GAL COHEN

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Engineering student specializing in Robotics & AI with a minor in Business at the University of Toronto. Proficient in Robotics, Computer Vision, Machine Learning, web development, and project management. Adept at creating efficient solutions. Seeking a Robotics-focused position for up to 16 months starting from May 2024.

SKILLS

- Robotics
- Machine Learning
- MATLAB
- Git
- Computer Vision
- AutoCAD
- Web Development
- Project Management
- Teamwork

LANGUAGES

- C++
- C
- Python
- JavaScript

LIBRARIES & FRAMEWORKS

- OpenCV
- PyTorch
- ROS
- SciPy
- NumPy
- Next.js

EXPERIENCE

LIGHTS & LANES DETECTION TEAM LEAD

GM-SAE AUTODRIVE CHALLENGE / AUTORONTO UOFT
SEP 2023 – PRESENT

- Led a team of 10 to innovate lane info utilization, improving route-planning and aiding localization via deep learning in Python and PyTorch.
- Spearheaded C++ pipeline development for traffic light handling, utilizing maps, priority queues, Kalman Filters, and Hidden Markov Models for post-processing light detection, and ensured accuracy through spurious detection elimination and lane-map association 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 agile environment.

TECHNOLOGY DIRECTOR

UOFT ROBOTICS ASSOCIATION (UTRA)
SEP 2023 – PRESENT

- Spearheaded technical aspects (hardware, software, mechanical) for UTRA's Robotics hackathon, Canada's premiere/top/first robotics hackathon, guiding a team of 400 hacker participants, 100 volunteers and mentors, in partnership with the Robotics Institute.
- Advised on hardware selection, budgeting, and ensure seamless integration of emerging technologies into the hackathon.
- Collaborated with judges and awards director to develop scoring rubrics, guaranteeing the event's success.
- Provided technical expertise during the hackathon, troubleshoot issues, and optimize software tools and platforms for efficient operation.

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

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 path-planning algorithms (A* & RRT) for accurate navigation and depth estimation.
- Assembled and optimized a hardware suite comprising ultrasonic sensors and an 8MP camera, augmented with ONNX-integrated ML models on Nvidia Jetson Nano, achieving a 170-degree environmental perception.
- Employed OpenCV for robust image processing and object detection; streamlined actuator controls on Nvidia Jetson Nano.

SELF-SUPERVISED DATA LABELING ML

AUG 2022

- Implemented self-supervised classification models (VGG16, ResNet152) with multi-GPU training and automated hyperparameter.
- Successfully classified traffic light with accuracy of 99% for LISA dataset, as well as 98% accuracy for MIT dataset which wasn't trained on.

EDUCATION

BASC IN ENGINEERING SCIENCE + PEY CO-OP

University of Toronto
Sep 2021 - Apr 2025

- Expected Major: Robotics & AI + Minor in Business
- Cumulative GPA: 3.73
- Distinguished by the Engineering Society: Recipient of the prestigious Centennial Award (Apr 2022), selected out of 100+ people, recognizing commitment and dedication through active participation in extracurricular activities and representing interests of 1000+ students.
- 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.