Norwegian University of Science and Technology (NTNU), Trondheim, Norway
Faculty of Information Technology, Mathematics and Electrical Engineering
Department of Engineering Cybernetics

Research Assistant (Early-Stage Researcher) at Norwegian University of Science and Technology, in model-based optimization – PRONTO EID

This position (ESR-F) is offered by the PRONTO EID-ITN (European Industrial Doctorate - Initial Training Network). The successful candidate will join the Norwegian University of Science and Technology, in Trondheim, Norway. The task of the post will be dynamic real-time optimization of process networks taking uncertainty into account.

Description

The objective of PRONTO (PROcess NeTwork Optimization) is efficient and sustainable operation of Europe’s process industries taking machinery condition and process performance into account.

EID is a funding scheme in the Marie Skłodowska-Curie Actions under Horizon 2020. In EID, each Early Stage Researcher is enrolled in a doctoral (PhD) programme and spends at least 50% of his or her time in the non-academic sector. There is joint supervision of the researchers by supervisors in the academic and non-academic sectors.

The PRONTO EID has eleven partners from industry and academia across Europe. The research program for this post will be carried out as part of PhD studies at the Department of Engineering Cybernetics at NTNU. The person appointed will be sent to ABB Corporate Research in Ladenburg, Germany to carry out significant parts of the research. Further, a short secondment at Statoil in Norway is planned.

The activity of the post will be to develop a framework for a robust, adaptive scheduling methodology of process networks with continuous and discrete decision variables. Advances will include i) optimization formulations that exploit structure to increase efficiency and robustness, and ii) an online model calibration methodology using knowledge of constraints and monitoring data in addition to normal process data. The advances will act as enablers for real-time model-based scheduling in large-scale process plants.

The candidate

Candidates should have an internationally recognized degree at the master level (or equivalent) in Control, Chemical Engineering or Mechanical Engineering (or a closely related field, such as applied mathematics). The candidate is expected to be well acquainted with numerical optimization methods, and possess good programming skills (in a language such as Matlab, Python, C, or similar). In addition to documented excellent qualifications, personal qualities will be emphasized.

To be eligible, any candidate must be an Early Stage Researcher. They must not have a PhD and must have fewer than 4 years’ research experience. At the time of the selection, applicants must not have resided or carried out their main activity (work or studies) in Norway for more than 12 months in the 3 years immediately prior to the starting date.

These eligibility requirements for Marie Skłodowska-Curie ESRs are non-negotiable and ineligible candidates will not be considered.

It is a prerequisite that the PhD scholar applies for and is granted admission to the NTNU PhD studies as soon as possible after employment. NTNU’s PhD-rules require a Master degree or equivalent with at least 5 years of studies and an average grade of A or B within a scale of A-E for passing grades (A best). Applicants 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.

Applicants who do not master a Scandinavian language must provide evidence of good English language
skills, written and spoken. The following tests can be used as such documentation: TOEFL, IELTS or 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.

**Formal regulations**

Appointments are made in accordance with the regulations in force regarding terms of employment for PhD candidates issued by the Ministry of Education and Research, with relevant parts of the additional guidelines for appointment as a PhD candidate at NTNU.

Applicants must undertake to participate in an organized PhD programme of study during their period of employment. The person who is appointed must comply with the conditions that apply at any time to employees in the public sector. In addition, a contract will be signed regarding the period of employment.

Applicants must be qualified for admission as PhD students at NTNU. See http://www.ntnu.edu/ime/research/phd for information about PhD studies at NTNU. Together with the application, include a description of the research work that is planned for completion during the period of the grant.

**Benefits**

This program offers a three year full-time position as researcher with a salary and allowances according to EU regulations for Marie Skłodowska-Curie ITN Early Stage Researchers. ESRs in an EID-ITN also undertake a comprehensive personalised development programme with targeted training measures and participate in a range of network events with the consortium partners.

The position follows code 1017, salary grade 50 – 62 in the Norwegian State salary scale, gross NOK 430 200 – 529 500 per year, depending on qualifications. A deduction of 2% is made as a statutory contribution to the Norwegian Public Service Pension Fund. In addition to the salary, you will receive a mobility allowance, and if applicable a family allowance.

**General**

We can offer an informal and friendly workplace with dedicated colleagues, academic challenges and attractive schemes for home loans, 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.

For further information about the position, please contact Professor Bjarne Foss: Bjarne.Foss@ntnu.no

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 with a CV and certified copies of diplomas and certificates must be sent electronically via http://www.jobbnorge.no/en with information about education and relevant experience (all in one combined PDF file). Mark the application IME 069-2015.

Deadline for applications: 2016-02-15.