Nicolas Lepki

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EDUCATION

McMaster University

B.Eng, Engineering 1 stream

Expected Graduation, May 2028

University of Waterloo

B.Math in Mathematics (transferred out)

EXPERIENCE

Robotics Club member, Ursula Franklin Academy (High school), 2021-2023

- Collaborated in a team environment to design and build semi-autonomous robots for regional competitions
- Applied problem solving and debugging techniques to optimise performance against other robots in competitions, improved competition scores by 20%
- Developed skills in programming microcontrollers, circuit design, and sensor integration to create robots capable of interacting with obstacles

PROJECTS

Digit Recognition Webapp Using Computer Vision

Solo Development

- Trained mathematical machine learning model to predict digits hand drawn by users
- Trained model using Tensorflow, NumPy, on MNIST database, then EMNIST for alphanumeric characters
- Webpage created using React for front end for canvas and buttons, Flask (Python) for server-side
- Converting images from JSON format to float list of pixel values (NumPy array), tensor is reshaped and applied grayscale, then passed into model for prediction

Sudoku Solver

Solo Development

- Developed C++ program to efficiently solve 9x9 Sudoku puzzle using a backtracking algorithm
- Implemented functions to recursively place numbers and check row, column, and grid constraints to find solutions
- Optimized program to handle complex problems by reducing backtracking steps and improve execution speeds

ACTIVITIES AND LEADERSHIP

STEM Club, Ursula Franklin Academy

Toronto, Ontario

Director 2022 - 2023

SKILLS

Programming: Java, Python, C, C++, SQLite, HTML/CSS, JavaScript

Tools: React, Node.js, Chakra UI, ROS, terminal, Matplotlib, NumPy, Tensorflow

Software: SOLIDWORKS, MATLAB, Git, GitHub

Course/Certification: CS50x