

Estella Liu

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SKILLS

- Objected Oriented Programming
- Mobile Development
- Web Development
- Data Science/Engineering

TECHNOLOGIES

- C++ • C • Python • Swift
- C# • Java • Scheme • Bash
- React/Redux • JavaScript
- HTML • SQL • VB.net

- AWS • Jupyter Notebook
- Databricks • Solr • Kafka
- Vim • Git • Agile/ Scrum

AWARDS

Microsoft Discover Azure Competition Second Place
Prototyped "Heare" AI chatbot that provided mental health care for university students

2017 UBC Physics Olympics bronze medalist

School Championships
Domestic Student Honour Roll
Euclid, CSMC, Hypatia, Galois

COURSEWORK

Algorithms
Data Structures
Operating System
Numerical Computation
OOP
Machine Learning
Functional Programming
Probability
Calculus
Linear Algebra
Statistics
Financial Math
Public Speaking

EDUCATION

UNIVERSITY OF WATERLOO Candidate of Bachelor of Computer Science 3B
Cumulative GPA: 3.9 / 4.0 | Term Dean's Honour List 1B 2A 2B 3A |
President's Scholarship | 2019 Joe C. Lee Mathematics Entrepreneurial Scholarship

PROFESSIONAL EXPERIENCE

SOFTWARE ENGINEER Python, Apache Solr

Bloomberg, New York, USA (Remote)

May. 2020 – Current

- Designed and established an internal **real time search & analytics** platform in **Apache Solr** for **millions** of Bloomberg OTC products within data derivatives area
- Collaborated with ML team and built **named entity recognition model** for **natural language query** involving properties with **derivatives-specific** domain knowledge
- Deployed backend services that serve as a standalone Bloomberg terminal function

SOFTWARE DEVELOPER C#, React/Redux, Javascript, SQL

IBM, Toronto, ON

Sept. 2019 – Dec. 2019

- Resolved client issues/regressions on servers (**React/Redux**) & back end (**Rest API, C#, SQL**) for ICM's cloud application
- Implemented **features & enhancements** to meet critical needs for version releases
- Developed Wildcard Filters & Upload components through application codebases

INNOVATION DEVELOPER Swift, ARKit, MySQL, PySpark, AWS, Databricks

Zero Gravity Lab (LoyaltyOne), Toronto, ON

Jan. 2019 – April. 2018

- Developed an interactive **Augmented Reality** iOS **Mobile** app targeting users of Canada's **biggest** loyalty program and its **7** major retail partners
- Implemented a serverless service back end with **REST API (AWS RDS, Lambda and API Gateway)** to update product data and track customer behaviors
- Experimented with **Node2Vec Neural Network** in Databricks to capture item relationships among over **40,000** products for recommendations

CORE MEMBER C++, Python

WATonomous Perception Team, Waterloo, ON

May. 2019 – Aug. 2019

- Designed **curb detection** algorithm for LiDAR point clouds with **Savitzky-Golay filter**

PROJECTS

STEAM RECOMMENDER Python, Pandas, Numpy, Scipy, Sklearn, Matplotlib

- Established popularity based and collaborative filtering models (**SVD, Spark ALS and TuriCreate item similarity**) on **Jupyter Notebook** for user and game embeddings
- Evaluated and compared different approaches using **precision recall** and **Top-N accuracy metric** to optimize the model
- achieved **0.459** accuracy over **5156** games using global recall at 5 metrics

GOBANG AI (C++) Gomoku game with reinforcement learning capacity

- Applied **conditioned reinforcement** algorithm learning long term gaming strategy
- Performed CRUD operations on **LevelDB** to access historical game data for AI training

PITCH PERFECT Java

- Applied **YIN & AMDF** pitch detections to recognize the frequencies of voices
- Instantaneous pitch conversion and **real-time** display of pitch comparison on the **JavaFX** platform with precision down to millisecond