

ANNUAL REPORT 2012 – 2013



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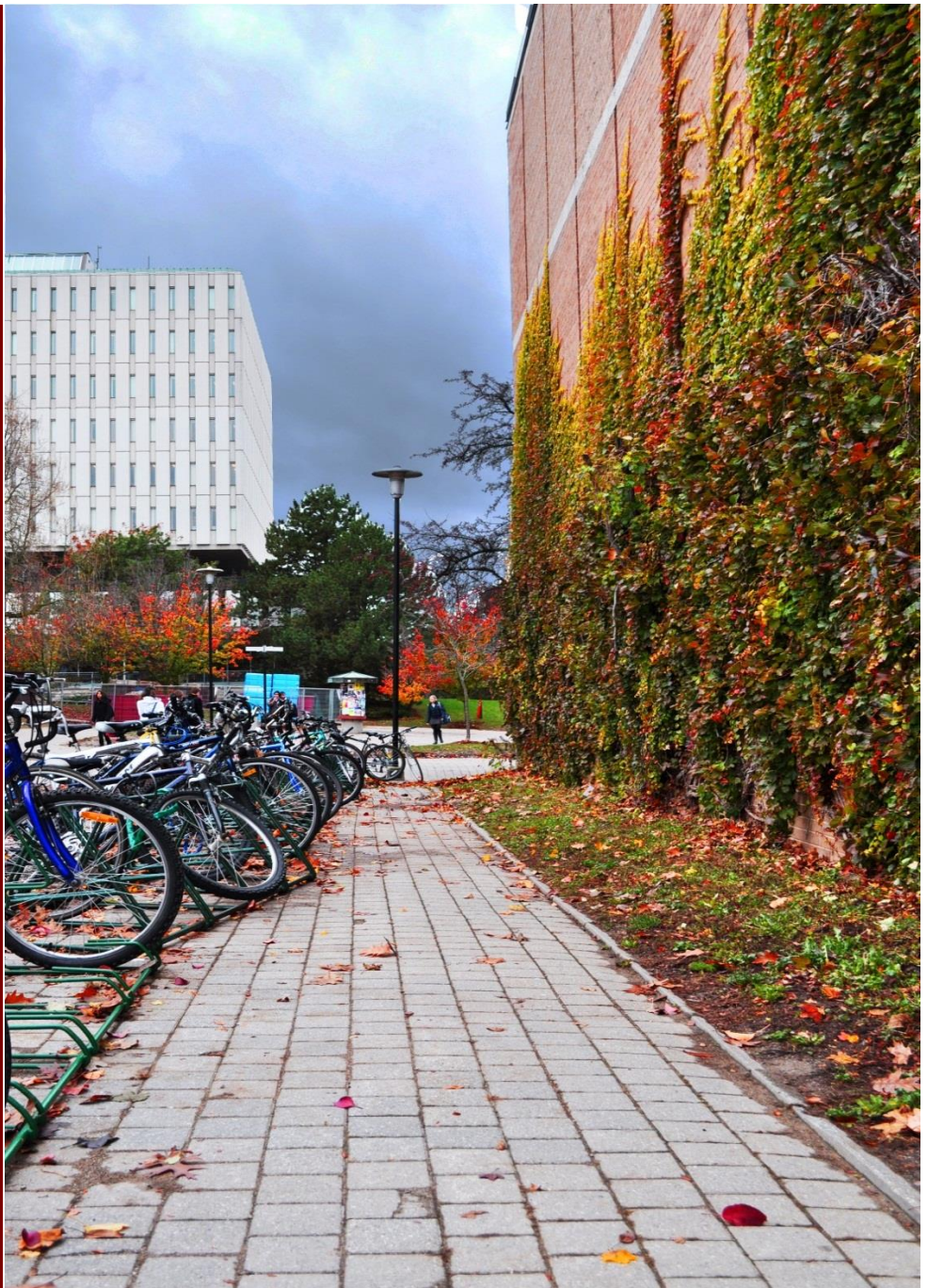
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PREFACE

With more than 50 graduate students, University of Waterloo transportation research group is one of the most accredited transportation programs in North America. Our faculty and graduate students are involved in various cutting edge transportation related research and projects. These involvements have resulted in 78 published academic papers and 7 awards just during the last year. Beside the continuous academic success, our members are also active on serving the professional and local society through voluntarily work dating back to the 1970s.

To serve such an active community, here at University of Waterloo ITE student Chapter (UW-ITE-SC) we strive to promote learning and research experience of our members through holding academic seminars, social events, and organizing technical tours and site visits. In the past year, we successfully held 7 academic events, 1 site visit, and 3 social events. Beside the mentioned events, we also hosted a regional CITE Student Presentation Competition and Job Fair.

The positive feedbacks that we got for the first issue of our seasonal newsletter in Winter 2012, encouraged us to continue releasing WatMoves while at the same time improving its content. In each issue of this newsletter we try to emphasize on the achievements of our members through sections like student highlights, professor highlight and project highlight.

In response to ITE request for proposal to collect relevant parking generation data, UW-ITE_SC submitted a proposal and subsequently announced as one of the five winners out of 21 US and Canadian student chapters. The collected data in this survey will be utilized for the future edition of *Parking Generation Manual*.

At the end, we want to take the chance and thank our sponsors Hatch Mott MacDonald and CIMA+ for their generous contribution, and our chapter advisor Professor Bruce Hellinga for all of his helpful advices.

UW-ITE Executive Members

EXECUTIVE BOARD

| <i>Name</i> | <i>Title</i> |
|--------------------------------|--|
| <i>Soroush Salek Moghaddam</i> | <i>President</i> |
| <i>Reza Noroozi</i> | <i>Vice President</i> |
| <i>Ehsan Bagheri</i> | <i>Secretuary</i> |
| <i>Amir Zarinbal</i> | <i>Academic Events Director</i> |
| <i>Akram o. Nour</i> | <i>Social Events Director</i> |
| <i>Tae J. Kwon</i> | <i>Webmaster</i> |
| <i>Usama Shahdah</i> | <i>Treasurer</i> |
| <i>Kevin Yeung</i> | <i>Undergraduate Activities Director</i> |

CHAPTER ACTIVITIES

Academic Events

The academic events include seminars given by guest speakers from industry sector and academia as well as students and professor. During the last administrative year seven academic seminars have been hosted by the UW-ITE SC. We had presenters from Canada, USA, and Italy. The following table summarizes the presentations

UW-ITE student chapter has held 7 seminars during the last year.

Summary of 2012-2013 presentations

| Presenter | Title | Date | Topic |
|---|---|-------------------|---|
| Dr. Babak Mehran | Postdoctoral Fellowship (IBI Group) | September 4, 2012 | Modelling Traffic Flow in Discrete Time-Space |
| Dr. Chris Lee | Assistant Professor (University of Windsor) | October 16, 2012 | Capacity Analysis for Roundabouts with High Truck Volume Using Gap Acceptance Theory and Traffic Simulation |
| Carol Schweiger, Eve Wyatt, Gerry Akkerman | Webinar by ITS Canada | December 5, 2012 | Transit App: Advanced Public Transit Systems |
| Dr. Bhagwant Persaud | Professor (Ryerson University) | December 11, 2012 | Safety Performance Assessment for Management of Roadway Infrastructure |
| Dr. Vincenzo Gallelli | Postdoctoral Fellowship (University of Calabria, Italy) | December 17, 2012 | Analysis of Road Safety Performance Using GPS Equipped Smartphone Probes |
| Marshall T. Cheek, Jim C. Lee, Thomas Urbanik | Webinar by ITE | January 24, 2013 | Signals - Cutting Edge Technology Web Briefing |
| Paul Godsmark | Senior Transportation Specialist at EBA | March 1, 2013 | The 'Autonomes' are Coming-This Will Fundamentally Change How We Do Road Transportation |



Dr. Babak Mehran, September 2012



Dr. Chris Lee, October 2012



Prof. Bhagwant Persaud, December 2012



Dr. Vincenzo Gallelli, December 2012

Social Events

Our social events provide a place where transportation students and professors network, talk, and share their ongoing experiences in the field. We started our social event in the summer term enjoying the good taste of Canadian burgers and sausages in the Annual UW-ITE-SC BBQ event. The BBQ took place at the local Waterloo Park on Friday, June 22nd with 20+ members attending along with their friends and family members. During the event, the students, professors, and family members enjoyed their time through variety of fun activities like playing Frisbee, Volleyball and Soccer. Transportation engineers need to maintain a good work-life balance. Our group like the motto of “work hard and play hard”.



In the Fall term, we hosted our traditional UW-ITE student chapter Meet and Great event, The Annual Transportation Graduate House Reception, to welcome our new graduate students. This “Pizza, Pop, and Play” event was a great opportunity to Greet new graduate students joining UW transportation group and for them to Meet with current graduate students and faculty members.



On Wednesday December 18th, the UW-ITE-SC hosted its second annual Christmas Luncheon. Unlike the first party, the Christmas Luncheon was held off-campus at the Mandarin Buffet Restaurant in Kitchener. Approximately 25 students, professors and their families came out for the festive event. This event allowed for networking opportunities between students and professors, where they could talk shop over the delicious Chinese cuisines.



Site Visits

UW-ITE Student Chapter organized a site visit during the last year. On Friday, Sept. 28 2012 around 25 members had a visit to the busiest airport in Canada, Toronto Pearson International Airport.



Presentations by Airport Engineering Team

Director of engineering and development, Christopher Sawicki, professional engineer and University of Waterloo alumni, welcomed the attendees with a keynote presentation regarding the operational and maintenance roles that engineers undertake at Pearson Airport. Following the introduction, members of the GTAA engineering team delivered presentations on various aspects of air field pavement design, construction, and maintenance.

After presentations and lunch, a visit to the runways and the engineering projects was performed. The last part of visit was the baggage handling system of the airport.



Pearson Airport -Engineering projects



Pearson Airport-Runway visit

COMMUNITY INVOLVEMENT

CITE Regional Student Presentation Competition

On March 26th 2012, The University of Waterloo Student Chapter hosted the Joint CITE Hamilton Southwestern Ontario, and Toronto Section Student Presentation Competition and Job Fair at the University of Waterloo. The competition was held at two levels of graduate and undergraduate students.

At the graduate level two students from University of Waterloo (Roshanak Taghipour and Ehsan Bagheri) and one from McMaster University (Mario Reyes Galfan via Skype) competed and Ehsan Bagheri was selected as the winner for his presentation on “Advance Traffic Signal Control and Transit Signal Priority Algorithm”. He presented a Transit Signal Priority based on Connected Vehicle data that can reduce transit delay at signalized intersections while trying to minimize the negative impacts of TSP on the conflicting approaches.

At the undergraduate level, Aneta Zaskowska and Matthew Sweet from Mohawk College and Mohammad Bari from Ryerson University competed and the selected winner was Matthew Sweet for presenting “Proposed Bike Share Station Locations in Hamilton”. He presented how one can choose the best locations for bike share stations based on the populations that best matched for this program.

At each level, the winners received \$350 award and \$250 and \$150 were given to the second and third places respectively.

Beside the competition, four companies including CIMA+, Paradigm Transportation Solutions, Dillon Consulting, and MMM participated in the job fair at the University of Waterloo. Students took this opportunity to explore their potential future careers in these companies.

Student Presentation Competition



CITE Regional Job Fair

ITE Parking Demand Survey

The ITE International Board of Direction approved a fund of up to \$5,000 to be used by ITE student chapters to collect relevant parking generation data. Through the data collection fund, ITE is seeking two main goals: 1) collecting relevant parking data which leads to the publication of a future edition of Parking Generation, and 2) helping students to participate in transportation profession.

In response to the request for proposal, University of Waterloo ITE student chapter submitted a proposal in October 2012, and UW-ITE student chapter was selected as one of the 5 winners out of 21 participating schools.

The executive committee of UW-ITE student chapter believes that performing the data collection effort will:

- 1) bring the required fund (Grant Amount of \$1000) to hold more academic and social activities,

- 2) provide the opportunity to participate in a practical transportation study and work with transportation professionals through the mentoring process
- 3) strengthen the friendship and enthusiasm among UW students through team work and voluntarily activities

The data collection effort includes collecting parking data at two different land uses: an independent living complex and a coffee shop with a drive-through window. Parking generation data must be collected for two days at each location.

The first phase of the project which is recording the parking data has been completed by the help of 8 student volunteers, and the second phase of the project which is preparing the report for ITE is currently in process.



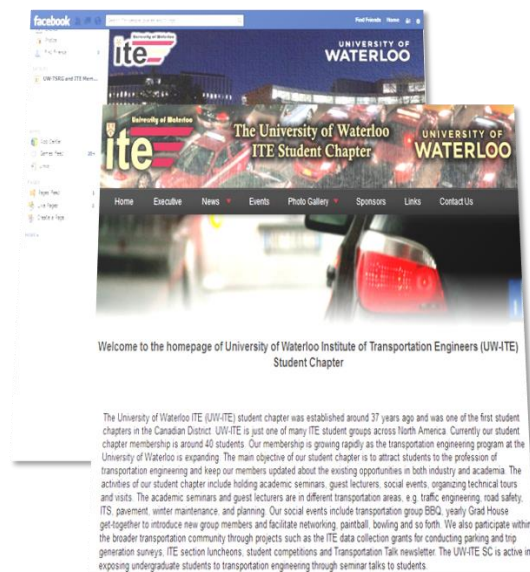
One of the data collection locations

Newsletter and Website

We have so far published three volumes of our newsletter titled “WatMoves” since its first launch in Fall 2011. Our seasonal newsletter has been serving to provide another avenue for our student chapter to keep our alumni and the wider transportation community updated on our various academic and social activities.

The most recent chapter news and information are available on our [revamped website](#). The website gets update on news, future events announcements which include academic seminars, guest lectures, and social events, and photos of all activities on a regular basis. This way the chapter members can keep a track of chapter news and oncoming event.

In addition, we have recently created a Facebook page to increase our members’ awareness of chapter activities. The purpose of the group is to highlight important news and event updates for the chapter with a simple message that prompts the individual to visit the source website to attain more information. The Facebook Group broadens the reach of the UW-ITE chapter amongst both undergraduates and graduate students who would not regularly visit the UW-ITE website but would regularly check Facebook. We also believe that the Facebook Group would provide an opportunity for members to be interactive and to share any interesting and relevant transportation information.



WatMoves (left), and [UW-ITE websites](#) (right)

Conferences and Publications

The members of the UW-ITE participated in many different conferences by presenting their renowned work during the last administrative year. In particular, more than fifteen UW-ITE members presented their research work in both lectern and poster sessions at the Transportation Research Board (TRB) 92nd Annual Meeting held in Washington D.C. in mid-January 2013.

Further to this, following the long tradition of the UW-ITE, we hosted the TRB UW reception where more than a hundred members

of the UW-ITE including professors, transportation industry professionals, graduate students, alumni, and friends were invited for networking and social gatherings. It was such a success and we truly look forward to hosting the event again in year 2014!

The UW-ITE has proven to be the leading chapter amongst others by actively producing research papers. In 2012-13, we have published nearly 80 journal/conference papers in the field of transportation.



TRB 92nd Annual Meeting- students' presentations (top), and TRB UW reception (bottom)

Student Awards

During the past year UW-ITE Student Chapter members have been very successful in winning different transportation awards. Akram Nour was the winner of the Dr. Michel Van Aerde Memorial Award. Ehsan Bagheri and Roshanak Taghipour won the first and the second prizes at the 4th Annual Joint CITE (Canadian Institute of Transportation Engineers) section student presentation competition. Amir Ghods and Kevin Yeung also received an award from the CITE. The recipients of a highly competitive 2012-2013 OGS (Ontario Graduate Scholarship) were Ehsan Bagheri, Usama Shahdah, and Andrew Northmore from our student chapter.

| Student | Program | Awards |
|--------------------|---------|------------------------------------|
| Akram Nour | PhD | CITE Dr. Michel Van Aerde Memorial |
| Amir Ghods | PhD | CITE Student Paper |
| Ehsan Bagheri | PhD | CITE Student Paper / OGS |
| Usama Shahdah | PhD | OGS |
| Andrew Northmore | MASc | CSCE Student Paper / OGS |
| Roshanak Taghipour | MASc | CITE Student Paper |
| Kevin Yeung | BSc | CITE - HDR Undergraduate |

Awards Received by UW-ITE Student Chapter members



Ehsan Bagheri (top) & Roshanak Taghipour (bottom) - winners of the CITE Student Presentation

FUTURE PLANS

The University of Waterloo ITE Student Chapter has always tried to provide high quality, informative, interesting, and fun events and activities for the chapter's members. The goal of the chapter is to always improve its quality and to perform at high professional levels.

In order to achieve the above goals we are planning to continue publishing our seasonal newsletter while improving its content. In the future, new sections will be added to the newsletter to cover transportation related news, technologies, and innovations.

To promote our chapter, a Facebook page has been created to broadcast the chapter news through this media and promote the chapter to more students especially at the undergraduate level. Our future plan is to advertise this page more effectively through professors involved in transportation related courses.

The UW ITE SC seminars provide interesting presentations related to recent challenges or innovations in the transportation industry. As we always have many attendees at our seminars and we usually have

some interested people who may not be able attend due to some difficulties, we are planning to broadcast our seminars though internet and provide a recording if permission is given by the presenter.

For the upcoming months, the chapter is arranging two site visits to MTO COMPASS system in Toronto and the weather station at the Weather Network in Oakville. Two presentations are planned to be given by two students (Amir Zarinbal, and Andrew Northmore) and potentially we will have presentations from two companies (Miovision and Google Map or Car). A paintball game is also arranged to be held late March to bring fun to the chapter and the chapter is getting ready to participate in the Traffic bowl competition which will be held at ITE Section Spring Technical Workshop in early May 2013.

FINANCIAL REPORT

The UW-ITE Student Chapter currently has an account under the Department of Civil and Environmental Engineering, and our current account balance is shown in the following table.

2012-2013 UW-ITE Student Chapter Financial Data

| | | |
|---|---|-------------------|
| Opening Balance - February 2012 | | \$2,639.67 |
| Income | UW-ITE Sponsorship - Paradigm Transportation | \$351.50 |
| | UW-ITE Sponsorship - Faculty Member | \$300.00 |
| | UW-ITE Sponsorship –Civil & Environmental Eng. Department | \$250.00 |
| | Collected Money from Summer BBQ | \$77.00 |
| TOTAL Income | | \$3,618.17 |
| Expenses | Pearson International Airport Visit | 565.00 |
| | Grad House Social Event | \$282.53 |
| | Summer BBQ | \$192.53 |
| | Supplies for Pop Event | \$62.44 |
| | Christmas Party | \$202.88 |
| | Academic Seminars and Online Webinars | \$149.41 |
| | Bowling Game | \$282.85 |
| | Catering | \$351.50 |
| TOTAL Expenses | | \$2,089.14 |
| Closing Balance - March 15, 2013 | | \$1,529.03 |

APPENDIX A: ANNUAL REPORT FORM

Institute of Transportation Engineers

ANNUAL REPORT OF STUDENT CHAPTER ACTIVITIES

From April 1, 2012 to March 15, 2013

STUDENT CHAPTER AT: The University of Waterloo

1. STUDENT CHAPTER OFFICERS

President: Soroush Salek Moghaddam

Vice President: Reza Noroozi

Secretary: Ehsan Bagheri

Treasurer: Usama Shahda

Webmaster: Tae j. Kwon

Social Program Director: Akram o. Nour

Academic Program Director: Amir Zarinbal

Undergraduate Activities Director: Kevin Yeung

2. STUDENT CHAPTER MEMBERSHIP

Number of Student Chapter members: 54

Number of Student members of Institute: 21

Number of Students eligible to be a Student member of the Institute: NA

Number of faculty members who are current ITE members: 7

3. INFORMATION ON TRANSPORTATION ENGINEERING ENROLLMENT

Number of undergraduate students (Sophomore - Senior years) in your academic department:

If not Civil Engineering, specify department: _____

Full time: 550 Part time: 0

Does your curriculum allow an undergraduate student to major or minor in Transportation?

☐ Yes ☒ No

If "Yes," give number of transportation majors _____ and minors _____

The Department of Civil and Environmental Engineering at the University of Waterloo does not provide "majors" and "minors" in the transportation engineering field at the undergraduate level; however, students are able to select approximately 10 technical electives throughout their 5 year program. There are 4 upper year transportation specific technical elective courses available to students, namely: Pavement structural design; Urban transportation planning; Transit planning and operations; and Traffic engineering.

Number of graduate students in Transportation:

Full time: 49, Part time: 5

4. SUMMARY OF STUDENT CHAPTER ACTIVITIES

The summary of student chapter activity was given in the annual report.

5. ROSTER OF STUDENT CHAPTER MEMBERS

Please see Appendix B for a roster of the UW-ITE SC members. Their level of study and affiliation to the ITE are indicated in the roster.

Report submitted by:

Name: Soroush Salek Moghaddam

Phone: (519) 888-4567 Ext: 31175

Date: March 15, 2013

Contents approved by:

Dr. Bruce Hellinga

(Faculty Advisor)



APPENDIX B: MEMBERSHIP ROSTER

UW-ITE Student Chapter Membership Roster

| # | Name | Degree | Supervisor | ITE Affiliated |
|----|------------------------|--------|------------------|----------------|
| 1 | Abdullatif Alwasel | PhD | Carl Haas | |
| 2 | Akram Nour | PhD | Bruce Hellinga | Yes |
| 3 | Aleli Osorio Lird | MASc | Susan Tighe | |
| 4 | Alex Kivas | MASc | Susan Tighe | |
| 5 | Alondra Chamorro | PhD | Susan Tighe | |
| 6 | Amin Ganjidost | PhD | Carl Haas | |
| 7 | Amin Hamdi | PhD | Susan Tighe | Yes |
| 8 | Amir Ghods | PhD | Frank Saccomanno | Yes |
| 9 | Amir Zarinbal | PhD | Bruce Hellinga | Yes |
| 10 | Amma Djane | MASc | Susan Tighe | |
| 11 | Andrew Northmore | MASc | Susan Tighe | |
| 12 | Antony Chettupuzha | PhD | Carl Haas | |
| 13 | Atila Hertel | MASc | Susan Tighe | |
| 14 | Charles Ambaiowei | MASc | Susan Tighe | |
| 15 | Cheng Zhang | MASc | Susan Tighe | |
| 16 | David Dat Quyen Duong | PhD | Frank Saccomanno | Yes |
| 17 | Di Zhang | PhD | Carl Haas | |
| 18 | Ehsan Bagheri | PhD | Bruce Hellinga | Yes |
| 19 | Feng Feng | PhD | Liping Fu | Yes |
| 20 | Garret Donaher | MASc | Bruce Hellinga | Yes |
| 21 | Hani Eissa Ahmed | PhD | Carl Haas | |
| 22 | Hassan Nasir | PhD | Carl Haas | |
| 23 | Ibrahim Almohanna | MASc | Bruce Hellinga | Yes |
| 24 | Jamie Yeung | PhD | Carl Haas | |
| 25 | Jiali Liu | MASc | Carl Haas | |
| 26 | Johnny Luchao Cao | MASc | Liping Fu | Yes |
| 27 | Jonathan T.J. Kwon | PhD | Liping Fu | Yes |
| 28 | Kamal Hossain | MASc | Liping Fu | |
| 29 | Kushal Mehta | MASc | Bruce Hellinga | Yes |
| 30 | Lalita Thakali | PhD | Liping Fu | |
| 31 | Leanne Whiteley-Lagace | PhD | Susan Tighe | |
| 32 | Liam Butler | PhD | Susan Tighe | |
| 33 | Marcello Gonzalez | PhD | Susan Tighe | |
| 34 | Maryam Shahtaheri | MASc | Carl Haas | |
| 35 | Milos Posavljak | MASc | Susan Tighe | |
| 36 | Mohammad Hegazi | MASc | Susan Tighe | |
| 37 | Mohammad Nahangi | PhD | Carl Haas | |
| 38 | Ramona Mirtorabi | PhD | Liping Fu | Yes |
| 39 | Reza Golshan Khavas | PhD | Bruce Hellinga | Yes |
| 40 | Reza Noroozi | PhD | Bruce Hellinga | Yes |
| 41 | Richard Korkzac | MASc | Susan Tighe | |

UW-ITE Student Chapter Membership Roster (Continue)

| # | Name | Degree | Supervisor | ITE Affiliated |
|----|--------------------------|--------|------------------|----------------|
| 42 | Rita (Yaxin) Hu | PhD | Bruce Hellinga | Yes |
| 43 | Sahar Tolami Hemmati | MASc | Bruce Hellinga | Yes |
| 44 | Samin Shokri | PhD | Carl Haas | |
| 45 | Shaheen Magdy | PhD | Susan Tighe | |
| 46 | Shahin Karimidorabati | PhD | Carl Haas | |
| 47 | Soroush Salek Moghaddam | PhD | Bruce Hellinga | Yes |
| 48 | Usama Shahdah | PhD | Frank Saccomanno | Yes |
| 49 | Vladimir Usyukov | MASc | Jeff Casello | |
| 50 | Wenfu Wang | PhD | Bruce Hellinga | Yes |
| 51 | Xiomara Sanchez | PhD | Susan Tighe | |
| 52 | Xiomara Sanchez Castillo | MASc | Susan Tighe | |
| 53 | Yasaman Shahtaheri | MASc | Susan Tighe | |
| 54 | You-Jin Jung | PhD | Jeff Casello | Yes |