

MICHIGAN STATE
UNIVERSITY

Beta Presentation

Automated Retrieval of ADAS Driving Environments The Capstone Experience

Team Bosch

Adam Gongol

Alex Norris

Sam Richardson

Hannah Striebel



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

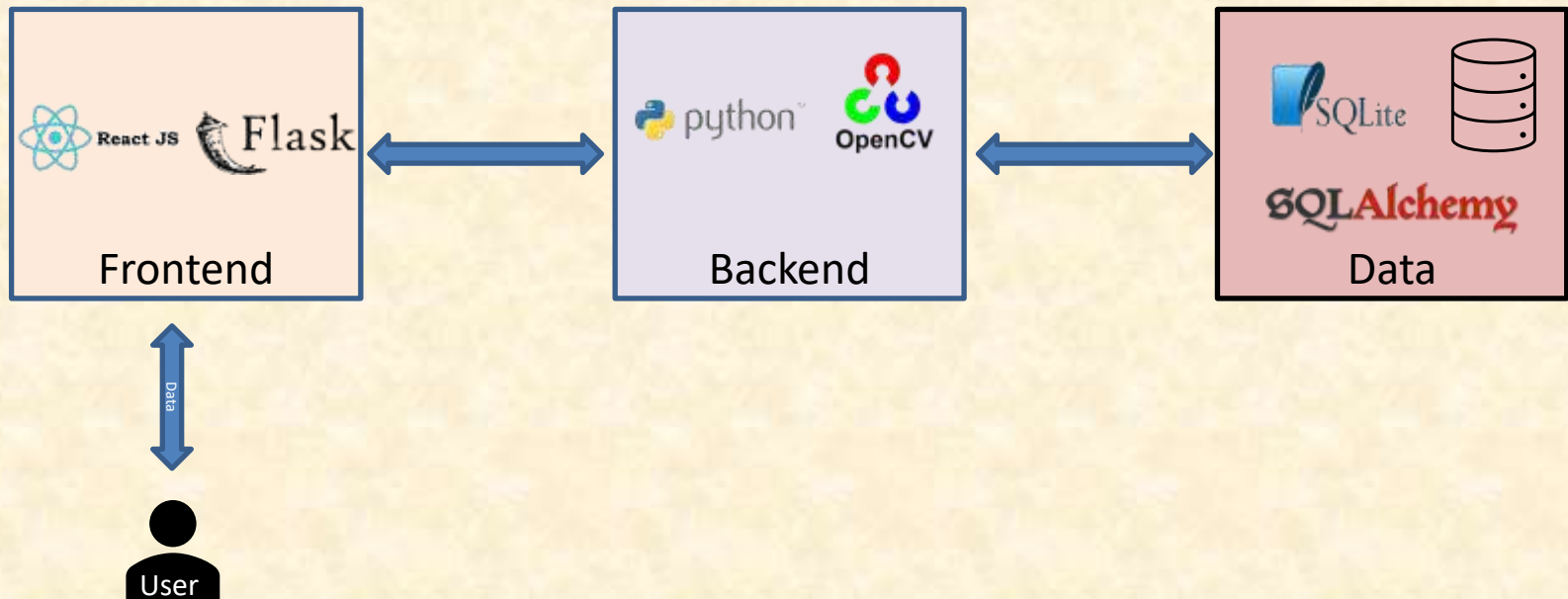
Department of Computer Science and Engineering
Michigan State University
Fall 2020

Project Overview


- The Problem:
 - Manually searching video for specific environments
 - Thousands of hours of footage
- The Solution:
 - Automatically tag & categorize footage based on features/environments



System Architecture



Process Video Step 1


 ADAS Tagging Tool

1

Select Folders

Use the folder icon below to browse for files. Copy the full file paths of folders you'd like to process, and paste them in the text box below. Clicking 'Add Folder To List' will add it to the list of folders to be processed.

Browse Folders



Full Path

ADD FOLDER TO LIST

Selected Folders List

C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta

×

NEXT

2

Include/Exclude Rules



Process Video Step 2

✓ Select Folders

2 Include/Exclude Rules

Specify specific strings to be included or excluded from the filenames found in the folders listed in step 1. Separate rules by semi-colons. For example, filter for all files from October and November 2020 by specifying include rule '2020-10;2020-11'. If you do not wish to filter using include/exclude rules, simply click the 'Fetch Files' button.

Include Rules
Include only filenames containing...

2020

Exclude Rules
Exclude filenames containing...


FETCH FILES

3 Review Selected Files



Process Video Step 3

Review Selected Files

Selected Files 

C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta\RU-0634_Gen5_2020-02-25_20-42-57-0003.avi

X

C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta\RU-0643_Gen5_2020-01-15_06-48-52-0004.mp4

X

C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta\RU-0643_Gen5_2020-02-06_19-20-48-0003.avi

X

Batch ID (e.g. mm-dd-yyyy-hhmm)

11-15-2020-1710

Video File Source (e.g. minivan, mustang, etc)

minivan

PROCESS BATCH



Process Video Step 4

4 Review Results

✓ Done! Click the files below to view the associated tags.

C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta\RU-0634_Gen5_2020-02-25_20-42-57-0003.avi



C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta\RU-0643_Gen5_2020-01-15_06-48-52-0004.mp4



C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta\RU-0643_Gen5_2020-02-06_19-20-48-0003.avi



Pending Review

7 tags fall below a .75 confidence threshold. Click the button below to configure manual review (NOTE: this may refresh the page.) Then, navigate to the **Manual Review** page and follow the instructions to validate these tags.

CONFIGURE MANUAL REVIEW



Manual Review 1

 ADAS Tagging Tool

Pending Review

0 video files completed out of 3

C:\Users\strie\Documents\20-21\Fall20\CSE498\team-bosch\ML\video\beta\RU-0634_Gen5_2020-02-25_20-42-57-0003.avi

not rain: 0.83122534

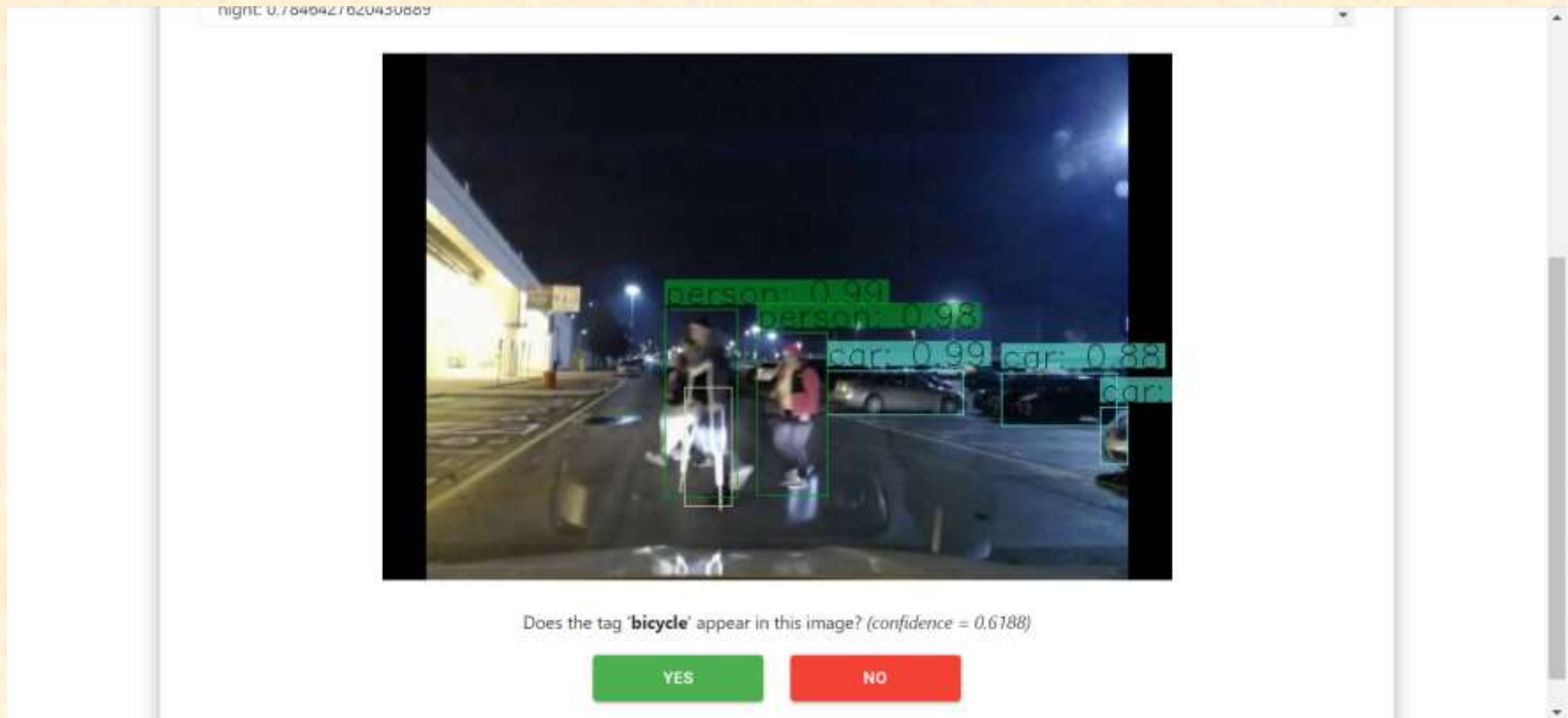
person: 0.993508517742157

truck: 0.5638667941093445






Manual Review 2



Search For Tags 1


 ADAS Tagging Tool

1 Select Filters

Date Range


Start Date

11/15/2020




End Date

11/15/2020




Video File Source

select file source



Batch Id

select file source



NEXT

2 Select Tags

3 Review Selections

4 Results



Search For Tags 2

ADAS Tagging Tool

1 Select Filters

2 Select Tags

Available Tags

- ☐ Desert
- ☐ Shiny Object
- ☐ Overpass
- ☐ Semi-Truck
- ☐ Hilly

Selected Tags

- ☐ Rain
- ☐ Snow

TOGGLE LOGIC WORKSPACE

Logic Rules

- ☒ (Rain & Snow)

AND OR DELETE RULE


NEXT

3 Review Selections

4 Results



Search For Tags 3

 ADAS Tagging Tool

✓ Select Filters

✓ Select Tags

3 Review Selections

Date Range: 11/15/2020 to 11/15/2020

Video File Sources:

Batch Ids:

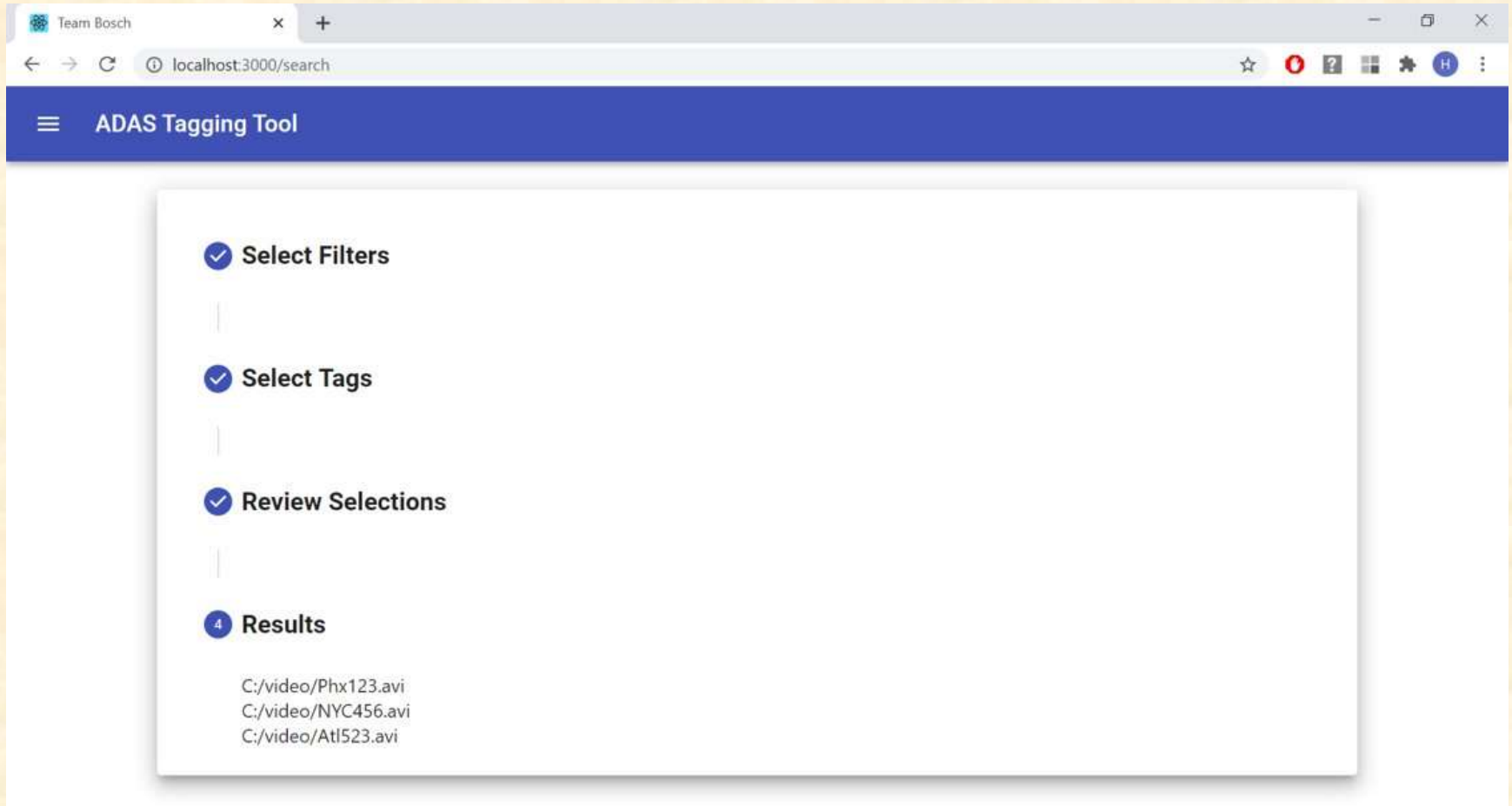
Logic Rules: (Rain & Snow)

SEARCH FOR TAGS

4 Results



Search For Tags 4



What's left to do?

- Train New Objects
- UI Improvements
- Manual Review Instructions Page
- Train New Tags Instructions Page
- Testing and Bug Fixes

Questions?

?

?

?

?

?

?

?

?

?

