



# DANIEL LI LIU

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## EDUCATION

University of Toronto | Computer Engineering

September 2020 - April 2025

- **3.84 / 4.00 cGPA**
- Artificial Intelligence Minor
- Business Certificate

## EXPERIENCE

**Frontend Engineer** | UoftHacks (**Currently**)

- Developing and maintaining the frontend of the hackathon's website

**Machine Learning Researcher** | iQua Research Group (**Summer 2022**)

- Conducted experiments using reinforcement learning algorithms such as TD3 for machine learning models
- Explored design space for when models should forget old data based on interference
- Implemented reinforcement learning for clients in the federated learning framework *Plato* [https://github.com/TL-System/plato/tree/continual\\_RL/examples/td3\\_learning](https://github.com/TL-System/plato/tree/continual_RL/examples/td3_learning)

## PUBLICATIONS

**Lethe: Interference-Based Forgetting for Continual Learning Agents in Reinforcement Learning**

Salma Emara, Baochun Li, Tim Zeyl, *Daniel Liu* (Under review)

## ENGINEERING PROJECTS

**Reinforcement Algorithms in Federated Learning Framework Plato**

- Extended research framework Plato to support reinforcement learning for clients
- Designed a custom model to support actor and critic models used in **TD3 & A2C**
- Created a customized trainer for both the **TD3 & A2C** algorithm that evaluates/saves average rewards for clients and the server
- Implemented a custom algorithm that communicates between the server & clients

Project Links:

[https://github.com/TL-System/plato/tree/continual\\_RL/examples/td3\\_learning](https://github.com/TL-System/plato/tree/continual_RL/examples/td3_learning)

[https://github.com/TL-System/plato/tree/continual\\_RL/examples/park\\_env](https://github.com/TL-System/plato/tree/continual_RL/examples/park_env)

**Mapping Application with Intelligent Trip Planning**

- Created and designed fully functional **intelligent** map, similar to google maps
- Organised large amounts of data into data structures C++ STL
- Implemented full graphics with a user-friendly interface
- Implemented an optimal algorithms for path finding
- Created smarter algorithms for path finding and travelling salesman using heuristic

**GoTime - NewHacks Hackathon Project, 4th Place Winner**

- Created and designed a **web app** using the Electron Framework, leveraging JavaScript, HTML/CSS, and Node.js.
- **Optimized** university student's schedules/time and class locations at the University of Toronto using Dijkstra's algorithm for an optimal path with C++

Project Link: <https://devpost.com/software/gotime-jbksxl>

## AWARDS

Deans List (**2020-2022**)

Natural Sciences and Engineering Research Council of Canada's Undergraduate Student Research Award (**2022**)

## TECHNICAL SKILLS

### LANGUAGES

- C / C++
- Python
- Java
- MATLAB
- JavaScript
- ARM Assembly

### WEB DEVELOPMENT

- HTML / CSS

### SOFTWARE

- Git
- GTK / EZGL
- PyTorch

### HARDWARE

- Verilog
- Quartus / Modelsim
- Breadboards
- DE1-SoC Boards

## AREAS OF INTEREST

- Artificial Intelligence
- Machine Learning
  - Reinforcement Learning
  - Continual Learning
- Software Design/Development