RIA MALHOTRA

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EDUCATION

University of Toronto

BASc. Computer Engineering **11/2019 - 06/2024**

- Specializing in Software and Networks
- Minors in Artificial Intelligence and Business

WORK EXPERIENCE

Dr. Kang Lee Development Lab (OISE)

Social & Cognitive Studies Research Group

Computer Science Research Assistant **04/2023 - Present**

- Research and development of ML based motion detection model of micro and macro movements in frames from IR videos
- Developing an image detection model to classify facial expression, cervical flexion and features in video frames
- Calculation and analysis of key health data and metrics like ECG, heart rate and respiration rate

Bell Canada

Telecommunications Company

Data Science & Business Intelligence Intern **05/2023 - 08/2023**

- Applied database tools (SQL, Adobe Analytics) and ML methodologies to analyze and interpret customer behavior data from Bell App or Website to make informed business decisions
- Advanced UI/UX and overall digital design of Bell App and Website by incorporating clustering, NLP and hyper-personalization for a seamless customer experience
- Optimized inter-team gap tracking and data collection by introducing SAFe methodologies and vouching for digital advocacy

Advanced Micro Devices (AMD)

Semiconductor Company

SOC FEINT Silicon Engineer [Co-op] **05/2022 - 04/2023**

- Led the research and development of Constraint Audit Signoff Helper (CASH) flow for the current Radeon project
- Operated Clock Domain Crossing analysis by applying design and validation flows using industry-standard tools like PrimeTime and Lint
- Designed and developed scripts in Perl and Python to streamline the analysis of complex runs and support flow improvements
- Proposed and implemented enhancements in TCL and C Shell to automate processes and optimize power, memory and run time by 83%
- Analyzed RTL Design in Verilog for DFP and regression flow maintenance

bBot

AgriTech Startup

CEO & Co-Founder **05/2021 - Present**

- Leading a team of engineering students to develop an autonomous precision pollination mechanism for Controlled Environment Agriculture using Machine Learning and Biomimetic Technologies
- Developing Flower Detection, Design Mobility and Pollination Techniques
- Prototyped and simulated our minimal viable design with a success rate of 83%
- Selected to be incubated by the University of Toronto Entrepreneurship Hatchery from a pool of over 1000 participants and received a Fellowship worth $3,500

aUToronto

Autonomous car team that competes in the SAE/GM self-driving car competition

Perception Developer - 2D Object Detection **11/2021 - 05/2022**

- Developing a 2D Object Detection System for pedestrians, traffic lights and signs using Python and Machine Learning Tools
- Analysing Object Detection models like YOLO, R-CNN, EfficientDet and Mobilenet for high level improvements, runtime metrics, and performance.

PROJECTS

LittleLeague GIS

- Successfully programmed a GIS Mapping Software in C++ by implementing the A* algorithm, simulated annealing and key UI/UX design features to optimize user satisfaction.
- Evaluated the scope of the GIS in potential industries such as in the research, defense, healthcare and entertainment.

Currency Analysis System

- Developed a system in Python (OpenCV/NumPy/TensorFlow) to detect the currency and denomination of banknote images with a high accuracy of 90% with an inbuilt exchange rate API
- Created, analysed and processed datasets using key data science metrics and methodologies
- Built a cohesive machine learning architecture with CNN and AlexNet models using transfer training

Text Conferencing Application

- Developed a conferencing application in C between clients in different networks using UNIX TCP sockets
- Utilized core knowledge of networks, packet transmission and client-server interactions to enhance application features

Game of Chess

- Coded a chess game that runs on a DE1-SOC board in C++ and ARM Assembly using memory mapped I/O like LEDs, switches, buttons and VGA
- Animated a historic speed chess match with the same tools

SKILLLS

Programming Languages : C/C++, Python, Perl, Rust, MATLAB, Visual Basic, Bash/Cshell, Tcl, HTML/CSS
Hardware : Verilog, ARM Assembly Language, FPGA, Quartus Prime, ModelSim, LTSpice, PrimeTime
Machine Learning : PyTorch, OpenCV, Tensor Flow
Simulation & Design : SolidWorks, ANSYS, Simulink, Adobe Creative Cloud