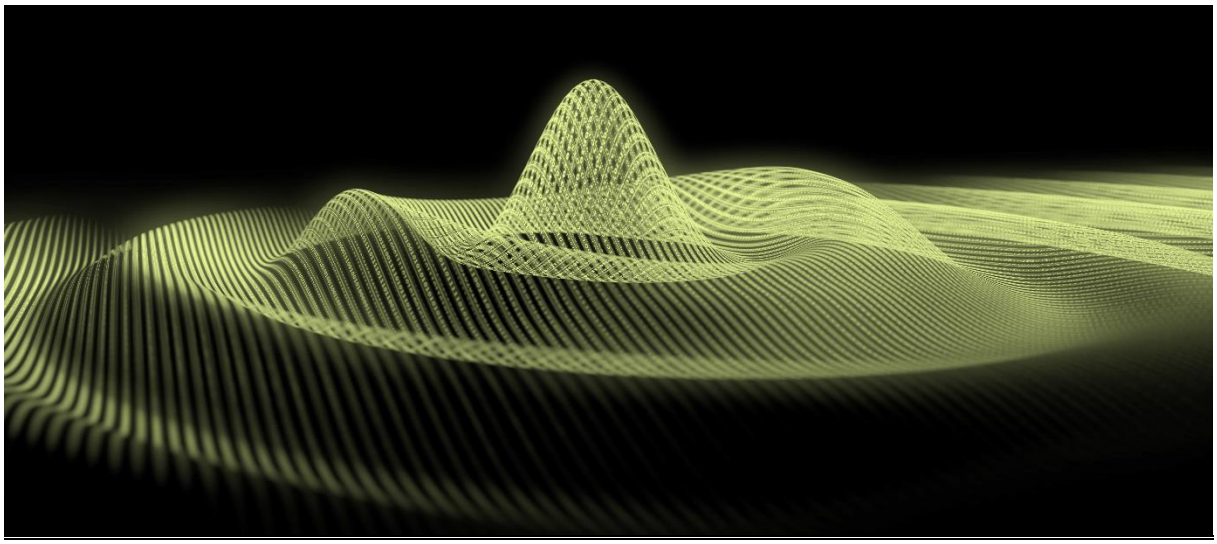
DeiC

DANISH eINFRASTRUCTURE CONSORTIUM

CALL FOR APPLICATIONS

Business Postdoc scholarship on Quantum Algorithms or Quantum Software

DeiC National Quantum Algorithm Academy



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www.deic.dk

1. Information about the call

Application in eGrant form opens:
7th of November 2024

Application deadline:
7th of January 2025

Applicant notification:
Mid-April 2025

Earliest start date
1st of June 2025

Latest start date
1st December 2025

Evaluation committee:
National Quantum Algorithm Academy Evaluation Committee

Contact:
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For more information about the DeiC.
https://www.deic.dk
https://deic.dk/da/quantum-infrastructure

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2. Background and implementation

In the Danish National Strategy on Quantum Technology part 1, DeiC is appointed to initiate activities "in order to support Denmark fully using access to quantum computers and supercomputers (HPC facilities) for the benefit of Danish research and innovation in the quantum field"[i]. In other words, to support the development of the next generation of algorithms and software related to future quantum computers and quantum simulators.

The DeiC board of directors has therefore decided to create "Danish Quantum Algorithm Academy" (DQAA). The academy will award scholarships on PhD and postdoc level to establish a national ecosystem for development of algorithms and software.

The PhD students and postdocs will be employed at the Danish universities or in Danish private companies (business PhD and business postdocs).

In addition to organizing the scholarship program, the Academy will manage a national coordinating function, with for instance support for workshops, meetings, a guest program, a sabbatical program, and other instruments which can boost a national quantum infrastructure.

The DQAA scholarship program will have 2 annual calls in 2024. In future years one annual call is expected.
They can be applied for by researchers from the traditional STEM fields and by researchers from other fields such as health science, social sciences, and humanities. Interdisciplinary applications are welcome.
All calls will be in free and open competition.

The call for the first two programs opened in February 2024 with:

- fully funded 3-year PhD Scholarship grants to be applied for by associate professors or full professors at Danish universities.

- fully funded 2–3-year Postdoc Scholarships to be applied for by PhDs.

The stipends are scheduled to begin in 2024.

The programs opening now are concerning a number of

- **fully funded 3-year PhD Scholarships to be applied for by associate professors or full professors at Danish universities.**

- **Business PhD scholarships.**

- **fully funded 2-3-year Postdoc Scholarships to be applied for by PhDs.**

- **1-3-year business Postdoc Scholarships to be applied for by PhDs.**

The calls will be posted through DeiC communication channels (website, social media and newsletter), direct mails to the Danish universities and for the postdoc calls through relevant scientific newsletters.

Both PhD students and Postdocs must be affiliated with a Danish university as host university for the scholarship.

3. Business Postdoc scholarship on Quantum Algorithms or Quantum Software

DQAA under DeiC is offering 2 or 3 years fully funded business Postdoc scholarships in the areas of Quantum Algorithms or Quantum- Software.

The Postdoc project shall develop, study or test quantum algorithms, related software and their applications.

The scholarship is required to begin in 2025 and is conditioned on the successful Postdoc applicant possessing a PhD degree not older than five years before commencing the scholarship. Exceptions, such as maternity leave of military service, may be accepted if motivated and documented in the application.

As a rule, a researcher can only mentor for one (business) postdoc program funded from DQAA at a time.

The application must include a budget completed and signed by the host institution. The budget must be entered in the budget template.

The application must include a tentative estimate of the required access to quantum computing and HPC resources. Access to a selection of quantum computer systems, quantum simulators and HPC-systems will be negotiated as part of the DeiC Q-Access program.

In connection with the application, the applicant must be affiliated with a Danish university and have an affiliated mentor from this university. The mentor should be a senior member of the relevant departments academic staff and will be responsible for the applicant's professional development in the grant period.

The successful awardee and the mentor(s) become members of DQAA and have the obligation to participate in activities related to the academy, e.g. working groups, schools, meetings, dissemination etc. and in general to contribute to the advancement of the Danish Quantum Algorithm community.

Futher elaboration regarding information and rules about business Postdoc scholarships

DQAA follow the same rules and guidelines as Innovation Fund Denmark and cover the following areas.

An Industrial Postdoc project is viewed as an advanced industry-oriented research initiative which can span one to three years, conducted by a researcher who has obtained their Ph.D. within the past five years. The project is carried out within either a private or public company and demands a high level of research expertise, requiring a specialist with Ph.D.-level competencies. Additionally, the project has a strong focus on the company's strategic business development, ensuring both immediate and long-term commercial relevance.

The Industrial Postdoc is employed full-time within the company and works closely with a public research institution. The work schedule is divided between the company and the research institution,

depending on the specific needs of the project. Both the company and the university appoint a mentor to guide the Industrial Postdoc and ensure the project's success.

As such an Industrial Postdoc project is based on close collaboration between a company, a university and an Industrial Postdoc. Companies and universities can apply for project funding even if they have not yet identified a candidate to carry out the project.

Company and Company Mentor

The company must meet the following requirements:

- Have a department with an independent company registration number (CVR) in Denmark, where the Industrial Postdoc will be employed.

- Possess the necessary financial and operational resources to complete the project throughout its duration.

- Be financially independent of the university, which means the research institution can own no more than 25% of the company, and there should be no significant financial transactions from the research institution to the company. This means There must be no financial transactions between the university and the company that would create an economic dependency between them. Ordinary trade involving products or services on commercial terms or the redistribution of public project funds in collaborative projects is not considered a significant financial transaction.

- Appoint a company mentor to the project, who will serve as the company's representative and provide the Industrial Postdoc with business-related guidance.

- Be a private sector entity that is not in a "distressed" condition as defined by EU regulations, except for companies that became distressed between January 1, 2020, and December 31, 2021.

- Have complied with any repayment orders issued by the European Commission regarding illegal state aid.

- Not be undergoing compulsory dissolution, bankruptcy, voluntary liquidation, or suspension of payments.

To qualify as a private sector entity, the company must also:

- Not be a state, regional, or municipal entity, or an interest organization for public organizations.

- Have a turnover where no more than half is publicly funded (including EU grants and legally mandated payments from citizens).

- Companies uncertain about their status as private sector entities can submit their articles of association and the latest annual report for evaluation. If the company does not meet the private sector criteria, it can apply for funding through special rounds for public organizations.

Supervisors/Mentors

The company must appoint a mentor who will act as the formal representative in the project and work closely with both the Industrial Postdoc and the research mentor to ensure the project's success. The mentor is responsible for providing business-related guidance and must have sufficient expertise in the project's subject matter to offer competent advice. It is possible to involve additional mentors, and third parties as needed.

A company mentor must meet the following criteria:

- Have relevant experience with the project's theme (research experience is not required).
- Possess deep industry knowledge.
- Hold at least a bachelor's degree or have substantial practical experience in the project's area.

The combined guidance capacity of the company and research mentors must ensure that the Industrial Postdoc receives qualified and relevant support. This means that although the company mentor does not need a research background, the research mentor must cover this aspect to ensure all dimensions of the project are optimally supported.

Industrial Postdoc Candidate

A company and a university can jointly apply for an Industrial Postdoc project both with and without a candidate already identified. If the project is approved, the candidate must still meet the requirements outlined in this section.

An Industrial Postdoc candidate may participate in the project if they meet the following criteria:

- Have obtained a Ph.D. within the last five years as of the application deadline (no more than five years from the date of the Ph.D. certificate, excluding leave due to maternity or illness).
- Demonstrate substantial research expertise in the project topic through publications, research-based patents, or equivalent achievements.

The candidate may apply without having submitted their Ph.D. thesis at the time of application, provided that the application includes a statement from the primary supervisor confirming the expected submission and successful defense within eight months of the application deadline.

DQAA is committed to promoting diversity in all its aspects. Therefore, all potential applicants, regardless of their academic field, ethnicity, religion, gender identity, or age, are encouraged to apply for the fund's resources.

Regarding Finances

<u>Funding for the Company</u>

DQAA finances up to DKK 22,000 per month of the Industrial Postdoc's salary during the project period, but no more than 50% of the total salary (actual salary expenses, calculated based on the annual gross salary, including pension, insurance, and holiday pay).

For each month of the project period, the company also has DKK 2,500 available for the Industrial Postdoc's travels (in connection with the Industrial Postdoc's participation in project-relevant conferences both domestically and abroad, as well as stays abroad). This includes one round-trip journey to the destination per stay, visa, travel insurance, accommodation, and university fees. Food, daily/local transportation, books, etc., are not covered. The funds can be used freely throughout the entire project period and are not tied to any specific month. The company must cover all other project expenses, including equipment, materials, and data collection.

This also includes personal equipment for the Industrial Postdoc, such as a laptop and mobile phone. Note that a maximum of 50% of a company's total expenses for an Industrial Postdoc project may be funded by public funds.

Funding for the Research Institution

The DQAA provides the research institution with up to DKK 10,000 (including overhead) for each month of the project period. This amount can cover the research institution's project-relevant expenses for:

- Sparring between research mentors and the Industrial Postdoc
- Research mentors' participation in conferences. This includes one round-trip journey to the destination per stay, visa, travel insurance, accommodation, and participation fees. Food, daily/local transportation, etc., are not covered.
- Project-relevant equipment, materials, apparatus (acquisition and/or usage), and external services
- Work on the project by other employees (does not include HR and finance functions, rent, utilities, etc.)
- Publishing and dissemination of research results

The funds cannot be used for the Industrial Postdoc's salary or travel expenses. The funds can be used freely throughout the entire project period and are not tied to any specific month. The research institution must submit accounts at the end of the project and return any unused funds to the fund.

What Can Be Funded and How Long Can the Project Last?

The funding can cover a maximum of 50% of the project expenses in the company. The project can last from 12 to 36 months. The application must specify the number of months applied for.

4. Application guidelines

These guidelines are intended to assist you in the application process when applying for the business Postdoc scholarship grant from DQAA.

It is important that you carefully read these guidelines before initiating the application process, as the guidelines contain the complete call text as well as instructions regarding the application.

DQAA will treat all applicant and application information confidentially, using the national grant system eGrant. Read more (in Danish) about personal data collection in e-Grant in general and on

how long your data is stored in e-Grant. (https://ufm.dk/forskning-og-innovation/tilskud-til-forskning-og-innovation/e-ansogningssystemer/databeskyttelse-i-e-grant-og-dine-rettigheder).

Application content

This section provides guidelines on the content required in the sections of the online application form for this call.

Applicants

This section contains information about all those involved with the application, meaning the Postdoc applicant, the mentor as well as any co-applicants. Information about each applicant is collected through individual fields, detailing experience, publication history etc.

Postdoc applicant

Information	Guidelines
Full name	
Title	
Phone Number	
Work email address	
Date of birth	
Nationality	
ORCID number	
Workplace and address	If the applicant is not currently employed at the host institution of the project, the application should clearly state, that the applicant will be employed at the host institution if the grant is received
CV	(PDF) Please provide a brief CV, max 2 pages, with details of relevant educational and research experience. Specify what masters programme you have graduated from.
PhD Degree	(PDF) Upload PhD degree or letter from PhD supervisor. The postdoc applicant should possess the PhD degree or provide adviser estimate of the completion date
Publication list	(PDF) Please provide a list of up to 10 most relevant publications for evaluating your experience. Include a complete specification of all authors for each publication with your own name highlighted. This document is solely for written publications authored by the applicant. Exhibitions and other non-written publications should not be included in this document. Include a link to full publication list in ORCID).
Supplementary information	(voluntarily) Use this field to make the review committee aware of any special circumstances regarding your application that the committee should be aware of. Please do not include any personal information of sensitive character (ie illness, family conditions etc).

Mentor(s) of Applicant

Information	Guidelines
Full name	
Title	
Phone Number	
Work email address	
CPR-no	
Nationality	
ORCID number	
Affiliation/university	The mentor must be from a Danish university

Department	
Department address	
Website	
CV	(PDF) Please provide a brief CV, max 2 pages, with details of relevant educational and research experience. The CV must include a link to a full CV.
Publication list	(PDF) Please provide a list of up to 10 most relevant publications for evaluating your experience. Include a complete specification of all authors for each publication with your own name highlighted. This document is solely for written publications authored by the applicant. Exhibitions and other non-written publications should not be included in this document. Include a link to full publication list in ORCID).

Host institution

Information	Guidelines
Host university	The host university must be a Danish university
Adress	
Department	(PDF) Description of the department the Postdoc will be associated with
Leader of the administrating department	The person who will sign the grant agreement
Work email	
Phone number	
Administrative contact for the grant (Full name)	
Work email	
Phone number	

Company

Information	Guidelines
Company	The company must have a Danish CVR number
Adress	
Department	(PDF) Description of the department the Postdoc will be associated with
Leader of the administrating department	The person who will sign the grant agreement
Work email	
Phone number	
Administrative contact for the grant (Full name)	
Work email	
Phone number	

Proposal

Describe the suggested project providing the following information

Information	Guidelines
Project title	Maximum 150 characters, including spaces
Executive summary of project	Please provide a stand-alone summary of the project, describing its purpose, target group and activities. The summary must be suitable for publication. Maximum 2.000 characters including spaces.

Project description	(PDF max 4 pages, including illustrations and references) Describe the project in detail here. The description can include purpose, hypothesis, methodology and relevance for the purpose of the call.
Description of mentor/role in project	(PDF) 1 page
Project planning	(PDF) 1 page
Estimate of required access to Quantum Computing and HPC resources	(PDF max 1 page). Describe the estimated required access to Quantum Computing and HPC resources for the project.
Reference letters	(PDF) max 3 references

5. Evaluation procedure and selection process

Key criteria for the assessment of applications

The application must be submitted via eGrant, www.e-grant.dk. Please note that eGrant will open for applications on 7th of November 2024.

The application will be evaluated according to the following criteria:

1. The experience of the applicant and mentor.
2. The scientific value of the project.
3. Relevance to the scope of the call.

Deadline for applications:

Material received after the deadline will not be considered. If the required material is incomplete, the application will be rejected administratively.

The deadline for this call is the 7th of January 2025.

Evaluation process

We expect the evaluation process to be finished by mid-April 2025.

Evaluation committee

The evaluation committee is a group of 5 people with strong research experience in the relevant areas. Members are selected after the application deadline from a group of 15 subject matter experts. This optimizes discipline coverage and minimizes conflicts of interest.
The committee makes a short list of the received applications. Each application on the list will be assessed by 3 experts.

The committee makes recommendations to the DeiC Board who makes the final decision.

Appeals.

According to Ministerial Order no. 615 of 29 May 2023 (Ministerial Order on Danish e-Infrastructure Consortium's Tasks and Organization, etc.) paragraph 18, decisions on the management and allocation of funds for digital research infrastructures and on the research network, including the allocation of computation time, cannot be appealed to another administrative authority.

6. About Danish e-Infrastructure Consortium (DeiC)

The Danish e-infrastructure Consortium (DeiC) is tasked with the mandate to develop and coordinate cooperation on digital research infrastructure between universities covered by the Danish University Act.

DeiC's vision is that researchers at the Danish universities must have access to a digital infrastructure that enables research and education at a high international level.

Other relevant institutions with educational and research activities can participate in the collaboration after approval by DeiC's board.

DeiC's board consists of members at management level from the eight Danish universities, who all have a mandate from their own university. In addition, the Rectors College appoints a board chairman for DeiC.

DeiC's legal basis is described in executive order BEK 615 of 26/05/2023.

[i] Strategy for Quantum Technology June 2023
Part 1 – World-Class Research and Innovation