

BO WEN WEN

DATA SCIENTIST / MODELER

I am passionate about solving complex problems using data. I have built data-driven software solutions using statistical and machine learning models in Python, R and C# to investigate research questions and address business needs. I want to apply my data skills to make lives easier, simpler and better.

EXPERIENCE

2018.06 – present

MODELER – TransLink (South Coast British Columbia Transportation Authority)

- Evaluated the benefits and costs of infrastructural investment to support business cases using the Regional Transportation Model (EMME Model).
- Analyzed passenger count, traffic congestion, and travel survey data to develop models and support policy decisions.

2017.09 – 2018.06

DATA SCIENTIST – IBI Group Inc.

- Produced statistical and machine learning models using **SQL**, **Python** and **R** pipelines to enable predictive analytics product features.
- Maintained and deployed cloud applications on **Linux VM** and **Docker**, including scripting procedures in **Python** and **Bash**, as well as docker images which speed up deployment on **Azure** and **AWS**.
- Collaborated with software development teams using **git** and **Microsoft TFS** to maintain version control, track issues and manage documents.
- Communicated the value of data analytics through presentations and reports to senior management to solidify strategic directions.

2015.09 – 2017.09

RESEARCH/TEACHING ASSISTANT – University of Toronto, Engineering

- Produced a tool in **C#** which ingests streaming data from multiple web APIs to **MS SQL Server**, reducing data collection time by 90% for 3 projects.
- Developed an end-to-end data-driven simulation pipeline for the Toronto transit system, using over 15,000 lines of codes written in **C#** and **R**, which performs data mining, machine learning, and model simulation.
- Evaluated the model performance of artificial neural networks, support vector machines, linear mixed effects, regression trees, and random forest models, using caret in R, and scikit-learn in Python.
- Prepared two grant proposals, two academic papers, and a conference presentation to obtain funding and communicate research contributions.

2015.05 – 2015.08

TRANSPORTATION ANALYST – IBI Group Inc.

- Processed traffic data in MS VBA to model multimodal corridors in **VISUM**, reducing time spent by over 10% and improving reproducibility.

- Wrote technical user manual for the NITCIP 1211 protocol testing software, which was used by several vendors to test hardware compliance.
- Led a team of five engineering assistants in the inspection and quality assurance of infotainment systems onboard 18 UP Express ARL train cars.

2014.09 – 2014.12

RESEARCH STUDENT – University of Toronto, Engineering

- Developed a reinforcement learning (RL) agent in **Java** which interacts with a simulated transportation network environment to minimize passenger delay at traffic signals.
- Used **C** to gather state data such as queue length at each intersection approach, in order to optimize signal timing using RL agent.

EDUCATION

2015.09 – 2017.09

MASTER OF APPLIED SCIENCE – University of Toronto

cGPA: 3.94/4

- Civil Engineering, Transportation
- Thesis: Data-driven mesoscopic simulation of large-scale surface transit networks (Prof. Amer Shalaby)

2010.09 – 2015.05

BACHELOR OF APPLIED SCIENCE – University of Toronto

cGPA: 3.76/4

- Civil Engineering, Minor in Business
- Thesis: Reinforcement learning-based adaptive traffic signal control system for transit (Prof. Baher Abdulhai)

ACTIVITIES

2018.01 – 2018.06

TORONTO AI – Member

2017.02 – 2018.06

CIVIC TECH TORONTO – Member

2016.05 – 2017.04

INSTITUTE OF TRANSPORTATION ENGINEERS – Financial Officer

CERTIFICATIONS

2019.04 – present

ENGINEER-IN-TRAINING (EIT)

Engineers and Geoscientists BC

2015.11 – 2018.06

ENGINEERING INTERN (EIT)

Professional Engineers Ontario

2018.01

DATA SCIENCE IN PYTHON

University of Michigan on Coursera

2017.07

MACHINE LEARNING

Stanford University on Coursera

AWARDS

2016

NSERC CANADA GRADUATE SCHOLARSHIP

\$17,500

2010 – 2015

DEAN'S HONOURS LIST

2010

ALEXANDER RUTHERFORD SCHOLARSHIP

\$2,500