# Alan Yuan

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## Work Experience

**Amazon** Jun 2023 – Aug 2023
*Software Developer - Intern* *Toronto, Ontario*
- Designed and implemented a precompute layer to increase recommendations speed by **99%** from 150ms
- Created automated data analysis tool to ensure predictions are above **75%**

**PAIR Lab** Sep 2021 – Present
*Researcher* *Toronto, Ontario*
- Exploring the usage of **VLM** assisted **LLM** in long term planning through constant re-evaluation of plans
- Utilizing a combination of **MPC** and **LLMs** to complete complex low level tasks using **MuJoCo** MPC
- Assisted with **Orbit**, a robot reinforcement learning framework built on top of NVIDIA's **Isaacsim**
- Designed and built **GPU** parallelized state systems with low overhead allowing a **4x** speedup over the cpu solution

**Amazon** May 2022 – Aug 2022
*Software Developer - Intern* *Vancouver, British Columbia*
- Engineered a modular microservice in **Java** to send notifications to customer of cashback on select products
- Utilize **AWS** webservices such as **Lambda**, **SQS** and **SNS** to ensure scalability of the notification system

**Intel** May 2021 – May 2022
*Software Engineer - Intern* *Toronto, Ontario*
- Developed support software to generate 4000+ of completely random test-cases for edge-case testing
- Optimized support tool's Ram templates to reduce false positives and failing cases by around **70%**

**Centivizer** Apr 2020 - Sep 2020
*Software Developer - Part-time* *Toronto, Ontario*
- Designed and wrote backend application using **Node.JS** and **SimplePeer** to connect users via video call

## Education

**University of Toronto** — cGPA
*MSc in Applied Computing* *Sept 2023 - Dec 2024*

**University of Toronto** 3.84 cGPA
*HBSc Computer Science Specialist, Major in Mathematics* *Sep. 2018 – May 2023*

## Publications (* equal contribution)

M. Skreta*, Z. Zhou*, **J. L. Yuan***, K. Darvish, A. Aspuru-Guzik, A. Garg. Lidless Eye and Silver Tongue: using Vision and Language for Adaptive Task Replanning, *Submitted to (ICLR) 2024 [under review]*

M. Mittal, C. Yu, Q. Yu, J. Liu, N. Rudin, D. Hoeller, **J. L. Yuan**, R. Singh, Y. Guo, H. Mazhar, A. U. Mandlekar, B. Babich, G. State, M. Hutter, A. Garg. ORBIT: A Unified Simulation Framework for Interactive Robot Learning Environments, *(RA-L) 2023*

## Projects

**CaNetDa: Deep Learning for GeoGuesser in Canada** | Link: GitHub Jan 2021 – Apr 2021
- Mined dataset and trained an ensemble of **ResNet**, **EfficientNet** and **Vision Transformer**.
- With our approach, a accuracy of **60%** was consistently achieved out of 13 options

**Machine Learning Course Competition** | Link: GitHub Sep 2020 – Dec 2020
- Achieved the 5th highest score in the unsupervised movie recommendation competition.

**Tron UDP Multiplayer** | Link: GitHub Sep 2019 – Dec 2019
- Created a four player game for local networks using the **UDP** network protocol and C++
- Utilize **epoll** for both client and server to monitor the socket as well as the timer (server) and stdin (client)

**BF-Interpreter** | Link: GitHub Mar 2018 – Nov 2018
- Built a BF shell that runs all example BF programs found on Wikipedia in C

## Technical Skills

**Languages**: Deep Neural Networks, Large Language Models, Latent Diffusion Models, Robotics
**Languages**: Python, C/C++, JavaScript, Java, C#
**Tools**: Huggingface, Oobabooga, PyTorch, Git, React Native, Node.js, MongoDB, SQL (Postgres), Numpy, GraphQL