NTNU

Kunnskap for en bedre verden

**Jobbnorge-ID:** 88138
**Søknadsfrist:** Avsluttet
**Nettside:**
**Omfang:**
**Varighet:**

# PhD Position Related to ICT for Medical Modelling, Computing and Visualization (MMCV)

The amount of medical-related information available about all of us today is massive and will increase dramatically over the next few years. It is very important that all available information is integrated in such a way that it is possible to benefit from it, both in daily clinical practice and in medical technology research.

In order to make this possible, excellent skills are needed in mathematical and medical modeling, numerical analysis, parallel and heterogeneous computing and multimodal visualization, in addition to biomedical knowledge.

The accepted PhD student will work in an interdisciplinary environment in close collaboration with experts in Medical Technology, Computer Science and Applied Mathematics, and in two of NTNU's thematic priority areas.

**Nonlinear Numerical Modeling of Ultrasound Imaging**
One PhD-fellowship at the Dept. of Mathematical Sciences
Contact: Associate Professor Trond Kvamsdal, +47 73 59 29 72, trondkv@math.ntnu.no

**Description:**
A challenge with ultrasound imaging has been that the acoustic properties of tissue have strong
spatial variations, thus producing multiple scattering and wave front aberrations, both limiting the diagnostic value of the images. The advanced processing capabilities of digital computers now open for corrections of some of these limitations by developing new mathematical methods for the image reconstruction. The project will consider wave propagation and scattering in tissue with nonlinear elasticity and spatial heterogeneity based on spline finite
element and multi-resolution homogenization techniques. The research will be closely linked to the medical ultrasound research at NTNU.

**Background:**
We seek highly motivated individuals with good analytical and communication skills holding a
MSc in applied and numerical mathematics or computational mechanics with a relevant background in finite element analysis and/or spline theory.

Foreign applicants must document a TOEFL score of 600 or higher. The goal of the announced position is to obtain a PhD degree, hence the successful applicant must be enrolled as a PhD student at NTNU, please see http://www.ime.ntnu.no/english/research/phd for information about PhD education at NTNU.

NTNU's PhD regulation require a Masters degree or equivalent for admission, 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). Candidates from universities outside Norwayare kindly requested to send a Diploma Supplement or a similar document, which describes in detail the study and grade system and the rights for further studies associated with the obtained degree: http://ec.europa.eu/education/policies/rec_qual/recognition/diploma_en.html

The PhD-position is placed in salary code 1017, which currently corresponds to a yearly gross income of NOK 416 600 (pay scale level 50). From this 2 % will be deducted for mandatory membership in the National Pension Fund.

The appointment will be made in accordance with current regulations with supplementary rules for research fellowship appointments in universities and polytechnics. Applicants must agree to participate in organized doctoral study programs within the period of the appointment. The successful applicant must agree to the conditions laid down for public employees.

Candidates will be required to enroll in a PhD program within the period of employment, and must sign a contract regulating the period of employment.

According to Norwegian policies, the government workforce should, as closely as possible, reflect
the diversity of the population at large. It is therefore a goal of NTNU, as a government institution, to have a workforce which is balanced with respect to age and gender, and to recruit persons of immigrant background. NTNU also wishes to increase the number of women on its workforce, and women are specifically encouraged to apply.

The application must include information about education, exams and earlier experience. Certified copies of certificates and diplomas must be enclosed. Relevant scientific works should be submitted. Joint works will be taken into account. In cases where it is difficult to determine the applicant's contribution, a short note of explanation should be supplied.

Applications are to be submitted electronically through this page.

Applications should be marked: IME 046-2012.
Application deadline: December 10, 2012.

## Tilleggsinformasjon

### Arbeidssted: