

# Alan Yuan

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## WORK EXPERIENCE

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### Intel

May 2021 – Present

*Software Engineer - Intern*

*Toronto, Ontario*

- Developing Quartus software using **C++**, **Python** and **Bash** for speedup during synthesis by re-routing the flow
- Developing 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%**
- Implemented various new features and upgrades such as re-scripting tools to utilize new control system, dynamic database size notifier, hierarchy re-router for missing entities, automatic parameter setting aggregator and more
- Migrating all 613 failing regression test cases from pre-existing flow to the new faster flow

### Centivizer

April 2020 - Sept 2020

*Software Developer - Part-time*

*Toronto, Ontario*

- Designed and wrote backend application using **Node.JS** and **SimplePeer** to connect users via video call
- Establish communication between client and backend for video feed using socket.io
- Integrated video feature with user database through RESTful API using the Axios Library
- Decreased server load by re-working notification system to use a socket based approach

## EDUCATION

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### University of Toronto

3.83 cGPA

*BSc Computer Science Specialist, Major in Mathematics*

*Sep. 2018 – May 2023*

**Relevant Coursework:** Data Structures and Algorithms (A+), Operating Systems (A+), Parallel Programming (A+), Neural Networks and Deep Learning (A+), Intro to AI (A+), Introduction to Machine Learning (A+), Algorithm Design, Analysis & Complexity (A)

## PROJECTS

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### PAIR lab assistant | Private repo

Sep 2021 – present

- Utilizing Nvidia's Omniverse to create a robot reinforcement learning benchmark
- Creating physics scenes and testing R.L algorithms to be used as a benchmark in future papers

### CFR Minimization (Kuhn Poker, Tic-Tac-Toe and Coup) | Link: GitHub

May 2021 – present

- Developing a general framework to train R.L. agents using CFR, CFR+ and MCCFR to find the nash equilibrium
- Implemented each of the algorithms to play tic-tac-toe, Kuhn poker and Coup

### Tenant-Landlord Matching App | Links: server-side, client-side

Aug 2020 – June 2021

- Fullstack development of an mobile application to match landlords and tenants
- Constructed front-end using **React Native** and common packages such as **React Navigation** and **axios**
- Leveraged form handler: **multer** to separatly handle images upload and download
- App includes features: Authentication, Images upload, Property Managment, Profile Matching via swiping and instant messaging utilizing **Socket.io**
- Utilized **Node.js**, **GraphQL**, and database **Postgres** to construct backend

### CaNetDa: Deep learning for GeoGuesser in Canada | Link: GitHub

Jan 2021 – April 2021

- In this project we used a deep learning approach utilizing multiple deep learning techniques to have an AI play GeoGuesser.
- Utilized **ResNet**, **EfficientNet** and **Vision Transformer** to predict the location
- With our approach, a accuracy of **60%** was consistently achieved

### Tron UDP multiplayer | Link: GitHub

Sep 2019 – Dec 2019

- Created a four player game for local networks using the UDP network protocol and C++
- Forked timer from the server to ensure the game runs on time
- Utilize epoll for both client and server to monitor the socket as well as the timer (server) and stdin (client)

## TECHNICAL SKILLS

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**Languages:** Python, C/C++, JavaScript, Java, C#, R

**Tools:** Git, React Native, Node.js, MongoDB, SQL (Postgres), PyTorch, Numpy, Pandas, GDB