

Alan (Jia Lin) Yuan

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WORK EXPERIENCE

Unilever

April 2024 – Present

Machine Learning Engineer - Intern

Toronto, Ontario

- Train **times-series transformer** models to **forecast sales** with **PyTorch** increasing accuracy by 5%.
- **Optimize promotion times and prices** with augmented genetic algorithms **GNGSA**.
- Created novel algorithm **GNGSA** increasing convergence iterations 70% and hypervolume AUC by 50%.
- Implemented multi-thread processing to increase data pipeline speeds by **50%**.

Amazon

Jun 2023 – Aug 2023

Software Developer - Intern

Toronto, Ontario

- Designed a **precompute** layer using **Apache Spark** to increase recommendation speed by **99%** from 150ms
- Built data pipelines to ingest updated data and retrain models in a given time frame
- Created automated data analysis tool to ensure predictions are above **75%** accuracy

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
- Integrated service into data pipeline utilizing Amazon internal language **Datapath**

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%**

EDUCATION

University of Toronto

4.0 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

PROJECTS

RePlan: Robot Planning with LLMs | [arXiv:2401.04157](https://arxiv.org/abs/2401.04157)

Sep 2023 – Aug 2024

- Developed novel system combining **MPC**, **MultiModal LLM** in completing high-level robot tasks
- Created **MuJoCo** environments for training and evaluating manipulation policies
- Implemented meta-controllers for **multi-policy** agents using **sparse rewards**

Decomposed Face Generation | [github](https://github.com)

Apr 2024 – Aug 2024

- Decompose faces into **id**, **pose**, **emotion embeddings** using **contrastive learning** approaches
- Developed architecture combining **StyleGAN** with multiple embedding spaces for controllable generation

MultiModal AI Story teller | [private repo](https://github.com)

Jul 2023 – Jul 2024

- Managed **auto-scaling GPU** resources with **Kubernetes** saving up to 90% on **AWS** costs
- Implemented **Multimodality** using **LLMs** and **Latent Diffusion Models**
- Utilized NLP techniques to summarize context reducing inference time by **10%**

Orbit: Robot Learning Framework | [project-site](https://github.com)

Jan 2022 – May 2023

- Core contributor to robotics framework built on **NVIDIA IsaacSim**, published in *IEEE RAL*
- Designed **GPU-accelerated** state systems achieving **4x** speedup over CPU solutions
- Implemented **PPO** training pipelines with **domain randomization** for manipulation tasks

Deep QLearning Snake Agent | [Github](https://github.com)

May 2019 – Dec 2019

- Implemented **Deep Q-Learning** agent in PyTorch with custom reward shaping
- Achieved high score of **40** after 5 minutes through efficient exploration strategies

TECHNICAL SKILLS

Tech: Deep Neural Networks, Large Language Models, Latent Diffusion Models, Python, C++, JavaScript, Java, Rust

Tools: Huggingface, PyTorch, Git, React, Node.js, MongoDB, SQL, Numpy, GraphQL, Robotics, Vim