

# Bo Wen Wen

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## Summary

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As a data scientist with IBI Group, I work closely with product teams to improve software features and with senior management to facilitate data-driven decisions. I received a Master of Applied Science degree from the University of Toronto, completing a thesis on data-driven simulation of transit networks using IoT location data. I have developed solutions in Python, R, and C#, and am experienced in using Tableau and Jupyter Notebook. I want to advance my skills in working with big data and building complex machine learning models to challenge traditional assumptions and create business value. In doing so, I will improve the products and services provided to clients and customers.

## Professional Experience

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| <b>Data Scientist</b> , IBI Group   | 09/2017 – present |
| <ul style="list-style-type: none"><li>• Work with a cross-functional team to enhance the investment potential of several internet of things (IoT) software products.</li><li>• Optimize the extract, transform, load (ETL) procedures for data sources from internal departments, consulting practices, and software services.</li><li>• Produce statistical and machine learning models with client data using <b>SQL</b>, <b>Python</b> and <b>R</b> pipelines to enable predictive analytics features for products.</li><li>• Train internal analysts to use <b>Tableau</b>, <b>Superset</b> and <b>Jupyter Notebook</b> to produce data-driven dashboards and reports, reducing the time spent on processing data and generating routine analysis by over 50%.</li><li>• Communicate the value of data analytics to shareholders to build investor confidence, and to company leaders to solidify strategic directions.</li></ul>   |                   |
| <b>Research Assistant</b> , University of Toronto   | 09/2015 – 09/2017 |
| <ul style="list-style-type: none"><li>• Developed a data-driven simulation pipeline for the Toronto Transit Commission network, using over 15,000 lines of codes written in <b>C#</b> and <b>R</b>, which performs data mining, feature extraction, model estimation, and model simulation.</li><li>• Produced a data collection tool in <b>C#</b> that continuously retrieves and organizes vehicle location data (30,000 points per hour) from the NextBus web API, reducing data collection time by 90% for more than 3 transit research studies.</li><li>• Evaluated the model performance of linear regression, artificial neural networks, support vector machines, linear mixed effects, regression trees, and random forest models, using MASS, neuralnet, liquidSVM, lme4, rpart, ranger in <b>R</b>, and scikit-learn in <b>Python</b>.</li><li>• Visualized geospatial data using a custom XAML Map Control application in <b>C#</b> and with CARTO Maps API to communicate research findings.</li></ul> |                   |
| <b>Analyst</b> , IBI Group  | 05/2015 – 08/2015 |
| <ul style="list-style-type: none"><li>• Produced report generation software using Microsoft <b>VBA</b> to increase the efficiency of generating daily and weekly parking reports for our clients, resulting in over 25% cost saving.</li></ul>  |                   |

- Processed traffic and transit engineering data using Microsoft Access **SQL** queries to save over 10% of time spent on data processing.
- Wrote technical user manual for the NITCIP 1211 protocol testing software, which was used by several contractors to test hardware for open standard compliance.

## Community Leadership Experience

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- Civic Hacker**, Civic Tech Toronto 02/2017 – present
- Developed a full-stack web application for a Toronto Bluetooth traffic data dashboard, using **HTML** and leaflet in **JavaScript** to display map data, and flask in Python to host web API.
  - Collaborated with a multi-disciplinary team with diverse interests to deliver technology solutions that facilitate public engagement and improve government infrastructure.
- Financial Officer**, Institute of Transportation Engineers UofT 05/2016 – 04/2017
- Led the student activities initiatives with other executives to win the ITE Student Chapter Delta Award for the year 2016-2017.
  - Maintained liaison with ITE Toronto and CITE executives in the planning of regional chapter events to negotiate sponsorships and promote events.
  - Prepared annual reports and annual financial statement to improve the student chapter's accountability and transparency to its sponsors and students.

## Education

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- Master of Applied Science (MAsc)**, University of Toronto 09/2015 – 09/2017  
Civil Engineering cGPA: 3.94/4.0  
Supervisor: Prof. Amer Shalaby  
Thesis: Data-driven mesoscopic simulation of large-scale surface transit networks
- Bachelor of Applied Science (BAsc)**, University of Toronto 09/2010 – 05/2015  
Civil Engineering, Minor in Engineering Business cGPA: 3.76/4.0  
Thesis: Reinforcement learning-based adaptive traffic signal control system for transit

## Certifications

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- Engineering Intern (EIT)**, Professional Engineers Ontario 11/2015 – present  
License Number: 100228406
- Data Science in Python**, University of Michigan, Coursera 01/2018  
License 93A74QDG6YUY
- Machine Learning**, Stanford University, Coursera 07/2017  
License 8YKRHW4F8T3Q

## Honours and Awards

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- NSERC Canada Graduate Scholarship** (value: \$17,500) 05/2016 – 04/2017
- Dean's Honours List** 09/2010 – 06/2013
- Alexander Rutherford Scholarship** (value: \$2,500) 08/2010