

MICHIGAN STATE

UNIVERSITY

Beta Presentation

Analysis of Autonomous Vehicle Testing Video

The Capstone Experience

Team Aptiv

Shivaani Annadurai

Harshita Das

Rebecca Skladd

Patrick Thornton

Diana Xia

Department of Computer Science and Engineering
Michigan State University

Spring 2019



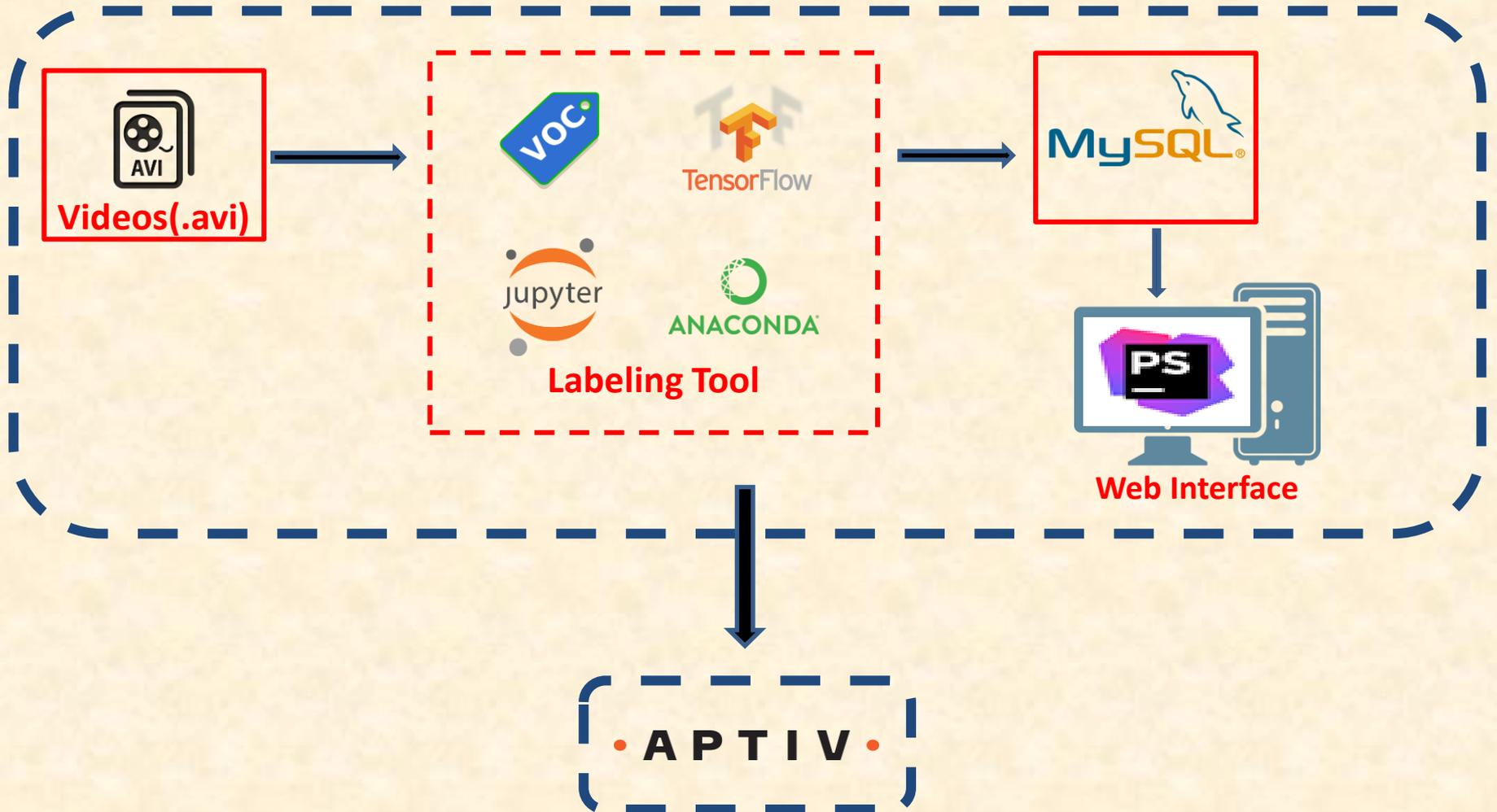
*From Students...
...to Professionals*

Project Overview

- Model
 - Identify and annotate driving scenarios
 - Examples: overpass, bridge
- Database (DB)
 - Created schema for storing labelled images
 - Stream annotated images into DB for querying
- Web App
 - Created and connected to DB
 - Filter results by different features



System Architecture



Home Page

The screenshot shows a web browser window displaying the APTIV application. The browser's address bar shows the URL `webdev.cse.msu.edu/~xiazhuoq/Aptiv/welcome.php`. The application header features the APTIV logo and navigation icons for home, download, help, and user profile. On the left, a sidebar identifies the user as 'diana' and provides a 'FILTER BY' section with a 'Clear all' link. Under the 'Scenario' filter, there are four options: Overpass, Bridge, Tunnel, and Toll Booth, each with an unchecked checkbox. A 'Submit' button is located at the bottom of the sidebar. The main content area is titled 'Search Results' and includes a 'Sort By' dropdown menu set to 'Confidence Value: Descending' with a 'Sort' button. The search results are displayed as a grid of images. A central image shows a first-person view from a vehicle on a highway, with a white tooltip overlay that reads: 'Welcome to Aptiv's Autonomous Vehicle Testing! Here, you can navigate through recorded data from our vehicles.' Below the text are 'Prev', 'Next', and 'End tour' buttons. To the right, another image shows a highway with an overpass, with a green bounding box around the overpass and the text 'overpass: 98%' above it. Other images in the grid show different highway scenes with green bounding boxes.

Filter Results for Overpasses

Welcome

webdev.cse.msu.edu/~xiazhuoq/Aptiv/welcome.php

• APTIV •

diana

FILTER BY Clear all

Scenario

- Overpass
- Bridge
- Tunnel
- Toll Booth

Submit

Search Results for Overpass

Sort By: Confidence Value: Ascending Sort

EXIT 99
Ajo Way
1 km

overpass: 37%

overpass: 38%

overpass: 39%



Filter Results for Tunnels

The screenshot displays the APTIV web application interface. At the top, the browser address bar shows the URL `webdev.cse.msu.edu/~xiazhuoq/Aptiv/welcome.php`. The application header features the APTIV logo and navigation icons. A user profile for 'diana' is visible on the left. Below the profile, a 'FILTER BY' section allows filtering by 'Scenario', with 'Tunnel' selected. A 'Submit' button is located below the filter options. The main content area is titled 'Search Results for Tunnel' and includes a 'Sort By' dropdown set to 'Confidence Value: Descending'. The search results are presented as a grid of images, each with a green bounding box and a confidence score:

- Image 1: tunnel: 97%
- Image 2: tunnel: 64%
- Image 3: tunnel: 92%
- Image 4: tunnel: 90%
- Image 5: tunnel: 54%
- Image 6: tunnel: 87%
- Image 7: tunnel: 72%



Description Page

Welcome

webdev.cse.msu.edu/~xiazhuoq/Aptiv/description.php?id=77

• APTIV •

⏪ Back to results

Scenario: Overpass

overpass: 95%

DOWN GRADE
WATCH FOR
SLOW VEHICLES

SPEED
LIMIT
70

Select the results to download:

Overpasses

Download

What's left to do?

- Increase accuracy for all features to become greater than 90 %
- Modify training to add code for displaying different variables in tensorboard
- Automate computation of confusion matrix



Questions?

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