cv.bownwen.com | bo.wen@bowenwen.com

BO WEN WEN

TRANSPORTATION MODELER, DATA ANALYST

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