

Position as Post.doc

At the Department of Electronics and Telecommunications there is one Post.doc position in one of the following fields.

Position 1:

Research group: Circuit and Systems Design

RUNTIME RECONFIGURABLE SYSTEMS FOR AMBIENT INTELLIGENCE APPLICATIONS

The group is active within Ambient Intelligence with respect to a concept for ambient embedded systems called AHEAD: Ambient Hardware—Embedded Architectures on Demand. AHEAD is based on the idea of having mobile clients such as PDAs and Smartphones carrying around architectural system descriptions of HW/SW-structures necessary for solving a type of problem or application. Tags in surrounding environment can receive such descriptions, and then reconfigure themselves in terms of both HW and SW in order to solve the problems or applications more effectively in terms of performance and power usage. Hence operations that will be too performance or power demanding for the mobile client can be solved “on demand” by a computational tag in the environment. The AHEAD concept has challenges in areas such as architecture and system description (modelling theories for both communication and computation), FPGAs, dynamic reconfiguration (HW operating system, partial reconfiguration, runtime reconfiguration), Linux on FPGA and more. The group is currently establishing a laboratory for experiments within the AHEAD concept in order to test out some of the theories and ideas on the practical level.

Contact person :

Professor Kjetil Svarstad, Kjetil.Svarstad@iet.ntnu.no, +47 73 59 27 15

Position 2

Research group: The Electro-optics Group

PHOTONIC COMPONENTS

The Electro-optics Group teaches master and PhD courses in Electromagnetism, Electro-optics, and Medical Optics. Our research is focused on photonic components based on periodic structures (photonic crystal fibers (PCF) and fiber bragg gratings), quantum cryptography, medical application of lasers (spectroscopic characterization of tissue), and optical characterization of pico-vibrations (laser probe, heterodyne interferometer). We wish to strengthen our research on photonic components based on periodical structures, which is believed to be the next generation integrated optical components. The candidate must have experience with modeling/design and testing/experimental verification of photonic components (e.g. microstructures). Fabrication experience is an advantage but not a requirement. One of our goals is to develop a component for optical readout of ultrasound in connection with the SMiDA (Smart Microsystems in Diagnostic Imaging) project at our Department.

Contact person: Associate Professor Astrid Aksnes, Astrid.Aksnes@iet.ntnu.no, tlf. +47 73597699, mob. +47 93059351

Position 3

Research group: Acoustics Group

MODELLING OF ACOUSTIC WAVE PROPAGATION

Research and teaching in the acoustics group covers industrial acoustics, communication acoustics and environmental acoustics. Within those research areas, modelling of acoustic wave propagation in air (also flowing gas), water and/or elastic and porous media are central research topics. The acoustics group has been working for a long time on the numerical implementation of different models with important applications in underwater acoustics and geophysics, outdoor sound propagation and room acoustics.

The candidate must have experience from one or more of these research areas and also a strong background in signal processing and mathematics/numerical modelling of acoustic wave propagation in different media.

Contact person:

Professor Jens M. Hovem, hovem@iet.ntnu.no, tlf +47 73591418, +47 92 89 91 03

Position 4:

Research group: Material and device technology.

NANOSCALE STRUCTURES FOR ELECTRONIC AND MAGNETIC DEVICE APPLICATIONS

The material and device technology group at IET has established modern research facilities for deposition of complex oxide thin films and surface analysis of nanoscale device structures. These laboratories provide excellent opportunities for engineering of novel materials and device structures for electronic and magnetic applications. We seek a candidate experienced in growth and characterization of epitaxial oxide thin films, nanostructuring, and/or surface analysis.

For more information, please contact:

Professor Thomas Tybell, thomas.tybell@iet.ntnu.no, +47 74590209

Professor Jostein Grepstad, jostein.grepstad@iet.ntnu.no, +47 73592721

We seek highly motivated individuals holding a PhD degree in one of the relevant disciplines. The position is made for up to 2 years. The application has to specify for which position it is applied for.