

WATMOVES

UW-ITE STUDENT CHAPTER NEWSLETTER

Issue No. 5 Spring Term 2013



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Message from the President

On behalf of the University of Waterloo Institute of Transportation Engineers Student Chapter (UW-ITE-SC), I am happy to bring our readers the spring term edition of the WatMoves. As the new president, it is my honour to serve the chapter and work with a great team of students who help run this chapter by their outstanding volunteering work.

The goal of this chapter is to provide members the opportunity to balance studying and social interaction within the transportation group. We also always have in mind that connecting students with professionals within the transportation industry makes students familiar with the challenges facing this industry and current opportunities that they might be interested to get involved in the future.

We try to achieve our goals by organizing social events to gather our members in a fun environment outside the formal atmosphere of the university. We also hold seminars and ask professionals from different transportation related fields to introduce their projects and undergoing research to our members. These events provide students opportunities to expand their knowledge as well as their networks with these companies.

Beside the benefits that this student chapter has for our members, it is a great chance for the executive members to experience a team work and to develop valuable skills. The new executive team has started its work on May 2013 and since then the chapter has organized several events. The 2013-2014 executive board members are:



- President: **Ehsan Bagheri**
- Vice President: **Tae J. Kwon**
- Secretary: **Kevin Yeung**
- Academic Event Director: **Sahar Tolami**
- Social Event Director: **Shahin Karimi**
- Webmaster: **Amir Zarinbal**
- Treasurer: **Lalita Thakali**

This newsletter is the result of the work of each of the above individuals and here I would like to take this opportunity to thank each of my colleagues specifically Kevin Yeung whom without their help releasing this issue would not be possible.

I hope you enjoy reading this issue and we are looking forward for your inputs and suggestions to improve the quality of our chapter.

Ehsan Bagheri
Chapter President

Academic Events



During the summer semester, we hosted and broadcasted different academic seminars of different topics in the transportation engineering field.

The first seminar was held on April 25th, 2013 by Andrew Northmore. Andrew is a Master student at the University of Waterloo, whose research focuses on renewable energy systems and sustainable transportation infrastructure. The seminar was entitled "Analysis of Structural Design Elements for Solar Road Panel Systems in Canada".

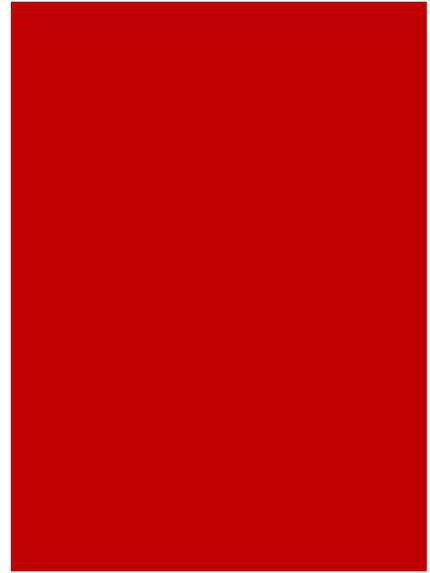
Amin Ganjidoostas, PhD Candidate from the University of Waterloo was the other presenter of the UW-ITE SC Seminar series. On May 16th, 2013, he talked about his research under the topic of "Application of System Dynamics Modeling to Infrastructure Management".

Kurtis McBride, the CEO and Cofounder of Miovision delivered a presentation on July 24, 2013. In his presentation he talked about "The Convergence of Technology Mega Trends with Traffic Signal Control". He also, introduced Miovision's new product Spectrum.

On July 29, 2013 UW-ITE SC hosted Pedram Izadpanah, Project Manager and Associate partner at CIMA+. In his presentation entitled "Safety Analyst Software for Efficient and Effective Road Safety Management" he highlighted the key elements of Safety Analyst Software and lessons learned from the project. The Recorded version of his talk can be found at http://youtu.be/j_vZMHCTiu8?t=24s

We look forward to hosting more of these academic seminars as well as a visit to the MTO's head office as we head into the Fall term.

Social Events



On June 22nd, the first UW-ITE BBQ under the new executives was held in full swing at Waterloo Park. UW-ITE hosted over 30 individuals including ITE grad students, some of whom came with their families, and Professors Hellinga and Fu with their families. From serving sausages, burger (Hallal and veggie too), pop and desserts to playing dodgeball and a funny draw at the end to send three luckiest participants with small gifts home, the BBQ was full of joy, fun, and socializing.

The event was divided in three parts; first the participants were served with different types of burgers and sausages, pops and desserts. This was also a good opportunity for those who do not know each other to socialize. Second came playing dodge-ball in an area lined out by ribbon. This was full of fun and excitement, since from kids to Professors all threw the balls around. To send the participants with small gifts to remember the event by, a draw as the third part was held. A UW notebook, a UW pen, and a UW Glass mug were the gifts given to the third, second, and first participants whose token had come out of the ballet.



Project Highlight

Bicycle Safety – Examining the separation distance when vehicles pass cyclists



Today, in response to issues of soaring fuel costs, increasing congestion, increasing obesity rates, and decreasing air quality, there is an increasing emphasis for providing infrastructure that enables safe non-motorized (active) transportation alternatives such as cycling. A bicycle is the smallest vehicle on the road and most transportation routes in North America do not have provisions of cycling friendly features such as dedicated bike lanes. A study conducted by the City of Toronto (“Toronto Bicycle/Motor-Vehicle Collision Study”, 2003), examined collisions that occurred between a bicycle and a motorized vehicle within the years of 1997 and 1998 and found that 12% (2nd most common) of crashes happened when the motorized vehicle was overtaking the cyclist. In 2010, a Bill was introduced in the Ontario Legislature (Bill 74) that would amend the Highway Traffic Act to require a minimum one meter passing distance between a vehicle and bicycle moving in the same direction. Bill 74 has not received Royal Assent; however a similar law has been passed in Nova Scotia and many



jurisdictions in the USA providing evidence of the need to improve safety for cyclists.

Despite the available collision statistics and the on-going debate about the need for changes to the Highway Traffic Act to with respect to the ‘1-meter rule’, very little effort has been made to analyze the passing behavior of drivers. This research focuses on quantifying safety and identifying the frequency at which vehicles currently pass cyclists with a passing distance of less than one meter. The research began with development of a custom sensor array (including rangefinder, accelerometer, GPS and video camera) that can be mounted on a bicycle. The data are collected on routes with various geometric properties and traffic conditions, and stored on board for subsequent processing. The data is used to investigate the factors that influence drivers’ behavior when passing cyclists and in turn on cyclists’ safety. Factors being investigated include posted speed limit, roadway geometry, traffic volume, cycling facilities, and vehicle and bicycle speed.

It is anticipated that this research will provide (a) empirical evidence for the magnitude of the problem (i.e. the proportion of passes that are less than the minimum distances proposed in Bill 74); (b) the impact that on-street bike lanes have on passing distances; and (c) a

better understanding of the relationship between traffic volume and passing distances.

This research is being conducted by MASc candidate Kushal Mehta under the supervision of Dr. Hellinga.

Undergraduate Student Highlight

Gregory Lue



“I returned to MMM for a second term because it allowed me to have more responsibility in projects and I liked the working environment. The work environment is very friendly and open. A large number of the full-time staff is graduates from the University of Waterloo. They were more than helpful in advising me on courses and life in general. Some of my classmates have coop positions in other departments in the building as well which makes coming to work much more enjoyable. Outside of work I have plenty of time to see my friends and attend Toronto’s numerous summer activities. This coop term has been enriching and enjoyable.” – Gregory Lue

Gregory Lue is a civil engineering undergraduate student entering his 3B term at the University of Waterloo. He recently completed his second term as a co-op student at MMM Group Limited in the Transportation Planning department. The majority of his job focuses on conducting traffic impact studies.

During his first term at MMM, his job involved tasks such as trip generation, trip distribution, trip assignment, and Synchro analysis. As he returned to MMM, Greg was more involved in report writing, sightline analysis, and noise impact studies. Throughout his time at MMM, he learned to use programs such as Synchro 8 and AutoTURN for traffic analysis and Stamson for noise analysis.

The studies Greg has been involved in include small residential, commercial, mixed-use, or educational institution developments. The projects range in location across the GTHA. Some notable projects include traffic analysis for Mirvish Condominiums, research for Simcoe Transportation Master Plan, and traffic analysis for Yorkville Condominiums.

At Waterloo, Greg is a founding member and now leads the executive for the University of Waterloo Leaders in Infrastructure.

Graduate Student Highlight

Ehsan Bagheri



Ehsan is a PhD student at the University of Waterloo. He is originally from Iran. Since September 2011, he works in the Transportation Systems Research Group under the supervision of Professor Bruce Hellinga. Ehsan has received his MSc. from the University of New Brunswick in the field of transportation planning and his BSc. from Azad University of Mashhad Iran in Civil Engineering. He has published on AADT estimation from short-term traffic counts using historical data. This research has resulted in a pending patent.

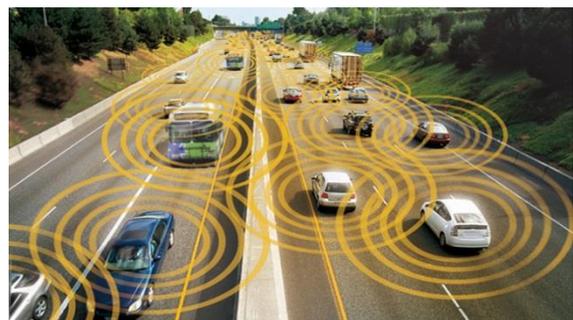
Ehsan has several work experiences in Iran. He worked as an engineer assistant at Mashhad LRT Corporation and Bonyan-Rah consulting.

During the 2012-2013 academic year Ehsan received the Ontario Graduate Scholarship and the University of Waterloo President Scholarship. This year he has received the ITS Canada Michel Van Aerde Memorial Scholarship.

The focus of Ehsan's PhD research is on developing an adaptive signal control algorithm using connected vehicle data. The connected vehicle technology has been



introduced recently that provides vehicles the ability to communicate with each other and with road side units such as traffic signals. However, fully implementation of this technology and achieving a high level of market penetration will take years. Therefore, it is required to have signal control systems that can work during the transition from traditional traffic sensors to connected vehicles as well as an enhanced operation over the current signal controls in use. This research project is a joint study with Delcan Corporation and G4Apps inc.



In his free time, Ehsan enjoys activities such as playing the piano, running, swimming, skating, and tennis. He also enjoys serving students groups and has worked as volunteer for several associations. He has served the UW-ITE as the secretary before taking the role of the President.

Alumni Highlight

Nixon Chan, M.A.Sc., P.Eng., PTOE, PMP



Nixon Chan is a Bachelor (2001) and a Master (2003) graduates in Civil Engineering at the University of Waterloo. He was under the supervision of Dr. Hellinga during his Master study with a thesis topic of “Real-Time Identification of Freeway Queues”.

Following the completion of his Master degree, Nixon joined MMM Group Ltd. (formerly known as Marshall Macklin Monaghan Ltd. prior 2007) in the Transportation Planning Department. He started his career there as a Transportation Designer, and has since progressed to the position of Project Manager and an Associate of the firm. In this time, Nixon gained the expertise to become a licensed Professional Engineer (P.Eng.), certified as a Professional Transportation Operations Engineer (PTOE), and obtained the Project Management Professional (PMP) designation. His work has involved traffic operations, signal priority, corridor, parking, etc. He has also been

involved in several regional and municipal transportation planning studies, which involve detailed travel forecasting models and functional planning of transportation infrastructure. One of the projects close to Waterloo was the environmental assessment for the current Waterloo Rapid Transit project.

Most recently, Nixon has been involved as the Project Management and Design Coordinator as part of the Owner’s Engineer team for VivaNext, the first Bus Rapid Transit (BRT) design-build project in the York Region (and also the first in the Greater Toronto and Hamilton Areas). His role on the project involved technical coordination with contractors, design teams, review agencies and stakeholders to ensure the detail design work is advanced to construction for the 7-km segment and 22-platform BRT corridor on Highway 7 between Bayview Avenue and Warden Avenue. The west half of the corridor recently opened on August 18, 2013. Nixon is also the lead

reviewer for all traffic assessments undertaken for the entire VivaNext transitway network that is undergoing detailed design and construction including Davis Drive in Newmarket and Highway 7 between Highway 400 and Bathurst Street.

Outside of work, Nixon has been deeply involved with ITE. When he was at Waterloo, Nixon was the re-establisher and President of the UW ITE Student Chapter in 2002-2003. He led the chapter to its first ever Student Chapter Award in 2003. Today, he is the President of the ITE Toronto Section and has served in many capacities on the Toronto section executive. The Section has just won its first ever award in 2013—Section Delta Award.

In his spare time, Nixon loves to play and watch soccer. He also enjoys spending valuable time with his family in the park and shopping mall.

WatMoves had a moment to ask Nixon for a few thoughts.

WatMoves: What is one thing that you enjoy about what you are doing now in your profession?

Nixon: “I love to take challenges. This is why I keep pushing myself to obtain various professional designations and accepted a new challenge at the VivaNext project in 2010 (which is a totally different experience compared to my first seven years at MMM). I also like to work with young engineers and planners that give me new ideas and inspirations to improve how a project can be executed.”

WatMoves: What advice would you give to future transportation planners and engineers?

Nixon: “The transportation field has a bright future and has grown substantially in the past decade. The next decade will see the revolution of the field that changes the transportation vision of the future.

A few tips on career advices: Don’t be afraid to take challenges; don’t be afraid to voice up your ideas and concerns; and plan ahead and set reasonable milestones.”

Recent Awards

Received by UW-ITE Student Chapter Members

Congratulations to the following students on their achievement!

Student	Program	Awards
Marcelo Gonzalez	PhD	Invited to the Transportation Research Board Task Force on Nanotechnology-Based Concrete Materials
Gulfam-E-Jannat	PhD	Transportation Association of Canada (TAC) Waterloo Alumni Scholarship
Akram Nour	PhD	Transportation Association of Canada (TAC) Highway 407 ETR Scholarship
Ramona Mirtorabi	PhD	Transportation Association of Canada (TAC)
Dan Pickel	MASc	Transportation Association of Canada (TAC) CCIL Scholarship for Post-Graduate Study in Materials Engineering (Concrete or Asphalt Technology)
Kevin Yeung	MASc	Alexander Graham Bell Canada Graduate Scholarship (NSERC)

Closing Remarks from the Editor

September is an exciting time – a new term is beginning and for some of us, it is the beginning of a new chapter. Each September we welcome new undergraduate and graduate students to Waterloo. If you are new to the Waterloo crew, welcome! You’ve picked a great place to learn about transportation. It is clear that there are many exciting things that are happening within the Transportation Group and the UW-ITE Chapter. There are many opportunities to learn new things and to meet new people. My hope is that this Chapter will continue to grow throughout this year. Next

summer (June 2014), the Canadian Institute of Transportation Engineers Annual Conference will be in Waterloo Region. It is our time to show the country what UW is made of! If you have any stories to share or ideas on how our chapter can be better, feel free to contact any one of the executive.

Thanks to each and every one of our contributors for this edition.

*Kevin Yeung,
WatMoves Issue 5 Editor*



The 2013 – 2014 UW-ITE Executive

From Left to Right: Prof. Bruce Hellinga, Sahar Tolami, Ehsan Bagheri, Tae J.Kwon, Amir Zarinbal, Lalita Thakali, Shahin Karimi, Kevin Yeung.

Sponsors

UW-ITE Sponsors

We would like to thank our sponsors for supporting and helping us achieve our chapter goals. So we give a big THANK YOU to Hatch Mott MacDonald, CIMA+ and TSRG for their support during this year.

If you would like to get more information on sponsorship opportunities, please contact us at

Visit our website for more information on sponsorship opportunities.

uw.ite.sc@gmail.com. There is also more information about the student chapter and sponsorship levels in our website, www.civil.uwaterloo.ca/transportation/ite.

We also welcome companies who are interested in coming to Waterloo to present unique transportation projects that they are undertaking.

Gold Level:

**Want to be our sponsor?
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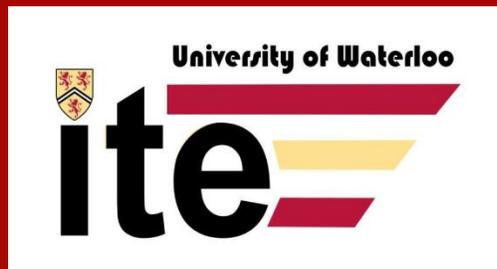
Silver Level:



**Hatch Mott
MacDonald**

Bronze Level:





UW-ITE Student Chapter

Contact:

uw.ite.sc@gmail.com

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