Newsletter December 2013

Activities during the autumn 2013

During 2013 we had a number of activities associated with the ITS Postgraduate school (NFITS) including two retreats: One in May at Malmö University and another late in November in Norrköping. The reason for having two retreats was that during the workshop at the retreat in Malmö, the participants stated that the gatherings are very important for the Ph D students to meet and talk and also to get feedback on their work by other senior researchers. The recommendation and wish from the participants was to have these gatherings more frequently. Below is some more brief information about the second retreat and about a selection of other activities that have taken place.

NFITS retreat at Villa Fridhem in Norrköping 27-28 November, 2013

The 2-day retreat started with a late breakfast at Visualiceringscenter in Norrköping. Then we were all taken on a fantastic 3D-tour out in space guided through the galaxy by Anders Ynnerman and Andreas Anglesjö. Having the feeling of being in a comfortable space capsule, Anders and Andreas navigated us between the stars and explained how they and their colleagues in the research centre are using sophisticated software to make projections of space and its components, based on data from NASA. During our journey, we visited Mars and Saturn and got a complete new view of the universe that we all are part of and how much that remains to be explored and to investigate. After a very soft arrival back to earth and Norrköping, we had lunch and went to Villa Fridhem on the countryside of Norrköping overlooking the sea.

The remaining part of the1st day was composed of interesting presentations by Andreas Allström and about his research on traffic state estimation and predictions, by Qichen Deng and his research about platooning and road trains and also by Tor Skoglund. Tor is just about to finalize his Ph D dissertation and summarized his work within the public transport domain. We also had presentations about future doctoral courses within NFITS that are to be given during 2014: By Chalmers (2 courses) as well as by Blekinge Institute of Technology and Malmö University (one joint course), see below.

The 2nd day of the retreat was composed of several external guest lecturers on the theme “Energy efficiency in transportation and enabling technologies”:

"Deployment and development of re-scheduling algorithms for eco-driving in railway traffic: Experience from the deployment of CATO at Malmbanan" by Tomas Lidén, Transrail/LiU.

"ecoDriver - Supporting the driver in conserving energy and reducing emissions" by Andreas Tapani, VTI/LiU.

"Platooning - driver experience and methodological challenges" by Magnus Hjälmdal, VTI.

"Optimization of wireless technologies for guided transportation uses" by Mohamed Kassab, IFFSTAR, France.

"New cooperative vehicular applications: some experimental results" by Alexey Vinel, Halmstad Högskola.

We would like to thank all people involved in the activities during the retreat for making it such an inspiring and friendly event.

The doctoral course in *Quantitative analysis of transport and traffic systems* by LiU

The course is module-based and where each module corresponds to 2 credits. The course started in September, 2013 and ends in February 2014. There are in total 24 participants from different universities in Sweden. The course contains the following modules where each module is given by a specialized senior research at the KTS-division, Linköping University (LiU):

1. Microscopic traffic simulation (responsible: Dr. Andreas Tapani)
2. Analysis of traffic networks (responsible: Dr. Clas Rydergren)
3. Supply chains design and analysis (responsible: Prof. Martin Rudberg)
4. Vehicle routing (responsible: Dr. Stefan Engevall)
5. Train traffic timetable construction (responsible: Dr. Johanna Törnquist Krasemann)
6. Positioning systems (responsible: Tek.Lic. David Gundlegård)

The Swedish National ITS conference in September

During the Swedish National ITS conference in September, Prof. Jan Lundgren represented NFITS and participated in the panel discussion about education in ITS. Bringing up questions related to education in the traffic and transport domain is very rare in gatherings like this and NFITS believes that it was a very important initiative taken by the conference organisers.

Thesis defences

Annika Larsson (Lund University) defended her Ph D thesis with the title *"Automation and the nature of driving – the effect of adaptive cruise control on drivers' tactical driving decisions"* on October 11th, 2013. Annika is now working for ÅF Konsult in Gothenburg.

Shoaib Bakhtyar (Blekinge Institute of Technology) defended his licentiate thesis with the title "*On the synergies between an electronic waybill and Intelligent Transport Systems Services"* on November 7th, 2013.

If you are interested in reading the theses or other publications associated with the Ph D students, please visit the publication list on our website http://www.its-sweden.se/Forskarskolan.

Newly enrolled Ph D students

During the autumn of 2013, one new Ph D student, Gerasimos Loutos from LiU, joined NFITS.

Gerasimos works in the area of *multimodal planning,* which becomes increasingly important in order to develop the regional transport systems of the future. The aim of the project is to contribute through the development of models for planning and evaluation of walking and cycling in connection with other modes of transport and especially public transport. The focus of this research is on mode choice and integrated traffic assignment. The research could substantially contribute to and support the great interest among Swedish cities and municipalities to increase the share of walking, cycling and public transport. The research project activities will be divided in three stages.

The first part will be a comprehensive description of the state of the art in integrated planning of walking, cycling and public transport. The most promising type of modeling is activity based demand models, where the trips are assumed to be generated by the need of the households to carry out their daily activities, i.e. work, shopping, recreation. Activity based modeling gives a holistic perspective on travel behavior that should be of particular use for integrated multi-modal planning. The second step of this project will focus on the collection of appropriate data in order to estimate the formulated models. Last step is the development of a mode choice model which will include public transport, walking, cycling and passenger car as the mode alternatives. Based on the analysis of research needs, the survey of existing models and the available data, a prototype activity based mode will be created for integrated mode planning.

So, Gerasimos, most welcome to NFITS!

Information about NFITS activities during the spring 2014

Transportforum

During Transportforum, January 8-9th 2014, there are several presentations to be held by NFITS members:

January 8th: Session 6 “Modellutveckling och trafiksimulering” Kl 15.30-17.30:

- Ellen Grumert and Andreas Tapani, VTI/LiU, ”Jämförelse av tre algoritmer för styrning av variabla hastigheter – en trafiksimuleringsstudie”.

- Athina Tympakianaki, KTH, “Estimation of Dynamic Origin-Destination matrices – application for mesoscopic models”.

January 9th: Session 44 “Trafikdata” Kl 11-12.30:

- Andreas Allström, Sweco/Linköpings Universitet, ”Hur kan nya datakällor komplettera resvaneundersökningar?”.

- Erik Jenelius, Mahmood Rahmani and Harilaos Koutsopoulos, KTH, ”Restidsfördelningar på rutter från floating car-data”.

January 9th: Session 54 “Parkering” Kl 11-12.30:

- Albania Nissan, KTH, “Trafikeffekter av parkering och angöring i olika typer av gaturum”.

Retreat and yearly gathering

The plans for the yearly NFITS gathering during the spring 2014 are not completed yet, but there will be an event similar to the one in Malmö and Norrköping during 2013. Ideas for topics and themes, invited speakers and suitable locations for the retreat (in Sweden) are most welcome.

Thesis defences

During 2014, additional licentiate and thesis defences will be organized and information about these will be published accordingly on our News site:

Courses so far planned to be held during 2014

The NFITS course *Quantitative analysis of transport and traffic systems* organized and held by Linköping University will continue until February, 2014. Later three new courses are given (with preliminary course titles):

- *Diffusion and adoption of ITS applications* (5 credits): Starting March 2014 and is organized by MariAnne Karlsson, Chalmers.

- *Agent systems and ITS applications* (5 credits): Starting in the autumn 2014, and is jointly organized by Jan Persson and Paul Davidsson (MaH) as well as Johan Holmgren (BTH).

- *ITS and logistics:* Starting in the autumn 2014 and is organized by Per-Olof Arnäs, Chalmers.

NFITS research educational support and grants

As many of you know already, NFITS provides support in various forms for the associated Ph D students in order to stimulate their research education. NFITS is open to any Ph D student in the ITS research domain whom is associated with any Swedish university and in the beginning of the research education. As an enrolled Ph D student, there are certain types of financial support available that can be applied for and these are important to know about:

- **Travelling and accommodation support:**

When the enrolled Ph D students participate in the courses offered by NFITS, the associate relevant travelling and accommodation costs can be reimbursed by NFITS. The NFITS also give financial support for participation in other courses, conferences, meetings etc after announcements by NFITS.

- **Conference scholarships**

If an enrolled Ph D student has gotten a scientific, full paper accepted to a relevant scientific conference, NFITS can grant a scholarship of 10tkr. Only one grant can be obtained each year. The Ph D student needs to apply for this grant by sending the accepted paper and name of the corresponding conference to the Director of NFITS.

- **Travelling scholarships for research visit abroad**

If an enrolled Ph D student intends to conduct a research visit abroad, NFITS can grant a scholarship of 10tkr/month. The minimum length of the stay should be 1 month and a maximum total amount of 50tkr per visit can be paid. The main supervisor of the Ph D student needs to apply for this grant prior to the start of the visit by sending an outline of the purpose and details of the research visit to the Director of NFITS . When the visit has terminated, the Ph D student should write a summary of the experiences gained by the visit for NFITS.

Finally, we would like to thank all of you whom have been involved in NFITS.

Especially, we would like to thank VINNOVA, Trafikverket, ITS-Sweden and our ambitious Ph D students.

We wish you all happy holidays and a “Guten rutsch” into 2014!

About the Swedish ITS Postgraduate school - NFITS

The area of Intelligent Transportation Systems and Services (ITS) is known to be multi-disciplinary where different areas of competence meet to achieve sustainable, safe and cost-effective traffic and transport systems. The research frontier in the ITS area has earlier primarily been divided according to the different disciplines while there has been a need for research projects and researchers which go beyond their specific domain with a wider perspective to address relevant issues in a larger context than before.

Based on this need of a broaden multi-disciplinary research scope and in conjunction with the discussions of the organization of the ITS World Congress 2009 in Stockholm, the idea of a Swedish ITS Postgraduate School (NFITS) was formed. The establishment of NFITS was then made by VINNOVA (The Swedish Governmental Agency for Innovation Systems), Banverket (The Swedish Rail Administration) and Vägverket (The Swedish Road Administration) together with ITS-Sweden and a number of Swedish companies and Swedish universities.

One main purpose of the ITS Postgraduate School is to provide for a good, multi-disciplinary research education based on the different areas of competence of the participating universities. Another important objective is to initiate and run research projects highly relevant for the industry and the society defined in cooperation with the companies involved in the ITS Postgraduate School. Below is a list of the Ph D students associated with NFITS. * indicates that the student joined NFITS during 2013, while ** indicates that the student left NFITS after graduation (licentiate, or doctoral).

Gideon Mbiydzenyuy**	Blekinge Institute of Technology
Shoaib Bakhtyar	Blekinge Institute of Technology
S.M. Zeeshan Iqbal	Blekinge Institute of Technology
Tor Skoglund	Chalmers University
Niklas Strand	Chalmers University
Jana Sochor**	KTH Royal Institute of Technology
Mahmood Rahmani	KTH Royal Institute of Technology
Athina Tympakianaki*	KTH Royal Institute of Technology
Qichen Deng*	KTH Royal Institute of Technology
Lars Backåker**	Linköping University
Andreas Allström	Linköping University
Ellen Grumert	Linköping University
Gerasimos Loutos*	Linköping University
Annika Larsson**	Lund University
Omar Bagdadi**	Lund University
Åse Jevinger	Malmö University
Banafsheh Hajinasab Razlighi	Malmö University
Taline Jadaan	Viktoria Institute

The ITS Postgraduate School is mainly funded by VINNOVA and Trafikverket (formerly known as Banverket and Vägverket) which are represented in NFITS by Eva Schelin (VINNOVA) and Bengt Hallström (Trafikverket). The work in NFITS is planned and executed by a research council (Sw. Forskarutbildningsråd, FUR) which currently is composed of the following members:

Christer Karlsson, ITS-Sweden
Johan Holmgren, Blekinge Institute of Technology
MariAnne Karlsson and Stig Franzén, Chalmers University
Harilaos Koutsopoulos and Albania Nissan, KTH Royal Institute of Technology
Jan Lundgren and Johanna Törnquist Krasemann, Linköping University
András Várhelyi, Lund university
Paul Davidsson and Jan Persson, Malmö University

NFITS is coordinated by ITS-Sweden. The main and assisting director for the ITS Postgraduate School are Prof. Jan Lundgren and Dr. Johanna Törnquist Krasemann, Linköping University.
More information can be found here: http://www.its-sweden.se/Forskarskolan.