URBAN UPDATE

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Urban Projects

Offered guidance to a grad student at SEED, Nathalie Garstka, who is looking into sustainable construction in the Canadian landscape, particularly Ontario. She will be interviewing relevant stakeholders to understand the barriers to sustainable building construction.

Engineering Education

Completed more of the new faculty training sessions offered by the Centre of Teaching Excellence on topics including: Course Design Fundamentals, Syllabus Builder, and Instructional Design with UW Librarians, and LEARN Kickstarter on Aug 8 and 9.

Teaching

The Spring 2019 term wraps up this month, with civil engineering design projects (CIVE400) all graded, and exams and final projects also all graded for Engineering and Sustainable Development (CIVE230).

NICKEL 2019 Conference

On Aug 20-21, I participated in the National Initiative on Capacity Building and Knowledge Creation for Engineering Leadership (NICKEL) at the Troost Institute for Leadership Education in Engineering. From UW, Marc Hurwitz, Associate Director at the Conrad School of Entrepreneurship & Business also attended. Together, we lead an "unconference" session on "Engineering Followership" discussing ideas around every engineer taking on two roles all the time, leadership and followership. The roles are complementary and distinct, and the discussion involved what this means for how we train, what we train, and ultimately the success of our students. Photo from Twitter.

NICKEL

National Initiative on Capacity Building and Knowledge Creation for Engineering Leadership

Event Highlights

URBAN LAND INSTITUTE ASSOCIATE MEMBER

CANADIAN SOCIETY FOR CIVIL ENGINEERING MEMBER

AMERICAN SOCIETY OF CIVIL ENGINEERING MEMBER

CE2GA CIVxTalks. Presented to Civil & Environmental Engineering Graduate Student Association on "Cities as a Discipline: How engineers can be effective in urban engineering." Aug 1.

Visiting Scholars. Attended a seminar at SEED on bio-economy by Dr. Lorie Hamelin from the Federal University of Toulouse on Aug 6, and a seminar at CEE by Dr. Ian Smith from EPFL Lausanne, on Asset Management and Responsive Structures on Aug 13.

CEE Outcomes Committee. Joined on Aug 30 and looking at the work of the Industrial Curricular Advisory Board (ICAB).

Keep an eye out next month for...

Here are events to look forward to in September 2019:

- Mental Health Training, More Feet on the Ground, Sept 11

- Turkstra Talks - Inaugural seminar by Diane Freeman, Sept 24

- Ontario Universities Fair, Sept 27, 28, 29

Summer break to relax and recharge

The second half of August was a time to slow down, relax and recharge after very busy Winter and Spring terms. The Winter term was the first for me at Waterloo, and I taught my first set of students who will always remain extra special. Spring term was busy with students on campus, which is unique to the University of Waterloo, and quite admirable to see a busy campus over the summer - thanks to the co-op terms which always means there are student cohorts on campus at all times. My rest and relaxation was partly spent at the Port Credit Yacht Club, though no sailing was involved, until I find the time to obtain by Boating License.

Leadership and learning are indispensable to each other. - John F. Kennedy

WATERLOO | ENGINEERING

UNIVERSITY OF WATERLOO
FACULTY OF ENGINEERING
Department of Civil & Environmental Engineering

Faculty Contribution

Cory Zurell is a Lecturer in the Department of Civil & Environmental Engineering, supporting the Architectural Engineering program. He is also a Principal at Blackwell Structural Engineers. Dr. Zurell has extensive experience in building design as well as bridge design, and has been involved in many architectural- and engineering-award-winning projects. While experienced with a variety of structural materials, he is particularly experienced in timber design, and has lectured at various industry events on adaptive reuse of historic buildings and the use of heavy/mass timber in large, non-residential buildings. Prior to joining UW full-time, he was an adjunct instructor for over ten years, teaching structural design courses to architecture and engineering students at UW as well as at Laurentian University's School of Architecture. Dr. Zurell is an associate member of the Technical Committee for CSA S6, the Canadian Highway Bridge Design Code, for which he chairs the Timber Design Sub-committee. He is also a member of the committee for the APA/ANSI PRG-320 standard for Cross-Laminated Timber.

Dr. Zurell explores the definition of design. So, what is Design? Simplistic definitions abound and include the usual terms and phrases mentioning the creation of a drawing or plan to build something. But that doesn't really capture the entire concept. Design encompasses so much more. It is problem solving. It is a process. It is creating. It is a philosophy. It is…well, impossible to come up with a succinct yet satisfactory definition. Whole books have been written on the subject (a fantastic example being Ron Britton's *On Design*) and yet a firm definition still eludes. Which begs the question: how does one go about teaching or learning Design?UW's new Architectural Engineering program introduces design on day one by doing. Borrowing from the Studio model employed by most architectural programs, students are tasked with designing projects in a dedicated Design Studio course each term. The focus changes from term to term—structures, envelop, system and so on—but the main thread is constant: to learn how to design. With continual feedback from instructors and peers, and using knowledge and skills from their other courses, students pursue solutions to design problems and develop a broad, big picture understanding of the field of architectural engineering.

Student Contribution

Jacob Terry is a second-year PhD student working under Dr. Chris Bachmann in the Department of Civil and Environmental Engineering at the University of Waterloo. His research has been in the areas of transportation infrastructure funding, autonomous vehicles, and ridesourcing. He has been a teaching assistant for engineering economics, public transit, and transportation courses, and was a sessional instructor for a fourth-year public transit course earlier this year. His current research studies ways that shared mobility services like ridesourcing can best integrate with public transit to encourage people to drive less and use more sustainable forms of transportation. Jacob completed a Bachelor of Applied Science (BASc) in the Department of Nanotechnology Engineering at the University of Waterloo in 2015, and then completed a Master of Applied Science (MASc) in the Department of Civil and Environmental Engineering at the University of Waterloo under the supervision of Dr. Chris Bachmann and Dr. Jeff Casello.

Ridesourcing (taxi-like service offered through a digital platform, like Uber and Lyft) is becoming increasingly relevant in our transportation networks. In some regions in Ontario, transit agencies have integrated or replaced their transit service with ridesourcing. In Innisfil, a partnership with Uber replaces the entire transit system with a subsidized shared ridesourcing model. In Waterloo, we currently have a pilot in northwest Waterloo that uses a localized ridesourcing service operated by RideCo to improve mobility for residents in the area. This summer, we examined the first six months of operation for the pilot, and developed a framework to categorize ridesourcing trips based on how they competed with walking and transit using four broad categories: (1) feeders, connecting people directly to bus routes and competing with walking and occasionally transit, (2) transit replacements, which overlap and compete with existing transit routes, (3) inconvenient trips, which may replace transit for some people and replace cars for others, and (4) remote trips, which almost always replace a driving trip because transit is inaccessible. This framework will form the foundation for future studies, which will propose quantitative and qualitative metrics a municipality can use to determine whether a bus or a ridesourcing integration is more appropriate for a given area.

Previously, in his Masters, research Jacob mapped infrastructure funding flows from the four tiers of government – federal, provincial, regional and municipal - from their origin revenue sources to expenditures on public infrastructure systems. His research identified best practices in infrastructure funding including but not limited to assessments of transparency, equity, efficiency and sustainability across both different governance structures and social expectations.

Inconvenient / Remote Trip   Transit Replacement   Feeder

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