

# Driving Automation Research at NRC & its application in Marine Autonomy

Taufiq Rahman, PhD

CAV Research Engineer

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# NRC Footprint across Canada



# NRC London



# CAV Facilities Overview

## Automotive vehicle labs

2 vehicle bays, complete with lifts and automotive shop capabilities

## Mechatronics labs

3000 sq ft space with 4 laboratories for flexible and confidential work

## Office space

Private office workspace, meeting areas and conference rooms

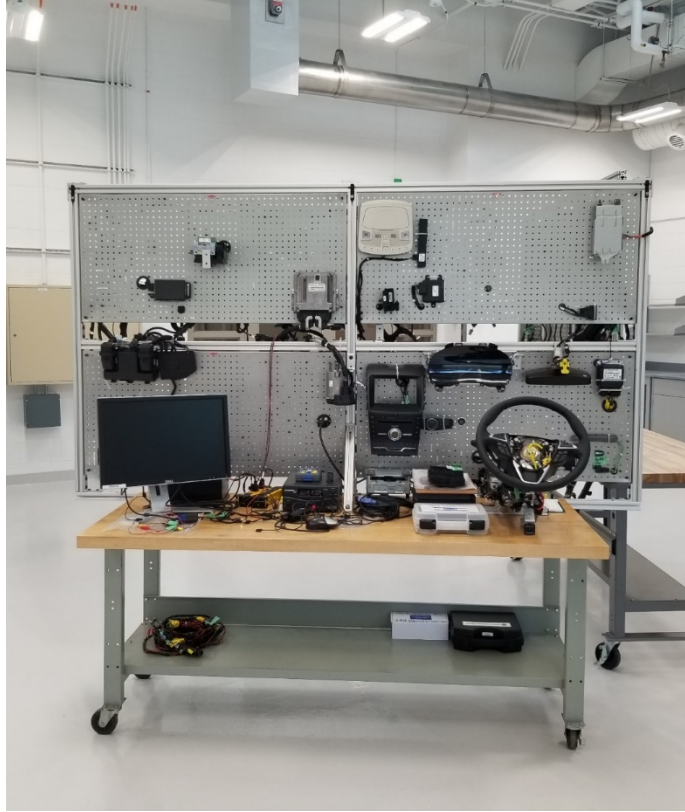












# NRC Research Vehicle



**NRC-CMRC**

[NRC.CANADA.CA](http://NRC.CANADA.CA)

## CAV Research Vehicle

Connected & Automated Vehicles Lab  
Automotive Innovation Hub  
NRC-London

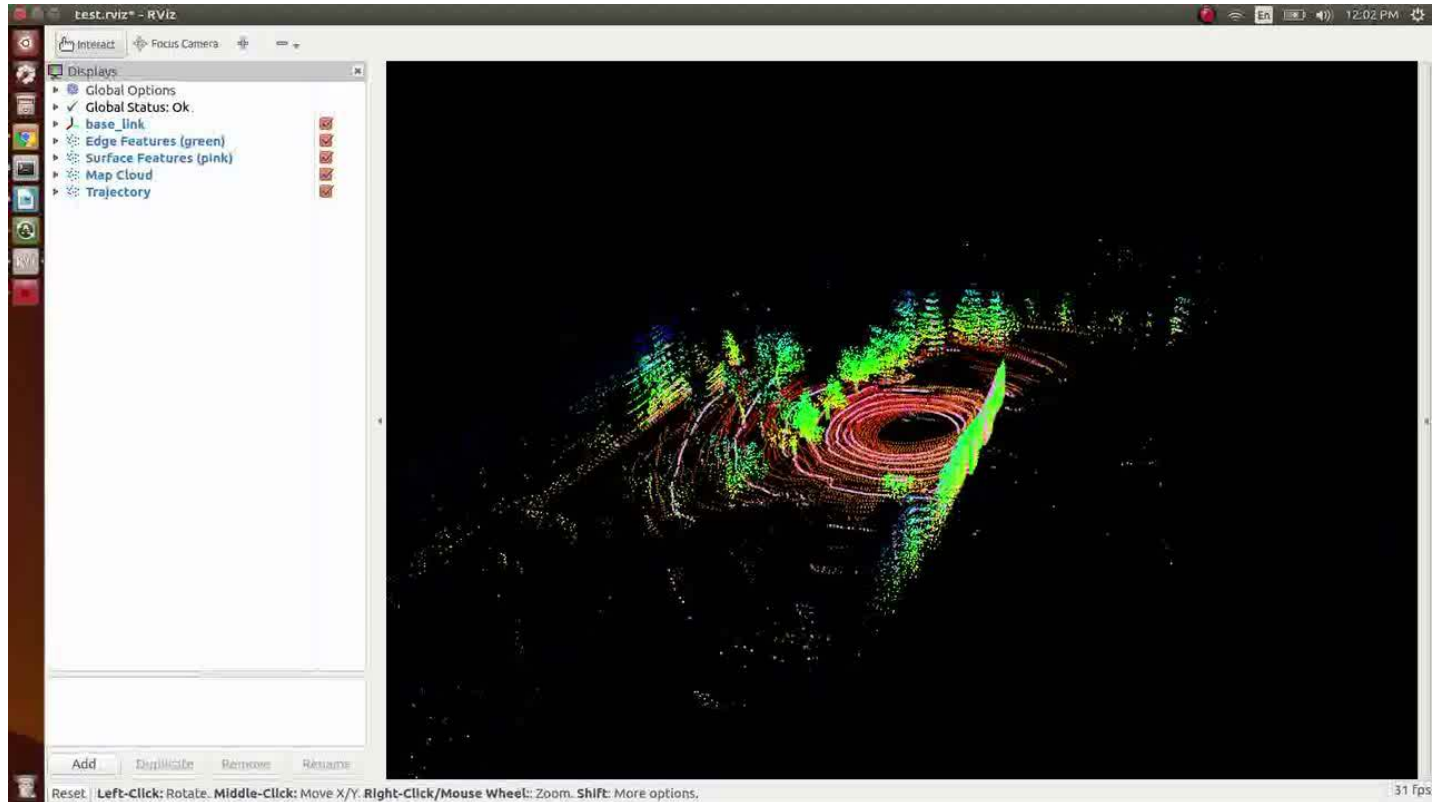
 National Research Council Canada    Conseil national de recherches Canada

Canada <sup>101</sup>





# HD Map Construction by LiDAR Odometry



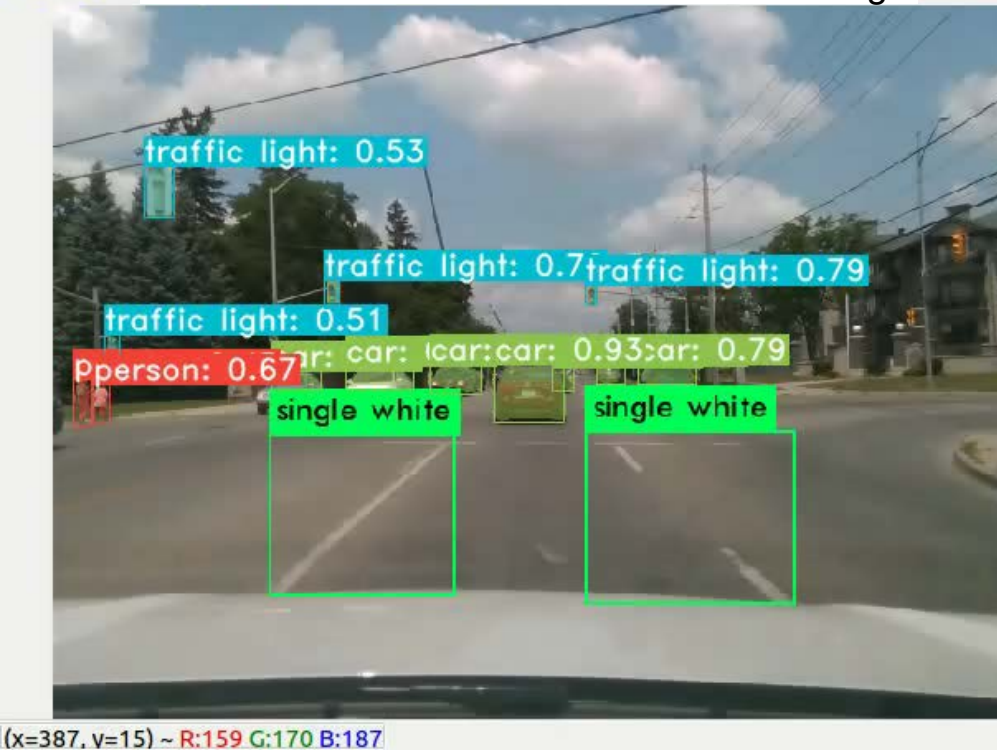
# Characterization of Dynamic Elements & Lane Markings

## Overview

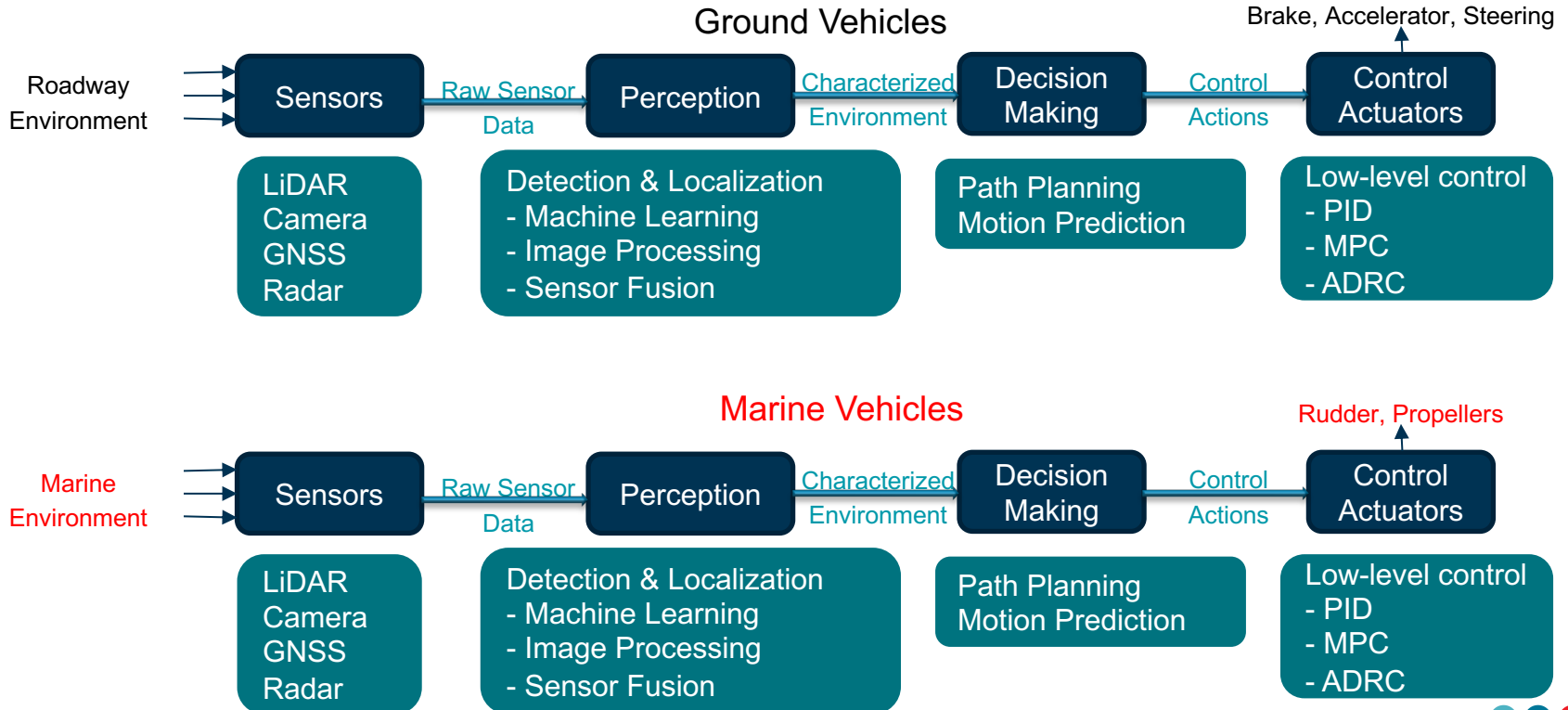
- CAV/ADAS performance in a dynamic environment (e.g., pedestrian detection, adaptive cruise control, etc.)
- Lane-marking detection to evaluate lateral control performance of CAV/ADAS (e.g., automatic lane keeping)



← → Data collected in London near NRC Building



# Vehicle Autonomy Pipeline





# NRC Expertise & Collaboration Opportunities

## Vehicle Autonomy

- Hardware & software
- Sensor calibration and fusion
- Perception algorithms
- Control algorithms

## Ocean Engineering

- Extensive domain knowledge
- Ice-ship interaction
- Hydrodynamic behavior of ships
- World class testing facilities

## Collaboration Opportunities

- Canadian businesses
- Other government departments
- University partners



# THANK YOU

Taufiq Rahman • CAV Research Engineer  
Taufiq.Rahman@nrc-cnrc.gc.ca

