Christina Lin Xie

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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 Field Programmable Gate Array (FPGA) board with programmed Personal System/2 (PS/2) keyboard, double-buffered Video Graphics Array (VGA) display, and speaker audio output interfaces.
- Modularized block movement (including default falling, user controls, and boundary checking) for increased robustness while implementing additional movement capabilities.
- Designed a data register handler module for user inputs that 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 class RoutePlanningTimer 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 Arduino, 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