

Isaac Berlin

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Education

University of Minnesota Twin Cities — *B.S. Computer Science (May 2025), M.S. Computer Science (May 2026)*

Organizations and Clubs: ML/AL Club, Computer Hardware Club, Gopher Hack (CTF), UofM Linux Kernel Object (UKO)

Relevant Coursework: *Advanced Machine Learning, Computer Vision, NLP, Data Mining, AI, Deep Learning, Psychology of Learning*

Skills

Languages/Packages - Python, C++, Bash, PyTorch, Hugging Face, scikit-learn

Data/Models - Pandas, Apache Spark, Neural Networks, CNNs, Transformers, Autoencoders, Clustering

Misc - Git/GitHub, ROS, LaTeX, Linux(Ubuntu, RHEL), Windows Server

Projects

First-Person Vision Robot Guidance Using Pointing Gesture - *ROS, YOLOv8, Turtlebot3, MediaPipe Hands*

- Successfully built method to find robot orientation and plan path all from a first person POV
- Created ROS system that allows a turtlebot3 to automatically navigate an environment
- Built YOLO model to identify both turtlebot and possible goal objects, used MediaPipe hands for hand recognition

Multi-Agent LLM Political Debate - *Hugging Face, LLMs, Llama 3.2, Phi 1.5*

- Fine tuned multiple open source LLMs on politically biased text from various news organizations
- Created debate arena that allowed multiple LLM agents to have a back and forth debate about a general topic
- Instituted a rubric and used another LLM to grade the results of each debate and determine a winner

Image Classification for Garbage Detection - *GroundingDINO, YOLOv7, ResNet, DeTr*

- Compared multiple methods of image classification with bounding boxes for garbage and recycling detection
- Created an annotated image dataset to perform task using Roboflow
- Trained DeTr, RT-DeTr, Conditional DeTr, and Deformable DeTr to deal with compute issues

Autonomous Snake with a Deep-Q Neural Network - *PyTorch, DQN, A-Star*

- Implemented a deep learning iteration of Q reinforcement learning to play Snake which was implemented in Pygame
- Fine tuned algorithm by adjusting loss function and learning rate, graphed average score over number of games played
- Dove deep into how the State Action Reward State Action (SARSA) model of learning works

Hackathons

Winner at UHackIowa 2023 - TabTime - *Chrome Extension, MongoDB, Auth0, Flask, ChartJS, REST API*

- Awarded Best Use of MongoDB Atlas
 - Created a website and chrome extension to track time spent on chrome tabs
 - Designed and implemented our own REST api, harnessed Auth0 to implement secure login, data aggregation and storage with MongoDB Atlas, Data visualization with ChartJS, Backend in Flask and Javascript
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Experience

Application Developer Intern

Virtual, USA

L3Harris Technologies

May 2024 - August 2024

- Created a reporting script to query information about servers/databases and create an easy to read report. Set up to automatically run and assist engineers with Windchill PDMLink system maintenance
- Created Software install and uninstall packages via Windows Bash, deployed company wide for engineers
- Developed and improved OpenIT test server instance, assisted in maintenance of Windchill server array

Student DevOps Admin

Minneapolis, MN

UMN CSE-IT

March 2023 - September 2024

- Maintained a computer network of over 1000 computers for computer science and other engineering departments.
 - Worked in datacenter maintaining and upgrading server software, firmware, OS, and hardware.
 - Responded to tickets involving installation of new software as well as configuration and creation of machines.
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