**Karina (Iat Cheng) Lei**

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**Summary**

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**

**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 complex fluidics system
* Created **GUI** for visualizing the control of biomedical instruments

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

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

**Projects**

**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**

* 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**

**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**

**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