Postdoctoral position in the development of an AI-based phenotyping system for high-throughput screening of aphid resistance in crops in controlled and field conditions

Application Deadline:
31 May 2026

Institute/Faculty:
Center for Quantitative Genetics and Genomics

Faculty:
Faculty of Technical Sciences

Academic contact person:
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Vacant positions:
1

Number of months:
18

Hours per week:
37

Expected date of accession:
01/11/2026

Position overview

We are seeking applicants for an 18-months postdoctoral fellowship focusing on the development of an AI-based phenotyping system for high-throughput screening for aphid performances on pea plants. The position is available from the 1st of November 2026 or as soon as possible therefter.

Job description

The aim of the project is to develop an AI-based phenotyping system for high-throughput screening of aphid resistance in plants both in controlled and field conditions. This tool will be used to screen for aphid resistance in a pea germplasm collection by characterizing aphid-traits related to their performances. In the long term, this will contribute to selection for aphid-resistant pea varieties contributing to sustainable organic agriculture in Denmark.

The appointed candidate will work in a highly experienced research environment, spanning basic biology to applied research for industry outcomes. The hosting team is a multidisciplinary group with expertise in applying various quantitative and statistical modelling approaches to biological systems (including crop genetics, host-pathogen interactions, pathogen population genetics, evolutionary biology...). The candidate will work in close collaboration with a specific group (DARSA) specialized in developing and applying remote-sensing tools and innovative open-source machine-learning methods.

Key responsibilities

- Develop effective collaborations with international scientists and industrial partners.
- Take responsibility for planning, executing, and interpreting research
- Characterize aphid traits related to the performances on partially resistant and susceptible plants.
- Develop an AI-assisted image-based phenotyping pipeline to automatically quantify aphid performances on the plants. This software will automatically count for aphids and accurately distinguish specific aphid-morphological traits (wings/no wings, estimated weight, different developmental stages and color differences, etc).
- Screen a pea collection for aphid resistance in controlled and field conditions.

Candidate profile

We seek a highly motivated team member with a genuine interest in insect science, machine learning, plant breeding, as well as the ability to manage their own work.

Qualifications

1. PhD in computer science, computational biology, engineering, or related fields.
2. Experience developing deep-learning tools for image processing, automatic monitoring of agricultural pests, or high-throughput phenotyping
3. Solid background in mathematics and scientific programming (R, Python, etc.) along with effective logical reasoning skills
4. Experience with high-performance computing
5. Effective communication and writing skills in English
6. Experience writing scientific manuscripts for peer-reviewed journals

About us

The Center for Quantitative Genetics and Genomics (QGG) is an innovative and interdisciplinary center for research and education in quantitative genetics and quantitative genomics (http://www.qgg.au.dk/en). QGG is an international organization with 70 employees and visiting researchers from more than 20 countries. We perform basic and applied research within plant, livestock and human quantitative genetics. Our

focus areas include quantitative genetics, artificial intelligence applied to agriculture and precision medicine, population genetics, and integrative genomics. QGG is located at the central campus in Aarhus and at the AU Flakkebjerg campus in newly renovated offices with well-developed research infrastructure, laboratories, equipment, and highperforming computing clusters.

What we offer

- A welcoming and collaborative environment emphasizing teamwork, professionalism, equality, and work–life balance
- Training and international experience in public–private partnerships
- Mentoring for career development
- Access to high-performance computational resources (with GPUs)
- A collaborative environment across research fields including quantitative genetics, machine learning, bioinformatics, and population genetics
- Excellent opportunities for publishing in peer-reviewed journals

Place of work

Aarhus University, Research Center Flakkebjerg, Forsøgsvej 1, 4200 Slagelse. The area of employment is Aarhus University with related departments.

For further scientific enquiries please contact: Professor Torben Asp, email: torben.asp@qgg.au.dk

Application procedure

Shortlisting is used. This means that after the deadline for applications – and with the assistance from the assessment committee chairman, and the appointment committee if necessary, – the head of department selects the candidates to be evaluated. All applicants will be notified whether or not their applications have been sent to an expert assessment committee for evaluation. The selected applicants will be informed about the composition of the committee, and each applicant is given the opportunity to comment on the part of the assessment that concerns him/her self.

Letter of reference

If you want a referee to upload a letter of reference on your behalf, please state the referee's contact information when you submit your application. We strongly recommend that you make an agreement with the person in question before you enter the referee's contact information, and that you ensure that the referee has enough time to write the letter of reference before the application deadline.
Unfortunately, it is not possible to ensure that letters of reference received after the application deadline will be taken into consideration.

If you wish to add a referee **after** you have submitted your application, you must send this person's details (name, job title, place of work, and email address) as well as the name of the position you have applied for to: HR.Nattech@au.dk

Formalities and salary range

Technical Sciences refers to the Ministerial Order on the Appointment of Academic Staff at Danish Universities under the Danish Ministry of Science, Technology and Innovation.

The application must be in English and include a curriculum vitae, degree certificate, a complete list of publications, a statement of future research plans and information about research activities, teaching portfolio and verified information on previous teaching experience (if any). Guidelines for applicants can be found here.

Appointment shall be in accordance with the collective labour agreement between the Danish Ministry of Taxation and the Danish Confederation of Professional Associations. Further information on qualification requirements and job content may be found in the Memorandum on Job Structure for Academic Staff at Danish Universities.

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.

Research activities will be evaluated in relation to actual research time. Thus, we

encourage applicants to specify periods of leave without research activities, in order to be able to subtract these periods from the span of the scientific career during the evaluation of scientific productivity.

Aarhus University offers a broad variety of services for international researchers and accompanying families, including relocation service and career counselling to expat partners. Read more here. Please find more information about entering and working in Denmark here.

Aarhus University also offers a Junior Researcher Development Programme targeted at career development for postdocs at AU. You can read more about it here.

The application must be submitted via Aarhus University's recruitment system, which can be accessed under the job advertisement on Aarhus University's website.

Aarhus University

Aarhus University is an academically diverse and research-intensive university with a strong commitment to high-quality research and education and the development of society nationally and globally. The university offers an inspiring research and teaching environment to its 37,000 students (FTEs) and 8.700 employees and has an annual revenue of EUR 1.106 billion. Learn more at www.international.au.dk/