WHY TRANSPORTATION ENGINEERING?



Dr. Said Easa

Transportation Professor

March 7, 2025

Transportation Modes

Highway



Railway



Maritime

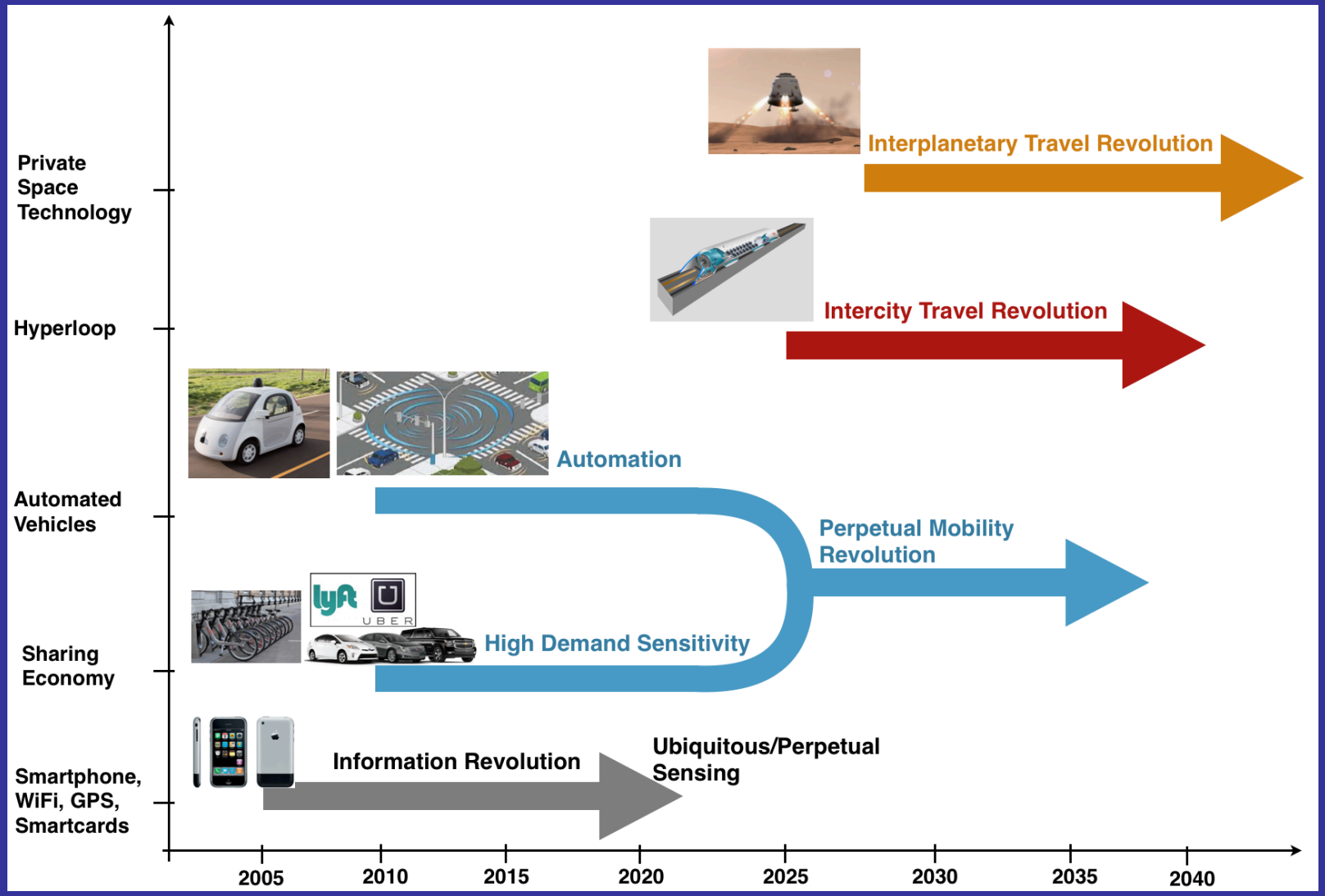


Air



Planning, Design, Construction, Operation, and Management

Ongoing Transportation Revolution



The TMU Transportation Group

Dr. Said Easa, P.Eng.

- Connected & autonomous vehicles
- Highway and non-highway transportation



Dr. Bhagwant Persaud, P.Eng.

- Road safety; Traffic simulation
- Congestion management; highway design



Dr. Bilal Farooq, P.Eng. (CRC)

- Connected & autonomous vehicles
- Simulation, behaviour modeling



Dr. Medhat Shehata, P.Eng.

- Pavements design and management
- Highway materials



The TMU Transportation Group

Dr. Patrick Hoa, P.Eng.

- Transportation Planning and Policy
- Shared and Emerging Mobility
- Automated vehicles
- Travel Behaviour Analysis



Transportation Engineering Courses

All Civil Engineering Students

- CVL735: Highway Design (6th)

Transportation Stream Students

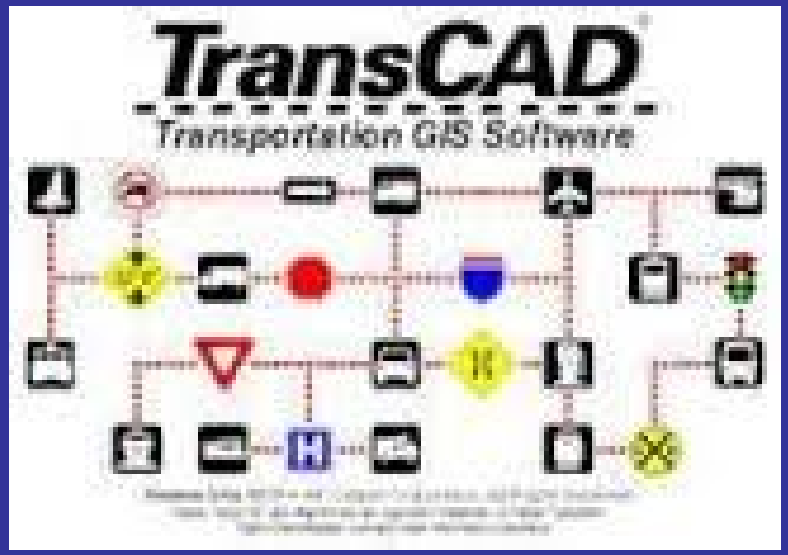
- CVL902: Traffic Operations and Management (7th)
- CVL910: Transportation Planning (7th)
- CVL914: Pavement Materials and Design (8th)
- CVL72A/B: Transportation Capstone Design Project (7th, 8th)

Sample Capstone Design Projects

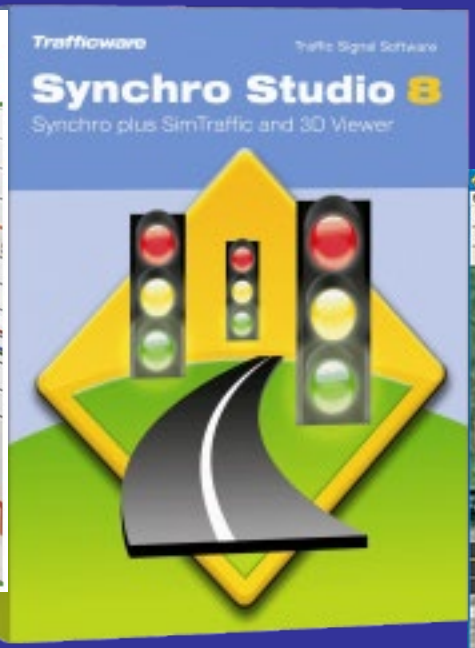
- Dedicated bicycle facilities on University Ave.
- Parking lot redesign to meet multi-modal objectives
- Caledon mixed development traffic impact study
- Lawrence Avenue East complete streets
- Dufferin Street priority bus lane
- Developing geometric improvements for Fifty Road
- Main Street railway track diversion

State of the Art Software used in Transportation Courses











Transportation Engineering Employers

- HDR
- IBI Group
- Wood
- Cole Engineering
- SNC Lavalin
- Dillon
- BA Group
- AECOM
- CIMA+
- WSP

- Ministry of Transportation
  - Ontario (MTO)
  - Other Provinces
- City of Toronto
- City of Mississauga
- City of Vaughn
- Regional Municipalities (York, Durham, Peel)
- Metrolinx

Consider Grad School!

Professional Organizations for Transportation Engineers

- Canadian Society for Civil Engineering (CSCE)
- Institute for Transportation Engineers (ITE)
  - TMU Student Chapter

- What does a transportation engineer do?

https://www.youtube.com/watch?v=bVVp0t1hfQI

https://www.youtube.com/watch?v=ksTY7JeT78w

Available Awards for Capstone Students

Local

- Best presentation award at department level
- Best presentation award at the Faculty level (several)

Regional

- ITE presentation competition (3 awards)

National

- Best paper award, annual CSCE conference (1-2 papers)
- Best capstone project, annual CSCE conference (one project from dept.)

National and Regional Awards by TMU Transportation Students

National Awards

2021 1st Place, CSCE Undergraduate Student Paper Competition to Natalie et al.

2021 3rd Place, CSCE Undergraduate Student Paper Competition to Neil et al.

2012 2nd Place, CSCE Undergraduate Student Paper Competition to Bari et al.

2010 1st Place, CSCE Undergraduate Student Paper Competition to Hoang et al.

2008 1st Place, CSCE Undergraduate Student Paper Competition to Syed et al.

Regional Awards

2025 3rd Place, ITE Student Competition, Southern Ontario section to students Ramy et al.

2022 1st Place, ITE Competition, Southern Ontario section to undergraduate McColm et al.

2021 1st Place, ITE Competition, Southern Ontario section to undergraduate Natalie et al.

2012 3rd Place, ITE Student Competition, Southern Ontario section to students Bari et al.

2011 3rd Place, ITE Competition, Southern Ontario section to undergraduate Khan et al.

2010 1st Place, ITE Competition, Southern Ontario section to undergraduate McColm et al.

THANK YOU