



Newsletter June 2015

from the ITS Postgraduate school (NFITS)

Since the area of Intelligent Transportation Systems and Services (ITS) is known to be broad and multi-disciplinary, also the scope of our postgraduate school is quite broad but we have chosen to group the different research projects into four main thematic areas:

- ITS services and decision support for freight transportation
- ITS services and decision support for public transportation
- Traffic management and traffic information systems
- Automation, driver support and road traffic safety

Recently, the area of road traffic safety was strengthened with one new Ph D student, Noor Azreena Kamaluddin, at Lund University. Below is some brief information about the new colleague and other information concerning the development within NFITS during this past summer and autumn.



Noor Azreena Kamaluddin started her academic career in Malaysia where she received her Master's degree. Noor Azreena's research is focused on motorcycle safety and factors contributing to MC crashes and ITS-based solutions for crash prevention. She works with the development and test of a smartphone APP (e-Call) for motorcyclists, identifying safety critical events based on sudden acceleration change (jerk). Its usefulness for the riders is that in the event of an accident the system records how violent the situation was and it prepares a message to an SOS centre, but the rider is asked first whether to send it. The system also allows for the collection of anonymous data and

visualization where bike-accidents in the system occur, thus giving the road authority a good basis for prevention. Such an e-Call system also has great potential for cyclists, moped riders, four-wheel riders, skiers and horse-riders. Noor's supervisors are Prof. András Varhelyi and Dr. Aliaksei Laureshyn from Lund University.

The current Ph D student research projects associated with NFITS are the following (where the Ph D students' names are given in parenthesis):

1. ITS services and decision support for freight transportation

- a. Electric Fleet Optimization in Real-Time (Rafael Basso)
- b. Real-time Access and Guidance Control (Stefan Jacobsson)
- c. Enhanced Transport Security and Efficiency for HazMat (Camilla Magnusson Nyquist)
- d. E-waybill solutions (Shoaib Bakhtyar)

2. ITS services and decision support for public transportation

- a. Multimodal planning: Modal choice and integrated traffic assignment (Gerasimos Loutos)
- b. Multi-Agent Based Simulation of Commuting in Urban Areas (Banafsheh Hajinasab)

3. Traffic management and traffic information systems

- a. Traffic state estimation and prediction (Andreas Allström)
- b. Calibration of Dynamic Traffic Assignment models (Athina Tympakianaki)
- c. Digital infrastructure for railway traffic management (Talin Jadaan)

4. Automation, driver support and road traffic safety

- a. Cooperative systems (Ellen Grumert)
- b. Optimal strategies for platooning and effect evaluation (Qichen Deng)
- c. Reliable vehicular communications (Nikita Lyamin)
- d. Advanced rider assistant systems for improving motorcycle safety (Noor Azreena Kamaluddin)

Thesis defences

During the spring, NFITS had the pleasure to congratulate the NFITS alumnus Mahmood Rahmani from KTH to receive his doctoral degree.



Mahmood Rahmani completed his Bachelor's degree in Software Engineering from SBU, Tehran, and worked in the software industry for 7 years. He received a Master's degree in Complex Adaptive Systems from Chalmers University. He has been a PhD student at KTH since 2010. Mahmood's research project is about travel time estimation of urban traffic networks from GPS data.

On June 5th, Mahmood defended his doctoral thesis "Urban Travel Time Estimation from Sparse GPS Data: An Efficient and Scalable Approach".

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>.

Doctoral courses

During April-December 2015, the course "Introduction to ITS" (10 credits) is running. It is organized and given by MariAnn Karlsson and Stig Franzén, Chalmers and András Várhelyi, Lund University. More information can be found on our website <http://www.its-sweden.se/Forskarskolan> under "Research education".

Study visit to Transport for London and ITS UK in May

During May 27-28th, Per-Olof Arnäs, Chalmers organized a study trip to London on behalf of NFITS. The first day we visited Transport for London. They had put together a very interesting program including presentations about Road Space Management, Open data policy, the Surface ITS programme and the Urban Control system. We also visited the London Streets Traffic Control Center. The second day ITS UK and Jennie Martin organized a workshop including presentations from representatives from both industry and academia. The study trip was very appreciated from the participants and we learned a lot. We would like to thank our hosts Transport for London and ITS UK for two very interesting days. Slides from the presentations will be available from our website <http://www.its-sweden.se/Forskarskolan>

Preliminary plans for NFITS during autumn 2015

During the autumn, NFITS will be gathering in conjunction with the ITS World Congress in Bordeaux.

During the coming autumn, a number of these defences will also be organized and information about these will be published accordingly on our website.

**Finally, we would like to wish you a great summer holiday
and thank all of you whom have been involved in NFITS.**

Especially, we would like to thank VINNOVA, Trafikverket and ITS-Sweden

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. The primary purpose of the ITS Postgraduate School is therefore to strengthen the Swedish research education within ITS by providing a good, multi-disciplinary virtual research environment and a platform for cooperation between researchers in different areas of competence. Another important objective is to initiate and run research projects highly relevant for the industry and the society. For more information, please visit our website <http://www.its-sweden.se/Forskarskolan>.

Below is a list of the Ph D students associated with NFITS, where * indicates NFITS alumni (with a licentiate or doctoral degree).

Gideon Mbiydzenyuy*	Blekinge Institute of Technology
Shoaib Bakhtyar	Blekinge Institute of Technology
Tor Skoglund*	Chalmers University
Niklas Strand*	Chalmers University
Stefan Jacobsson	Chalmers University
Rafael Basso	Chalmers University
Nikita Lyamin	Halmstad 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
Camilla Nyquist Magnusson	Lund University
Noor Azreena Kamaluddin	Lund University
Banafsheh Hajinasab Razlighi	Malmö University
Åse Jevinger*	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 is composed of the following members during 2015:

Christer Karlsson, ITS-Sweden
MariAnne Karlsson and Stig Franzén, Chalmers University
Per-Olof Arnäs and Gunnar Stefansson, Chalmers University
Alexey Vinel, Halmstad University
Albania Nissan, KTH Royal Institute of Technology
Jan Lundgren and Johanna Törnquist Krasemann, Linköping University
András Várhelyi, Lund university
Henrik Sternberg, Lund university
Paul Davidsson and Jan Persson, Malmö University

NFITS is coordinated by ITS-Sweden. The director of the ITS Postgraduate School is Prof. Jan Lundgren, Linköping University.