

PhD position in "Optical networks for the future Internet" at Department of Telematics

Ingress NTNU engelsk

A PhD research fellowship position is offered at the Department of Telematics in the Faculty of Information Technology, Mathematics and Electrical Engineering (IME), the Norwegian University of Science and Technology (NTNU). The Department of Telematics has 3 research areas: (1) Networked Systems, (2) Networks, and (3) Information Security.

The department has ca. 45 PhD students and is currently involved in a national centre of Excellence (Q2S, www.q2s.ntnu.no), National research programs, EU Network of Excellences (ePhoton/ONe, Euro-NGI) and EU research projects (CESAR).

It is being increasingly recognized worldwide that the current "best effort" based Internet infrastructure is not able to cope with Quality of Service (QoS) demands from emerging network applications, usage patterns and new business models from a wide variety and ever growing number of users. A number of global initiatives is on-going to rethinking and rebuilding the Internet:

<http://www.future-internet.eu/>,

<http://www.geni.net/>,

<http://akari-project.nict.go.jp/eng/conceptdesign.htm>

These advocate a radical redesign or change of paradigms in the long term.

Some of the challenges to be handled are [1]:

- 1) The available bandwidth per user/device will continue to grow,
- 2) Heavy increase in content and quality of content,
- 3) Huge increase in the number of users,
- 4) Large data flow transfers between users, remote instrumentation and computing/data centers, and
- 5) Energy-efficient networking.

Advanced optical technologies could provide effective solutions in many of the areas above and drive the development of the future Internet.

This PhD position is within the networking area and could e.g. focus on a selection of the following topics:

- 1) Network architectures based on hybrid (OCS/OPS) switching,
- 2) High-speed inter-network communications (involving at least one optical network),
- 3) Quality of Service (QoS) differentiation (with respect to performance and/or dependability) in future optical networks,
- 4) Optical access networks for the future,
- 5) Energy-efficient optical networking and "green economy" modelling.

The long term goal of the research, whatever topics are chosen, should be to contribute to the successful development of an Internet for the future.

We seek a highly motivated individual holding a Master's degree in Telematics, Computer Science, Electrical Engineering or other relevant disciplines. A good educational basis from the networking area is a prerequisite for the position. The candidate must fulfil the formal

requirements to be accepted as a PhD candidate at NTNU. See also the information about doctoral studies at NTNU at <http://www.item.ntnu.no/academics/phd>

Interested candidates are encouraged to contact Associate Professor Norvald Stol, email: norvald.stol@item.ntnu.no for further information.

For more detailed information about the department, see <http://www.item.ntnu.no/>, and about the research area Networks see <http://www.item.ntnu.no/research/networks>

PhD Research grants at NTNU are normally for 4 years where the candidates are expected to use 25% of their time on teaching or research assistance duties.

The appointment is at code 1017, salary level 45-61 in the national salary scheme, gross NOK. 355.600- 471.900 per annum, of which 2 % is deducted for the State Pension scheme.

The appointment will be made in accordance with current regulations with relevant parts of “Supplementary guidelines for employment as research fellow at NTNU”.

The national labour force must reflect the composition of the population to the greatest possible extent. It is therefore a major political objective to achieve a balance of gender and to recruit persons with an immigrant background. Immigrants are encouraged to apply for this post.

NTNU wants to increase the proportion of women in its scientific posts. Women are encouraged to apply.

The application must contain CV, certified copies of transcripts and reference letters is to be submitted electronically through <http://www.jobbnorge.no/>, with the reference number IME-060-2009. Preferably, we want the attachments in one file. Application deadline: 01. December 2009.

Incomplete applications will not be taken into consideration.

[1] L. Wosinska, D.E. Simeonidou, A. Tzanakaki, C. Raffaelli, C. Politi: “Optical Networks for the Future Internet: Introduction”, Journal of Optical Communication and Networking, Vol.1, No. 2, July 2009.