

# Karina (Iat Cheng) Lei

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## Summary

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Software 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 June 2020 – Present

- Implemented dynamic database queries in **Python** using **REST API** and **Django** framework
- Wrote scripts to create **JSON** and **XML** metadata to be submitted via **curl API** requests
- Automated data analysis and visualization tasks with **Bash** and **R** scripts
- Developed scalable bioinformatics pipeline using **Python** and **Snakemake**
- Integrated **HTML** report generator into data analysis pipeline
- Developed **firmware** with **message encoding protocol** in **C** to control fluidics system
- Created **GUI** for visualizing control of instruments for single-cell image acquisition

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

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

## Projects

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

- Implemented **machine learning** algorithm using **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

## Data Structure & Algorithms

- Integrated **Microsoft Azure** Text Analytics into **Java** program to process text documents
- Applied **object-oriented** design principles to create modules that support various functionalities
  - Examples include: AI Boggle Player, Cryptarithm Solver, Social Network Analysis, Unit Testing

## 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, AngularJS, HTML, CSS, SQL, R, Bash, Perl, MATLAB, Assembly, VHDL  
**Technologies:** AWS, Azure (Analytics, Storage Blob, VM), REST API, Django, MySQL, Docker, Git, Bitbucket, Unix/Linux, SSH, Conda, Snakemake, JSON, XML, JUnit, Pandas, Machine Learning, NumPy, SciPy, Keras, TensorFlow, ROS, Gazebo, OpenCV, Tkinter, MATLAB GUIDE, FTP Protocols, Agile, Jira