Jobbnorge-ID: 116108
Søknadsfrist: Closed
Nettside:
Omfang:
Varighet:

Postdoctoral fellowship in High Performance Computing (HPC)

The Faculty of Information Technology, Mathematics and Electrical Engineering (http://www.ntnu.edu/ime) at the Norwegian University of Science and Technology (NTNU) has a vacancy for one postdoctoral fellow position in High Performance Computing (HPC) at the Department of Computer and Information Science (http://www.ntnu.edu/idi).

An appointment as postdoctoral fellow is for a term of two years of full-time research, with no teaching obligations. The position of postdoctoral fellow is a fixed-term position with the primary objective of qualifying for work in top academic posts.

Information about the department

Currently there are 23 professors and 11 associate professors at the department. In addition there are 12 adjunct associate professors, 7 postdoctoral researchers, approx. 70 active PhD students, and 18 technical/administrative staff. Five of the tenured scientific positions are held by women, and nine are from other countries than Norway. Research activities are organized into groups and strategic European and National projects as documented here http://www.ntnu.edu/idi/research.

Work description

Access to high-end High Performance Computing resources are now necessary for a range of applications. However, as these resources become more complex to manage and maintain, HPC as a cloud service becomes more attractive. Current cloud infrastructures are mostly homogenous. The Department (IDI) is part of the EU H2020 CloudLightning project which will investigate how to self-organize and self-manage heterogeneous clouds that may consist of GPUs and MICs accelerators as well as DFEs (Data flow engines).

The Post Doctoral Researcher's responsibility will include the following tasks related to the CloudLightning project:

- Help develop self-organized self-managed plugins based on the characteristic of each heterogeneous resource type (GPUs, MICs, DFEs)
- Provide infrastructure support for the above resource types. This task may include developing libraries for a range of different GPUs and other accelerators for the service implementations to link against.
- Develop stand-alone open source software implementations of use cases from oil & gas, ray tracing, genomics and matrix computations that can be used by the project.
- Integrate the above use cases with service descriptions developed in collaborations with our partners
- Configure and refine several test beds including GPUs and other accelerators for the project

The candidate will also work on research challenges related to the above topics.

The position requires strong English oral and writing skills as the candidate will be interacting with a team of international researcher, including our main partner from Ireland, and the job will include providing several progress reports in English, as well as publishing open access research articles in major conferences and/or journals such as SC, IPDPS, CC-PE, JORS, etc.

If the applicant's PhD is not from an English speaking country, the following tests can be used as documentation: TOEFL, IELTS and Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE). Minimum scores are:

- TOEFL: 600 (paper-based test), 92 (Internet-based test)
- IELTS: 6.5, with no section lower than 5.5 (only Academic IELTS test accepted)
- CAE/CPE: grade B or A

In addition, potential successful candidate will interviewed via Skype or other means.

The candidate must be able to start full-time in this position by January 1, 2016, at the latest.

Qualifications

- PhD degree in computer science, computational science, or equivalent is required.
- Developing parallel system software in C/C++ and parallel programming environments, including CUDA, MPI and OpenMP
- Experience with HPC benchmarking, performance modelling, and performance analysis of scientific applications for multicore/ many-core and distributed memory systems.
- Experience with HPC code generation, runtime frameworks and their interactions.
- Experience with optimizations and scheduling of wide variety of scientific and computational kernels.

- Demonstrated research capability via a strong publications record.
- Demonstrated ability to work independently as well as collaboratively.
- Excellent written and oral communication skills.

Additional desired qualifications:

- Experience with compiler technology for GPUs/Accelerators
- Experience using Performance Instrumentation and Counter tools such as PAPI, etc.

The applicant must enclose a short essay (up to 2000 words) describing his/her view of what the main research challenges are in providing cloud-based HPC.

Emphasis will be put on personal qualities and potential as a researcher. High importance will also be attached to personal communication and cooperation skills.

The postdoctoral position shall contribute to the current strategy of strengthening the department's research activities. A requirement is a Norwegian doctoral degree in a relevant research area or a corresponding doctoral degree from a country outside Norway, recognized as equivalent to a Norwegian doctoral degree, or competence at a corresponding level documented by academic work of the same scope and quality. The applicant must document his/her experience with research project participation. The candidate's potential for strengthening the department's research will be important when evaluating an application, in addition to the applicant's education, publications, and qualifications for completing the project.

We can offer

- an informal and friendly workplace with dedicated colleagues
- academic challenges
- attractive schemes for housing loan, insurance and pensions in the Norwegian Public Service Pension Fund

The Faculty of Information Technology, Mathematics and Electrical Engineering wants to attract outstanding and creative candidates who can contribute to our ongoing research activities. We believe that diversity is important to achieve a good, inclusive working environment. We encourage all qualified candidates to apply, regardless of the gender, disability or cultural background.

Salary conditions

The position is in code 1352 Post doctor, salary grade range 57-77 in the Norwegian State salary scale, gross NOK 483 400 - 711 500 per year, depending on qualifications. A deduction of 2 % is made as a statutory contribution to the Norwegian Public Service Pension Fund.

General information

The appointment is subject to the conditions in effect at any time for employees in the public sector.

As far as possible, the State workforce should reflect the diversity of the population. Goals of our personnel policy therefore include a balanced distribution in terms of age and gender as well as recruitment of people of immigrant background.

Under Section 25 of the Freedom of Information Act, information about the applicant may be made public even if the applicant has requested not to have his or her name entered on the list of applicants.

The application must contain

- A cover letter including an explanation of how your research interests and background would fit the position.
- Information about education and relevant experience (a CV).
- Certified copies of academic diplomas and certificates.
- Applicants from universities outside Norway are kindly requested to send a diploma supplement or a similar document, which describes in detail the study and grading system and the rights for further studies associated with the obtained degree.
- a short essay (up to 2000 words) describing his/her view of what the main research challenges are in providing heterogeneous resources for HPC.
- The PhD thesis and other publications relevant to the research scope and any other work which the applicant wishes to be taken into account should clearly indicate the applicant's contribution. If it is difficult to specify the input of the applicant in a joint work, a short summary should be attached outlining the applicant's input.
- Names and contact information of at least two references

Incomplete applications will not be taken into consideration.

The application must be sent electronically as one combined PDF file via this page.

For further information, please contact Associate Professor Anne Cathrine Elster, e-mail: elster@idi.ntnu.no, phone: +47 981 02 638 or Professor Letizia Jaccheri, Head of Department, e-mail: Letizia@idi.ntnu.no, phone +47 918 97 028.
For information about processing of applications, please contact Senior Executive Officer Anne Kristin Bratseth, phone +47 73 59 67 15, e-mail: anne.kristin.bratseth@ime.ntnu.no.

Mark the application IME 045-2015

Deadline for applications: 31.08.2015

Tilleggsinformasjon

Arbeidssted: