Analyzing performance of dedicated cycling infrastructure using passive and survey data

PROJECT DESCRIPTION

With new facilities being installed in Edmonton's core, it is important to gauge current cycling numbers, behaviours, patterns, perceptions of safety, and safety impacts. In addition, it is important to understand the effects of new infrastructure on these characteristics, and how they advance our progress towards the strategic goals outlined in the Way We Move (Edmonton's Transportation Master Plan). We would particularly focus on how the cycle track integrates with the Complete Streets and Vision Zero programs, both of which have been adopted by the City of Edmonton. Spot counts of bikes and pedestrians and crowd-sourced data will be combined and analyzed to understand usage of the infrastructure and cycling patterns. Survey data that captures cyclist behavior and attitudes will also be collected, cleaned, and analyzed.

There are three goals to this project. The first is to gain a general understanding of the data quality. The second is to establish baseline cycling volumes on the roadway network (within the city's core). The third is to measure network connectivity and monitor network performance within an evaluation framework (developed as part of this project). These tasks will enable future research on understanding the sensitivity of demand to installation of protected cycling infrastructure, such as the three COE projects mentioned above. This is critical component of any future infrastructure planning as it has been demonstrated throughout the world that cycling demand is highly endogenous to provision of high quality infrastructure.

The student will be required to assist in the design of a comprehensive numerical testing and sensitivity analysis plan. The student will be expected to code the testing and results analysis procedure in MATLAB and CPLEX, carry out the tests, and assist in all results analysis and interpretation. The latter will require the use of GIS to interpret and represent the spatial and temporal data. The student will also aid in preparing documentation on the testing procedure, and documenting the results of all analyses for a technical report, as well as a journal and/or conference publication. The student will provide support to the PhD student in providing literature summaries and other writing tasks, and will also be expected to give an internal presentation of their work to the transportation systems research group. The student will work closely with at least 1 PhD student, as well as the professor, over the course of the internship. The student will share offices with other transportation engineering graduate students.

FACULTY-DEPARTMENT

Engineering - Civil & Environmental

OPEN TO STUDENTS FROM THE FOLLOWING INSTITUTIONS
Chinese universities participating in the *[Double First-Class Initiative](#)*.

DESIRED FIELD OF STUDENT STUDY
Quantitative: engineering (all), applied mathematics, geography

INTERNSHIP LOCATION
Edmonton Campus

NUMBER OF INTERNSHIP POSITIONS
1

INTERNSHIP DATES
Start: July 1, 2019

End: September 1, 2019

ARE THE DATES FLEXIBLE?
Yes, I am flexible regarding the internship dates. Selected students can contact me to request a date change.