Andy Li

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Education

The University of British Columbia **Vancouver, BC**
B.Sc., Combined Major Computer Science and Math; 4.00 GPA *Expected Graduation: May 2026*

- Coursework computer architecture, operating systems, computer networking, data structures & algorithms

Experience

Student Developer **Vancouver, BC**
UBC Game Development Club *Oct 2023*

- Designed and implemented movement mechanics and a tile management system in *Godot* using GDscript and C#
- Boosted development process with UML diagrams, increasing efficiency by **25%** and streamlining system structure

Piano Teacher **Calgary, AB**
MusicWorks Canada *Jun 2021 – Jun 2022*

- Taught over 15 students from all musical backgrounds tailoring each lesson unique to student weaknesses
- Elevated student practice time by 30%, boosting performance through effective parent communication.
- prepared students for recitals, achieving 100% positive feedback and contributing to a 90% student retention rate

Classroom Assistant **Calgary, AB**
The Chinese Academy *Sep 2019 – Jun 2020*

- Enhanced learning for over 30 kindergarten students that improved their social skills and academic progress
- Led interactive activities that boosted reading, writing, speaking proficiency by 25% with games and competitions

Projects

Image Compressor | *Personal Project* Nov 2023

- Designed and created a recursive image compression software in C++ using a quad-tree data structure
- developed a dynamic quad-tree pruning feature based on color similarity, reducing image size by over 20%
- Implemented seamless image manipulation tools for rotating, flipping, and copying images

C++ Path Tracer | *Personal Project* Oct 2023

- Engineered a sophisticated physically based rendering software in raw C++, featuring spheres and rectangles
- Advanced rendering capabilities by implementing shadows, reflections, and refraction

3 Body Problem Visualization | *Personal Project* Aug 2023

- Developed a Python-based simulation of three objects with similar mass exerting force on each other
- Leveraged NumPy and SciPy for precise numerical solutions of ODEs, modeling the motion of objects
- Created live simulations using matplotlib to animate and illustrate the motion

Java Flashcard Application | *Personal Project* Aug 2023

- Crafted a user-friendly flashcard study application applying fundamental OOP and design principles
- Designed and deployed a functional multi-page GUI using Java's Swing framework
- Incorporated JSON database for data persistence, ensuring data retention post-program exit

IMGUESSR.io | *Hackathon Project, nwHacks 2023* Jan 2023

- Collaborated in a team of 4 to invent a prompt guessing game utilizing OpenAI's DALL·E 2 for AI-generated art
- Expertly applied React.js, HTML, CSS, and JavaScript to construct an engaging and responsive user interface

Technical Skills

Languages: Java, C/C++, Python, Javascript/HTML/CSS, x86 Assembly, GDscript

Frameworks and Libraries: JUnit, Pytest, NumPy, Matplotlib, React, Next.js

Technologies: Git, Bash, Linux/Unix, LaTeX, Visual Studio, IntelliJ IDEA