# CALL FOR APPLICATIONS

## PhD scholarship on Quantum Algorithms or Quantum Software

DeiC National Quantum Algorithm Academy
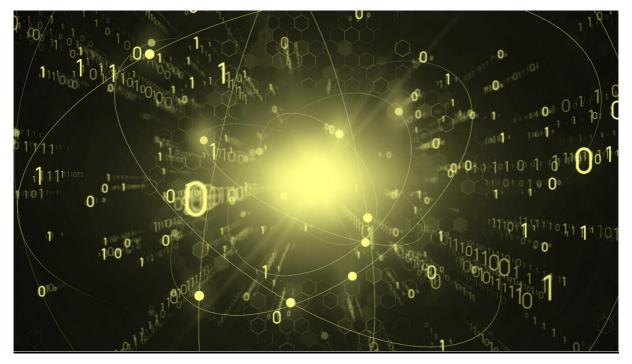
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# 1. Information about the call

**Precall**
5. February 2024

**Application in e-grant form opens:**
4. March 2024

**Application deadline:**
4. april 2024 at 12:00 PM

**Applicant notification:**
Mid-May 2024

**Earliest start date**
1. July 2024

**Latest start date**
1. December 2024

**Evaluation committee:**
National Quantum Algorithm Academy Evaluation Committee

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

**Guideline version**
2024.01

# 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 "The National Quantum Algorithm Academy" (NQAA). 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 DeiC NQAA 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.


The call for the first two programs is expected to open in February 2024, and will be:

- 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.

Coming programs
- Business PhD and Postdoc Scholarships, expected to open October 2024
- Visiting researchers grants

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. PhD Scholarship on Quantum Algorithms or Quantum Software

The National Quantum Algorithm Academy (NQAA) under DeiC is offering fully funded 3-year PhD scholarships in the areas of Quantum Algorithms or Quantum Software. The stipends are scheduled to begin in 2024.

Associate professors and full professors at Danish universities can apply for fully funded scholarships aiming to develop, study or test quantum algorithms, related software and their applications. The principal applicant is assumed to be the main supervisor.

These scholarships 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.

A PhD student does not need to be named before the application is granted.

The stipend will be managed by the PhD School of the main applicant and the student shall be enrolled at that PhD school. The selection of students follows the procedures of the PhD school.

The grant will cover salary and pension in accordance with the agreement between the Ministry of Taxation and The Danish Confederation of Professional Associations on Academics in the State, a fee of 80.000 DKK per year covering running expenses and thesis evaluation, and 44 % overhead.

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.

The supervisor and the student automatically become members of the National Quantum Algorithm Academy 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.

# 4. Application guidelines

These guidelines are intended to assist you in the application process when applying for the PhD scholarship grant from **DeiC National Quantum Algorithm Academy.**

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.

DeiC will treat all applicant and application information confidentially, using the national grant system e-grant. e-grant can be accessed through e-grant.dk , using MitID or by manually creating an user account. 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 main applicant as well as any co-applicants. Information about each applicant is collected through individual fields, detailing experience, publication history etc.
The principal applicant is assumed to be the main supervisor for the PhD student.

**Principal applicant**

| Information | Guidelines |
|---|---|
| Full name | |
| Title | |
| Phone Number | |
| Work email address | |
| CPR-no | |
| Nationality | |
| ORCID number | |
| Affiliation/university | The principal applicant 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 publications 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). |
| Summary of own research | Please provide a short summary (max 2.000 characters) of own research relevant for the application |
| 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). |

**Co-applicants** (most be completed by all co-applicants)

| Information | Guidelines |
|---|---|
| Full name | |
| Title | |
| Phone Number | |
| Work email address | |
| CPR-no | |
| Nationality | |
| ORCID number | |
| Affiliation/university | The principal applicant 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). |

**Proposal**

Describe the suggested project for the PhD candidate 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. |
| 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. |

# 5. Evaluation procedure and selection process

**Key criteria for the assessment of applications**

The application must be submitted via e-grant, www.e-grant.dk. Please note that eGrant will open for applications on 4. March 2024.
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The application will be evaluated according to the following criteria:

1. The experience of the applicants, demonstrating the ability to supervise the project.
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 4. April 2024.

## Evaluation process

We expect the evaluation process to be finished by mid-May 2024.

## Evaluation committee

The evaluation committee is a permanent group of 5 people with strong research experience in the relevant areas. The committee makes a short list of the received applications. Each application on the list will be assessed by 3 experts: two committee members and one from a non-Danish institution.

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.

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