About Research fellowship

The Doctoral Research Fellowship is a full time (100%) fixed term position for 3 years funded by Østfold University College.

The candidate will be employed at Østfold University College. The candidate is expected to apply and be accepted in our Doctoral Programme "Digitalisation and Society". Read more on our website: [Digitalisation and Society](#).

Estimated starting date: 1st of September 2024

The candidate is expected to:

- actively take part in inter- and multi-disciplinary research activities relevant to AI Hub hosted by Østfold University College.
- disseminate research results on the project through high-quality scientific publications.

Video: <https://youtu.be/UDMirdRpu4w>

Qualification requirements

The successful candidate is required to have

- completed a master's degree or second degree (equivalent to 120 credits according to Norwegian standard definitions) within the fields of Informatics, Computer Science, or Computer Engineering, Electrical engineering, Control Engineering, Mechatronics, Robotic Engineering, Automation Engineering, Data Science or other fields relevant for the position. Candidates that are close to completion may also be evaluated. Documentation of the completed master's degree must be submitted within three weeks after the application deadline.
- been awarded the grade B or better for the Master thesis - in terms of the Norwegian grading scale. If the research summary is of excellent quality, grade C candidates can be considered.
- excellent oral and written communication skills in English and sufficient oral and written communication skills in a Scandinavian language. For international candidates (outside of EU/EEA area), approved TOEFL English proficiency test with min score 90 or IELTS test with min. score 7.5.
- solid programming skills.

Desired qualifications

We would like you to have

- an average grade point for courses included in the Master's degree of B or better in terms of the Norwegian grading scale.
- relevant work and/or academic experience.
- Norwegian language skills at a minimum level of A2. Danish and Swedish are considered equivalent to Norwegian.

Personal qualifications

The successful candidate has

- motivation and potential in the field of research.
- the ability to work in a project team and take responsibility for own research goals.
- good communication and collaboration skills and the ability to join interdisciplinary academic communities

Emphasis will be placed on the following

In the evaluation of the applicants, emphasis will be placed on education, experience and personal and interpersonal qualities. Motivation, ambitions, and potential will also count in the assessment of the candidates.

Furthermore, emphasis will be placed on the following:

- quality of the research experience and publications
- prior academic output and/or research performance (Master thesis and papers in journals/conferences and citations)
- the applicant's own ideas of research themes and research design that would be relevant for the project, and the quality and relevance of the project sketch

We offer

- a gross annual salary of minimum NOK 532 200,- and automatic development with a 3 % annual increase during the period. In addition to taxes, a further 2% is deducted for the Norwegian Public Service Pension Fund.
- an exciting job opportunity at Østfold University College.
- participation in a new interdisciplinary doctoral program and a research group where the project is located.
- beneficial pension arrangements with the Norwegian State Pension Fund.
- good employee welfare arrangements.
- working locations at Østfold University College, Halden (Norway).
- a vibrant AI community, see <https://www.hiof.no/english/research/ai-hub/>

Submitting an application

Please submit your application electronically via our recruitment system Jobbnorge.no. All attached documentation must be in a Scandinavian language or in English.

Application must include the following:

- A short (1-2 page) cover letter describing your motivation, your suitability, relevant qualifications and research interests for this position. The cover letter must also state your reasons for applying to the project and what makes you particularly qualified to carry out this PhD work.
- A brief high-level project sketch/project description (maximum 2 pages) for a PhD project according to the project description above.
- A copy of your CV.
- A list of publications (if applicable). Include a short description of your contribution in multi-authored publications.
- Copies of degree certificates and transcripts of academic records. Higher education taken outside the Nordic countries must be documented by the submission of a dated and signed diploma/certificate and a transcript of grades in the original language. If the original language is not English or a Nordic language, you must also enclose an official translation. Foreign applicants must attach an explanation of their university's grading system.
- A copy of your master thesis.

- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number).

All attachments should be included electronically within the application deadline. Other documentation may be claimed at a later stage, e.g., proof of claimed English proficiency.

Documents to be sent as hard copies by post

Applicants with degrees from: **Cameroon, Canada, Ethiopia, Eritrea, Ghana, Nigeria, the Philippines** and the **USA** must send their transcripts and diploma of master's and bachelor's education as hard copies directly from the relevant college/university, in addition to uploading them online. The hard copies must be received by us within four weeks after the application deadline expires.

To send hard copies to HiØ, please use the following address:

Høgskolen i Østfold
HR-section
Postboks 700
1757 HALDEN

Please note that incomplete applications will not be considered.

Admission and appointment

Admission to the doctoral programme Digitalisation and Society is a condition for appointment as a research fellow. The final plan for research training shall be approved and regulated by contract at the latest three months after the appointment is taken up.

The successful candidate will receive assistance in the application process to the PhD programme Digitalisation and Society at Østfold University College when starting in the position.

The appointment is to be made in accordance with the State Employees law, the act relating to Universities and Universities Colleges and the national guidelines for appointment as a PhD student, a postdoctoral fellow or a research assistant.

Contact persons

You are strongly encouraged to contact the main supervisor for a discussion about the position, relevant references and the project. For other information, please contact the Vice-Dean or the advisors:

- Main supervisor: Professor Maben Rabi, +47 69 60 82 06, e-mail: maben.rabi@hiof.no
- Co-supervisor: Professor Øystein Haugen, +47 69 60 81 46, e-mail: oystein.haugen@hiof.no
- Vice-Dean of Research: Tore Gimse, +47 69 60 80 58, e-mail: tore.gimse@hiof.no
- Advisor for the PhD programme: Liv Simensen, +47 69 60 85 61, e-mail: liv.simensen@hiof.no
- HR Senior Advisor: Hilde Gunn Avløyp, +47 69 60 82 97, e-mail: hildegav@hiof.no

Other information

The university college is committed to fostering a diverse and gender-balanced workforce. We seek employees with diverse skills, academic backgrounds, life experiences, and perspectives. If there are qualified applicants with disabilities, gaps in their CVs, or immigrant backgrounds, we will invite at least one applicant from each of these groups for an interview.

In accordance with the Norwegian Freedom of Information Act § 25, paragraph 2, information about the applicant may be disclosed even if the applicant has requested not to be included on the list of applicants.

If you disclose that you have an immigrant background, disability, or gaps in your CV, this information, in anonymized form, may be used for statistical purposes.

About us

Through education, research, and artistic development of national and international quality and relevance, and through our contribution to public discourse and knowledge dissemination, we create a better and more sustainable society. We aim to have international engagement while also strengthening our visibility and focus on the local community. Through interaction and dialogue with regional businesses and society, we take an active role as a societal developer. We are looking for individuals who are passionate about their field and who want to contribute to the development of Østfold University College, building an attractive, competent, and forward-thinking institution. Become one of us!

The Digital Society is our largest priority area of research, where we explore the interaction between digitalisation and society from various theoretical perspectives and develop new responsible digital technology.

Our other priority area of research is Language in Learning, which aims to enhance collaboration across language disciplines and create conditions for a diverse research and teaching environment.

Tilleggsinformasjon

Kontaktpersoner:

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Arbeidssted:

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