Postdoc position in method development in human statistical genetics, with a focus on classification of complex diseases

Application Deadline:
01 May 2026

Institute/Faculty:
Center for Quantitative Genetics and Genomics

Faculty:
Faculty of Technical Sciences

Academic contact person:
Doug Speed
Professor
doug@qgg.au.dk

Vacant positions:
1

Number of months:
24

Hours per week:
37

Expected date of accession:
01/10/2026

Research area and project description

Applications are invited for a postdoc position at the Center for Quantitative Genetics and Genomics, Aarhus University, starting from 1st October 2026 or as soon as possible thereafter. The position will be for two years.

The postdoc will be supervised by Professor Doug Speed, and based at the Department of Quantitative Genetics and Genomics (QGG) at Aarhus University. Dr Speed's research involves developing statistical methods for better analysing data from genome-wide association studies (GWAS), with a particular focus on improving our understanding of human complex traits. Dr Speed has developed the software package LDAK (www.ldak.org).

The position will be mainly funded by an ERC consolidator grant, aimed at finding novels ways to classify complex diseases based on genetic data:

“Many common diseases are highly heterogeneous, meaning that two individuals can be diagnosed with the same disease but have very different progressions or respond very differently to the same medication. These heterogeneous diseases affect a sizeable proportion of the population. For example, approximately one in four people will develop a heterogeneous brain disorder (e.g., a neurological condition such as epilepsy or Parkinson’s Disease, or a psychiatric condition such as depression or schizophrenia)

To effectively treat a patient with a heterogeneous disease, it is necessary to quickly and accurately identify their subtype. At present, patient subtypes are decided using only clinical observations, and the process is highly suboptimal. For example, the available subtypes are often incomplete or poorly-defined, meaning that many patients are wrongly classified or can not be classified at all.

Previous research indicates that for many heterogeneous diseases, the classification of patients can be improved by incorporating genetic information. However, for this to become a reality, requires statistical tools that do not yet exist. This project will develop novel statistical tools for classifying heterogeneous diseases based on genetic information.”

As such, the primary aim of the postdoc is to develop a new tool for finding subtypes of heterogeneous diseases, that are more informative than existing clinically-derived subtypes (e.g., that better guide prognosis or drug treatment). These subtypes might be based on genetic information (e.g., SNPs and metabolites) or heritable phenotypes (e.g., biomarkers and traits related to the target disease). There is also scope within the postdoc for developing “more standard” GWAS tools (e.g., tools for association analysis, constructing polygenic scores and understanding genetic architecture).

Qualifications and specific competences

The postdoc position focuses on developing statistical methods, therefore the candidates must be able to demonstrate they have skills in this area. Specifically, this means being able to understand statistical tools (instead of only being able to apply them). For example, in R, the function lm() can be used to regress an outcome Y on a predictor X; candidates should understand how this function performs the analysis (e.g., estimates the effect size, assesses significance).

Most likely, the applicants will have a BSC and/or PhD with a substantial statistical component (e.g., mathematics, statistical genetics, bioinformatics). The applicants should ideally have some coding experience (e.g., in R, Stata, Matlab, C, etc), and also ideally be familiar with the UNIX environment (e.g., Linux). It will be desirable to have had previous experience in genetics, but not necessary. The applicants must be fluent in English, both oral and in writing.

Expectations and role of the supervisor

I believe that when performing a statistical analysis, it is very important to understand what the analysis is doing. Further, if you understand an analysis, it increases the chance that you can find ways to improve the analysis or to transfer the ideas to other problems. In general, I only use software that I could in theory code up myself (I say in

theory, because it would be very inefficient to always make my own software). Therefore, I am keen that people I supervise also understand the analyses they perform, and am happy if they spend time trying to understand methods (I will also try and help explain methods, where I can).

Please be aware that a position in my group does not come with a list of well-specified tasks (e.g., “use method XXX to analyze dataset YYY”). Instead, the focus is finding ways to solve problems (e.g., how can we use genetic factors to improve classification of type 1 and type 2 diabetes). Therefore, the researcher requires enthusiasm and willingness to explore deeply the research area, perseverance (most new statistical tools fail, and even the good tools require multiple refinements), and independence (I provide as much help as possible, but the researcher must take ownership of their projects).

Who we are

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.

Place of work

The place of work is C.F. Møllers Allé 3, Bldg. 1130, 8000 Aarhus C. The area of employment is Aarhus University with related departments.

Contacts

Applicants seeking further information are invited to contact doug@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/