

# Estella Liu

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## SKILLS

- C++ • C • Python • Swift
- Java • Scheme • SQL/TSQL
- UiPath • VB.net • Bash
- HTML • CSS • JavaScript

## TECHNOLOGIES

- AWS • Databricks • Jupyter Notebook
- Atlassian • Microsoft Office • Vim
- Git • Linux • Agile/ Scrum

## AWARDS

**MICROSOFT DISCOVER AZURE  
COMPETITION SILVER MEDAL**

**Prototyped "Heare" AI chatbot that  
provided mental health care for  
university students**

**2017 UBC PHYSICS OLYMPICS  
BRONZE MEDALIST**

**Competition involves aircraft  
modelling, experiments and  
knowledge contests**

**SCHOOL CHAMPIONSHIPS  
/DOMESTIC STUDENT HONOUR  
ROLL**

**Euclid, CSMC, Hypatia, Galois  
TERM DEAN'S HONOUR LIST 1B 2A**

## EDUCATION

**UNIVERSITY OF WATERLOO**

**CANDIDATE OF BACHELOR OF  
COMPUTER SCIENCE**

**Cumulative GPA: 3.9 / 4.0 |**

**President's Scholarship of Distinction**

## COURSEWORK

**UNDERGRADUATE**

Algorithms  
Data Structures  
OOP  
Calculus  
Linear Algebra  
Probability  
Statistics  
Financial Math  
Public Speaking

## SUMMARY OF QUALIFICATION

- 3 years experience in object-oriented, imperative and functional programming
- Excellent time management & communication skills with years of teamwork experience
- Quick and motivated learner with curiosity to explore creative ideas and solutions

## PROFESSIONAL EXPERIENCE

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

**Zero Gravity Lab (LoyaltyOne), Toronto, ON**

**Jan. 2019 – April. 2018**

- Full stack **Mobile** development of an IOS interactive **Augmented Reality** app that creates an immersive and personalized in-store Air Miles collecting experience for customers
- Implemented and presented full data collection routine in Amazon using **RDS, Lambda, API Gateway** and **REST** Architecture
- Experimented with **Node2Vec Neural Network** in Databricks that captures item relationship among over **40,000** products for recommendations
- Conducted innovative research and participated in the knowledge sharing on front-edge technologies (AR/VR, IoT, Deep Learning) and their applications in the retail business

**RPA DEVELOPER** SQL, VB.net, UiPath, CSS, ElasticSearch, Atlassian

**The Co-operators, Kitchener, ON**

**May. 2018 – Aug. 2018**

- Built data management accounting tools using **MySQL, Vb.net**, and **UiPath** and designed decision making algorithms to automate complex billing process and reduce processing time from hours down to several minutes
- Created responsive frontpages using **CSS** and **JavaScript** to showcase incubator group
- Contributed to the team's agile process using **Atlassian** tools(JIRA, BitBucket, Confluence)

**MATH CLUB PRESIDENT**

**Heritage Woods Secondary School, Vancouver, B.C**

**Sept.2015 - June.2017**

- Initiated first inter-school advanced math program in school district
- Hosted weekly workshop & wrote supplementary curriculum for contest preparations

**CORE MEMBER** WATonomous Perception Team

**University of Waterloo, Waterloo, ON**

**Current**

- research and develop object detection/classification algorithms

## PROJECTS

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

- Applied **conditioned reinforcement** algorithm learning long term gaming strategy
- Installed and performed crud operations on **LevelDB** to access historical game data for AI module training
- Supported multi-modes of player playing against other players and against computer

**PITCH PERFECT (JAVA)** an application that uses signal detection to train the pitching accuracy

- Applied **YIN & AMDF** pitch detections to recognize the frequencies of human voices
- Instantaneous pitch conversion and **real-time** display of a note graph on the **JavaFX** platform with precision down to millisecond
- Capable of pre-demo with Java synthesis sound and support comparison with standard notes to enhance users'singing ability

**STEAM RECOMMENDER (PYTHON)** an ML project based on Steam dataset

- 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 **hit ratio metrics** to optimize the model
- Working on the extraction of game tags using python scripts/ Steam API to support content based filtering