

# Karina (Iat Cheng) Lei

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## Summary

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Agile developer with 2+ years of work and project experience in developing automation tools for scalable data analyses, full-stack applications, and instrumentation controls.

## Experience

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### Software & Instrumentation Engineer Co-op | BC Cancer Research June – December 2020

- Implemented dynamic database queries in **Python** using **REST API** and **Django** framework
- Developed scripts to generate **JSON** and **XML** metadata to be submitted via **curl API** requests
- Automated data analysis and visualization tasks with **Bash** and **R** scripts
- Improved performance of scalable bioinformatics pipelines using **Python** and **Snakemake**
- Integrated dynamic **HTML** report generator into data analysis pipelines
- Led **firmware** development in **C++** to control high-precision fluidics system
- Designed **UI/UX** for control software that significantly improved users' satisfaction

### Mechanical Engineer Co-op | LB Foster Rail Technologies January – April 2019

- Facilitated product development, data analysis, and rigorous life-cycle testing

## Projects

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### Data Structure & Algorithms

- Applied **object-oriented** design principles to create **Java** modules that support various functionalities
  - Examples: Azure Text Analysis, AI Boggle Player, Cryptarithm Solver, Graph Analysis, Unit Testing

### Autonomous Vehicle Simulation | [github.com/KarinaLei/beep-boop](https://github.com/KarinaLei/beep-boop)

- Implemented **machine learning** algorithm with **Python** libraries such as **OpenCV**, **Keras**, **TensorFlow**
- Created **convolutional neural network** with >90% accuracy in detecting and reading license plates
- Utilized **reinforcement learning** for vehicle navigation training

## Education

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### University of British Columbia Fall 2017 – Spring 2022 (expected)

### Bachelor of Applied Science | Engineering Physics

- Dean's Honour List, CGPA 4.0
- Design Team Affiliation: Software Developer at **Formula Racing UBC**

## Skills

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**Languages:** Java, Python, C++, JavaScript, HTML, CSS, SQL, Swift, C, R, Bash, Perl, MATLAB, Assembly, VHDL  
**Technologies:** AWS (EC2, RDS, S3), Azure (Analytics, Storage Blob, VM), ReactJS, NodeJS, Django, Docker, MySQL, iOS, Unix/Linux, JSON, XML, Git, iOS, UI/UX, JUnit, Jira, SSH, Conda, Machine Learning, NumPy, Keras, TensorFlow, OpenCV, ROS, SciPy, Gazebo, FTP Protocols, Pandas, Snakemake