


GAL COHEN

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Engineering student with a major in Robotics & AI and a minor in Business at the University of Toronto. Proficient in Python, C++, data structures, robotics, and creative problem solving. Experienced in leading technical teams and developing autonomous systems. Seeking an internship to contribute to cutting-edge systems starting summer 2024 for up to 12 months.

SKILLS

- Reinforced Learning
- Creative Problem Solving
- Deep Learning
- Robotics
- Machine Learning
- Computer Vision
- Algorithm Design
- CUDA
- Team Leadership

LANGUAGES

- C++
- C
- Python

LIBRARIES & FRAMEWORKS

- OpenCV
- PyTorch
- TensorFlow
- ROS
- NumPy
- scikit-learn

EXPERIENCE

RESEARCH ASSISTANT

TRAIL LABS UNDER PROF. WASLANDER

FEB 2024 – PRESENT

- Designed algorithms in **Python** using topographical maps, GPS, cameras, and LiDAR to automatically label lane lines, achieving **>95% mAP**.
- Developing and training a **transformer architecture** to detect lane lines using dataset, particularly in adverse weather conditions.

GM-SAE AUTODRIVE CHALLENGE / AUTORONTO UOFT

SEP 2023 – PRESENT

LIGHTS & LANES DETECTION TEAM LEAD

- **Led a team of 7** to innovate topological map utilization, improving route-planning and aiding localization via priority queues, Kalman Filters, Hidden Markov Models, and Hungarian Association for post-processing light detection and state estimation.
- Spearheaded **C++** pipeline development in **ROS**, configuration with **CMake**, using deep learning in **PyTorch** to aid tracking for localization.
- Oversaw **integration and reliability testing**, ensuring code robustness, streamlined and optimized the codebase, and conducted comprehensive code reviews for dependable system functionality in an **agile environment**.

SOFTWARE ENGINEER INTERN

SWAP COMMERCE

MAY – SEP 2023

- Designed and developed an **enterprise-grade administrative dashboard** at Swap Commerce, utilizing Flutter and Dart, to ensure optimal performance while establishing secure connections to the company's codebase.
- Led an optimization initiative that helped **reach \$1 million increase in revenue** elevating user experiences and streamlining workflows.
- Promoted efficiency and stability through meticulous refactoring of critical application components, reinforced by **end-to-end unit testing**.
- Collaborated closely with the technical team to implement **REST APIs**, facilitating communication between frontend and backend systems.
- Successfully integrated platform services with **40+ prominent businesses**, including recognized brands like Sirplus and Aspiga.

PROJECTS

INGREDIENTS IDENTIFIER FROM IMAGES (AI COURSE)

JAN – MAY 2024

- Developed a **ViT** and **CNN** for multi-label classification of ingredients from food images, achieving 100% grade for the project.
- Processed large dataset of **>16M images** to recognize complex patterns in ingredients, achieving an **accuracy of 83%** and **F1 of 0.65**.
- Demonstrated performance through extensive testing and user studies, showing high accuracy in identifying ingredients from various dishes.

GARBAGEGOPHER: ADVANCED AUTONOMOUS GARBAGE ROBOT

JAN – SEP 2023

- Engineered GarbageGopher, an autonomous robot for indoor garbage collection in **C++**, leveraging **SLAM** (via GTSAM), **PID** controllers, and **A*** path-planning algorithm for accurate navigation and model inferencing for depth estimation.
- Assembled and optimized a hardware suite comprising ultrasonic sensors and an 8MP camera, augmented with ONNX-integrated ML models integrated on Nvidia Jetson Nano computer architecture with GPU using **Linux**, achieving a 170-degree environmental perception and object detection/computer vision + avoidance by employing **OpenCV** algorithms for robust image processing.

EDUCATION

BASC IN ENGINEERING SCIENCE + PEY CO-OP

University of Toronto

Sep 2021 - Apr 2025

- Expected Major: **Robotics & AI** + Minor in Business
- **4.0 GPA**
- Dean's Honours List: Recognized twice in a row for academic excellence, earning a place on the Dean's Honours List at the University of Toronto.

- Top Performer: Achieved a perfect grade of **100%** in the course ESC180 (Data Structures and Python), showcasing exceptional aptitude and understanding.
- Relevant courses:
 - APS360H1: Applied Fundamentals of Deep Learning
 - ROB313H1: Introduction to Learning from Data
 - CSC384H1: Introduction to Artificial Intelligence
 - CSC263H1: Data Structures and Analysis