Charlie Dai

684 Deervalley Rd, Hamilton, ON. L9G 4E1| (289)-887-6228| dail5@mcmaster.ca

Summary of Qualifications

- Enrolled in the Electrical Engineering Master of Applied Science, McMaster University.
- Developed strong problem-solving skills by attending in a research project under Dr. Jun Chen's Supervision in McMaster University.
- Gained the ability to face multi-task situations and enjoy working in a fast-paced environment through a full-time co-op test analyst position in CIBC.
- Deans' Honour List in the year 2, 3, and 4. (Yearly GPA above 9.5) and Provost's Honour Roll in the year 4. (Yearly GPA 12 out of 12)
- Received 2019 Vector Scholarship in Artificial Intelligence (VSAI) from Vector Institute.

Education

Bachelor of Engineering, Electrical Co-op Program Graduated on Apr. 2019

McMaster University, Hamilton, ON

- Graduated with distinction.

Master of Applied Science, Electrical Engineering (Co-op optional) Graduating Apr. 2021

McMaster University, Hamilton, ON

- Multi-disciplinary focus including Deep Learning, Computer Vision and Network Theory.

Projects

- Smart Walker (Capstone Project): Built an artificial intelligent walker, which provides precautions for elderly and visually impaired people on different outdoor dangers. Wrote codes for various functions including curb detection, distance detection, dangerous sound location and pedestrian detection.
- Vehicle Image Extraction Program: Developed a segmentation-based deep learning algorithm for a design company by using Python. The algorithm can sharply extract foreground vehicle images from noisy backgrounds.
- AI Snake Game: Implement a snake game program from sketch by using a deep reinforcement learning algorithm. Wrote the snake game playground and UI using Python and PyGame. Used Pytorch to build deep q learning algorithm. Project page : https://github.com/Charlie0215/deep-q-snake-pytorch.
- Face Recognition Project: Implemented a face classifier to examine sexuality by using C++, Tiny-CNN, and OpenCV library. Also developed user interface for this program by using MFC and visual studio.
- Image Half Tone Restoration: Built an image restoration algorithm to remove the half tone effects from historical images for a course project. Used MATLAB to generate and remove half tone effects. Used Pytorch for deep learning part to refine the results.

Relevant Experience

Performance Test Analyst (12-month Coop) May 2017 – May 2018

CIBC Technology Operation

- Developed strong communication skills by communicating with support teams for the test arrangement and reviewing the tests with other consultants.
- Strengthen the coding skills by writing more than 80 automation C++ scripts on LoadRunner VuGen.
- Closely monitored the network load tests for testing various CIBC online banking and contact center applications with detail-focused abilities.
- Built an internal email approval tool for simplifying document approval process among the department by utilizing creativity skills and research abilities.
- Actively worked on operating multiple test runs during regular and overtime hours by applying multitasking skills.
- Achieve the "**Most Impact Team Member"** awards during department meeting.

Research Assistant

Graduate Research Project Summer 2019

Dr. Jun Chen

Department of ECE, McMaster University

- Developed a foreground-background extraction algorithm based on deep learning and traditional image processing algorithms.
- Worked with another graduate student to compare the performance of different approaches.
- Reproduced different image segmentation and image matting algorithms including deep image matting, sematic human matting and Pyramid Scene Parsing Network.

Coding Assistant

Volunteering of Graduate Research Summer 2016

Dr. Jun Chen

Department of ECE, McMaster University

- Devoted to research of Compact video descriptor.
- Collaborated with five other graduate students to explore the efficiency of different algorithms for compacting video descriptor.
- Using strong academic knowledge and learning skills to understand different algorithms for extracting video feature and compacting video feature descriptor, including ISODATA, k-means, and SIFT.
- Implemented a Video Research program with another teammate by using C++ and OpenCV.

Assistant Electrical Engineer (Summer Coop) Summer 2016

Guangzhou Otis Elevator Co., Ltd.

- Developed strong problem-solving skills through dealing with different technical problems for over 50 elevators during the job.
- Applied multitasking skills and time management skills to arrange my daily work for repairing more than 5 elevators a day.
- Utilized academic knowledge to read electric diagrams for 3 different kinds of elevators and help my colleagues to operate elevators with great teamwork.
- Communicated with 10 different teammates and built strong relationships with co-workers

Skills:

Programming
- Python, C++, Java,
- Pytorch, OpenCV, TensorFlow, Pillow

Load Testing
- HP LoadRunner VuGen, Controller, Analysis

Software
- Sublime Text, Vim, Jupyter Notebook.
- MS Office

Manufacturing
- 3D Printer
- PCB soldering

Engineering
- Communication system design
- Logic Design
- Data Structure

Language
- Mandarin

Achievement

- Received McMaster University **Entrance Scholarship worth $1000**.
- Achieve the "**Most Impact Team Member"** awards during Coop job in CIBC
- **Dean's Honour List** in the year 2016, 2017, 2019.
- **Provost's Honour Roll** in the year 2019
- **Vector Scholarship in Artificial Intelligence (VSAI)** from Vector Institute in the year 2019.