Bridget Liu

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EDUCATION

MCGILL UNIVERSITY

M.sc. in Computer Science
Jan 2021 - Dec 2022
GPA: 3.92/4.0

B.sc. in Computer Science & Statistics
Sep 2016 - Dec 2020
GPA: 3.83/4.0

LANGUAGES

Fluent in English & Mandarin, basic French

PROGRAMMING

Proficient in:
Python • Matlab • Java • C++ • R
Latex • SQL • HTML5 • Linux • Git

COURSEWORK

COMP SCI

[MATLAB] Numerical Computing
[MATLAB] Computer Vision
[JAVA] Computer Animation
[Python] Advanced Medical Imaging
[Python] Applied Machine Learning
[Python] Artificial Intelligence
[Python] Reinforcement Learning
[SQL] Database Systems

STATISTICS

[R] Probability
[R] Statistics
[R] Regression
[R] Stochastic Processes
[R] Mathematical Statistics

AWARDS

Feb 2021
Graduate Excellence Fellowship Award
Aug 2020
Faculty of Science Scholarship
Alan and Harriet Susie Tenenhouse Scholarship in Science
Apr 2020
Science Undergraduate Research Award
Sep 2016
McGill Entrance Scholarship and Complementary Award

EXPERIENCE

RESEARCH ASSISTANT | Shape Analysis Group of CIM McGill | Research Institute of the MUHC

Jan 2020 – Present | Montréal, QC

- Implemented a gradient flow solution in Python and ITK with C++ for segmenting mitochondria and glycogen from the background based on 3D focused ion beam scanning electron microscope astrocytes image
- Trained 2D and 3D U-Net with Pytorch, achieved test accuracy around 86%
- Conducted analysis of glycogen granules at the light microscopic level using MATLAB and ITK with C++, comparing healthy and diseased tissue

TEACHING ASSISTANT | McGill University

Sep 2020 - Present | Montréal, QC

- Assisted teaching for an introductory python course, a graduate level computer vision course in MATLAB, and a SQL database course
- Corrected assignments and quizzes, hosted bi-weekly tutorials, regular office hours as well as review sessions

AI DEPARTMENT INTERN | China Unicom

Jun – Aug 2019 | HLJ, China

- Worked on the customer service team of the AI department to adapt and improve a new platform where customers can be served by chat bots
- Created and tested dynamic customer communication script

PROJECTS

REAL-TIME SIGN LANGUAGE INTERPRETER | Python, OpenCV

Oct 2021

- Developed a program that recognizes ASL letters through virtual camera, auto-corrects the misspelled words and outputs the texts as subtitles
- Trained hand-detection model using the database from Kaggle using six ML classification models, and adapted the code to be able to be used in live video calls with any major software including zoom, discord, google hangout and etc

RIGID BODY ANIMATION | JAVA, openGL

Jan 2021 - Apr 2021

- Implemented and optimized a 2D rigid body collision and contact solvers using OOP, where the total compute time was reduced 10%
- `https://www.youtube.com/watch?v=XeK3sz3bgJM`

GAME DEVELOPMENT | JavaScript, HTML5, CSS

Sep 2018 – Apr 2019

- Developed a web-implementation of the Flash Point board game
- Designed UI from scratch, established game logic, and implemented the structure with JavaScript and Phaser 2D game framework

MUJOCO AGENT TRAINING | Python

Jan 2022 – Apr 2022

- Trained an agent to hop forward as fast as possible for the MuJoco Hopper-v2 environment, with continuous state and action space.
- Experimented on four modern reinforcement learning algorithms, DDPG, TD3, SAC and PPO, where TD3 outperforms the rest in 200k timesteps