

Bo Wen Wen

Vancouver, BC, Canada | admin@bowenwen.com | bowenwen.com/cv | linkedin.com/in/bowenwen

PROFESSIONAL EXPERIENCE

TransLink | New Westminister, BC

Jun 2020 - Present

Senior Modeler | Forecasting, Research & Analytics

- Led the development of an activity-based model and provided technical guidance and work plan support to junior team members, to maximize velocity and ensure model quality
- Developed procedures and tools to evaluate the impacts of the pandemic with over 8 risk factors on the regional transportation network, using Latin Hypercube sampling and metamodel simulations, to inform revenue projections of a \$2-billion regional transportation authority
- Estimated linear regression and discrete choice models for travel demand in R and Python, capturing the impact of accessibility to services have on discretionary travel, used in production environment to forecast travel behaviors of over 2.6 million residents
- Presented to senior leadership a prototype passenger load prediction system using customer data to optimize crowding levels, which won the Grand prize at TransLink's 2020 hackathon

TransLink | New Westminister, BC

Jun 2018 - Jun 2020

Modeler | Forecasting, Research & Analytics

- Evaluated the consumer benefits and costs of infrastructural investments for 3 major transportation projects using a large-scale travel demand simulation model
- Processed travel survey data, using random forest and k-NN in Python to identify outlier data records, and using quasi binomial glm in R to reduce sampling bias
- Authored Tableau dashboard of travel surveys with over 450k sample trips, to report travel behavior changes to stakeholders and policy makers
- Built a transit trip planning chatbot in Python and Docker using the Rasa NLU, integrated with Facebook Messenger and Slack, which won the "Facelift" award for TransLink's 2019 hackathon

IBI Group Inc | Toronto, ON

Sep 2017 - Jun 2018

Data Scientist | Systems

- Built a data mining application in Python that aggregated Land Development Permit data from various cities to inform development potential in land use planning
- Produced statistical and machine learning models using SQL and Python to evaluate pump performance and detect failure events of industrial SCADA control systems

University of Toronto | Toronto, ON

Sep 2014 - Aug 2017

Research Assistant | Department of Civil Engineering

- Evaluated the model performance of artificial neural networks (NNs), support vector machines, linear mixed effects, regression trees, and random forest models, using caret in R, and scikit-learn in Python, to predict travel speeds of vehicles and to inform public transit operations
- 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 applied science research projects
- Developed an end-to-end data mining, machine learning, and simulation software for the Toronto transit system in C# and R

- Developed a reinforcement learning (RL) agent in Java and updated simulation environment in C to investigate traffic signal strategies that minimize passenger delays

IBI Group Inc | Toronto, ON

Sep 2013 – Jun 2014

Transportation Analyst | Systems

- Reduced processing time for traffic data by over 25% using automated VBA scripts
- Wrote technical user manual for the NITCIP 1211 protocol hardware compliance
- Reduced the construction cost of traffic management system by optimizing equipment layout

APPOINTMENTS

Transportation Research Board NASEM

May 2020 – Present

Committee Member | AI and Advanced Computing Committee

- Assisted with subcommittee activities such as development of the Machine Learning Primer.
- Conducted peer review of over a dozen papers and provided feedback to improve the quality of presentation at the annual meeting and publication at the TRR Journal

EDUCATION

University of Toronto | Toronto, ON

Sep 2015 – Sep 2017

Master of Applied Science (Civil Engineering)

- *Thesis*: Data-driven mesoscopic simulation of large-scale surface transit networks
- Alexander Graham Bell Canada Graduate Scholarship (NSERC CGS-M) – value \$17,500
- *Relevant Courses*: Urban Operations Research, Applied Probability and Statistics
- Honors with cGPA 3.94/4

University of Toronto | Toronto, ON

Sep 2010 – May 2015

Bachelor of Applied Science (Civil Engineering)

- *Thesis*: Reinforcement learning-based adaptive traffic signal control system for transit
- Honors with cGPA 3.76/4

SKILLS & INTERESTS

Programming: *Advanced* - Python, R, SQL, Git

Intermediate - Docker, C#

Certifications: [CD and DevOps from UVa](#), [Project Planning & Mgmt from UVa](#),
[Discrete Choice Models from EPFL](#), [Applied Plotting in Python from UMich](#),
[Data Science in Python from UMich](#), [Machine Learning from Stanford](#)

Interests: self-hosted server, hiking, traveling