Christina Lin Xie

LinkedIn | github.com/chr1s-31x | +1 (226) 787 2543 | christina.xie04@gmail.com | Portfolio

Education

University of Toronto Sep. 2022 – Apr. 2027
Bachelor of Applied Science in Computer Engineering + PEY Co-op *(Expected)*

- Minor in Artificial Intelligence Engineering
- Certificate in Engineering Business

Project Experience

CropShield Jun. 2024 - Aug. 2024

- Created a disease detection and identification application for corn, rice, and wheat, using PyTorch and TensorFlow in Google Colab.
- Processed dataset (augmentation, translation, and normalization) to achieve 92.59% greater accuracy from 90.41% and 2.43% lower loss on test data than teammates' methods.
- Trained and modified ResNet-9 and ResNet50 models with weight decay and gradient clipping variables to improve model accuracy from 85.60% to 94.76%.

Tetris Mar. 2024 - Apr. 2024

- Re-created Tetris as a Nios II C program run on a DE1-SOC FPGA board with programmed PS2 keyboard, VGA display, and audio output interfaces.
- Modularized block movement (including default falling, user controls, and boundary checking) for increased robustness while implementing additional movement capabilities.
- Designed a buffering module to handle user inputs for increased accuracy and graphic responsiveness.

EcoEats Feb. 2024 - Present

- Programmed a Python application using computer vision that can recognize common fruits and display an eco-friendliness score.
- Trained a Pytorch model to detect and label fruit by accessing the device camera.
- Designed the branding of EcoEats, including logo and splash screen design.
- Organized and processed datasets on carbon- and water-footprint during production to calculate the eco-friendliness score of each item.

Soulmate Navi Jan. 2024 - Apr. 2024

- Managed a team of 3 to develop an OpenStreetMap (OSM) Dataset-based city mapping application that is able to identify the optimal path between locations as well as find and bookmark date spots, developed in C++ on Linux utilizing the GTK graphics library.
- Replaced original path-finding algorithm with A* algorithm to improve feature responsiveness.
- Constructed a matrix class to pre-calculate travel times between key-points to solve a modified Traveling Salesman Problem (TSP), improving performance 80x from initial implementation.
- Designed and implemented a CountDown class to dynamically maximize optimal-solution generation within time constraints, exiting only the time taken to calculate another potential solution exceeds time remaining (<1ms), improving quality of result (QoR) by 14%.

UniCar Jun. 2023

- Designed an autonomous line-tracking robot using using Arduino, Fusion360 to design a drivebase, soldering to assemble the motor, light and IR sensors, Adafruit microprocessor, and motor shield.
- Programmed with Andruino, Unicar completed the course 14% faster than the baseline robot and handled the 30° incline and 90° turns that the baseline was unable to pass.

Additional Experience

Design Specialist, Engineering Strategies and Practices Project II Jan. 2023 - Apr. 2023

- Collaborated with a team of 5+ to design and prototype a safety device for an autistic adolescent as specified by his psychiatrist.
- Generated, refined, and organized 3 proposed final designs, using Fusion 360 to model and 3D-print the designs at a 1:10 scale, achieving high client satisfaction and increased classroom productivity for the adolescent.

Project Manager, Engineering Strategies and Practices Project I Sep. 2022 - Dec. 2022

- Managed with a team of 5+ to develop a proposal for the redesign of the Sidney Smith Hall East Entrance.
- Created a Gantt chart for project requirements, conceptual design specifications, and communications reports with detailed individual task responsibilities.
- Ensured conciseness, cohesiveness, and accuracy in all reports, communicating between group members for quality control.

Creative Entrepreneur, Avenos Art Studio Mar. 2021 - Aug. 2022

- Launched and managed a micro-enterprise (Instagram: @avenos.artstudio) offering custom portrait commissions in various mediums, handling client orders from Canada, the USA, and India.
- Analyzed design requests to accurately fulfill client visions and negotiated pricing details, pricing commissions up to $250.
- Developed marketing strategies and managed project timelines, ensuring timely delivery and high client satisfaction.

Awards

Dean's Merit Award University of Toronto scholarship for achieving a 95% or higher average alongside intensive extracurricular achievement — Oct. 2022

Edward S Rogers Sr. Admission Scholarship University of Toronto award for formidable success in academic and extracurricular activities — Oct. 2022

Betz Entrance Scholarship in Electrical and Computer Engineering University of Toronto scholarship for high academic achievement with extracurricular activities that focus on design and creative innovation — Oct. 2022

Technical Skills

Software/Frameworks: Git, Pytorch, Tensorflow, Jupyter Notebook, Microsoft Visual Studio Code, Google Colaboratory

Programming/Scripting Languages: C, C++, Java, Nios II Assembly, Verilog, Python, MATLAB/Simulink, HTML, CSS

Tools/Skills: Digital Oscilloscope, Multimeter, Function Generator, Soldering

Operating Systems: Windows, Linux

CAD: Fusion360

Prototyping: Arduino, Breadboard Circuits