Portable Video Data Processor

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Tasks

- Positioning Cameras at a Freeway Site
- Freeway Advanced Data Collection Schemes
- Testing/Validation of the System
- Final Report Completion
Previous Work
(Intersection Data Collection)
Trajectory Collector
Workflow GUI
• Scene Calibration
• Regions of Interest
• Collect Data
• View Results
• Open files

Traffic Video Analyzer

- Project File: (None selected) - Open...
- Data Video: (Select project file first) - Open...
- Calibration Image: (None selected) - Open...

Calibrate Video

You must first select a project file and a calibration image.

Set Region Of Interest

You must first select a project file and a calibration image.

Analyze Video

You must first select a project file and a video file.
• Open files

[Image of a software interface with options for:]
- Project File: Rice and University.fnl
- Data Video: (None selected)
- Calibration Image: (None selected)

[Buttons for: Calibrate Video, Set Region Of Interest, Analyze Video]

- Calibrate Video: You must first select an image file.
- Set Region Of Interest: You must first select an image file.
- Analyze Video: You must first select video file.
- **Open files**

  ![Traffic Video Analyzer](image)

  - **Project File**: Rice and University.fmi
    - Open...
    - New...
  - **Data Video**: Movie001.avi
    - Open...
  - **Calibration Image**: Calibration Image.png
    - Open...

  - **Calibrate Video**
    - Video calibration is necessary before any data can be collected. This video has not yet been calibrated.

  - **Set Region Of Interest**
    - Data will be collected from the entire frame. To only collect data from a particular region, you can specify a region of the video that is of

  - **Analyze Video**
    - The video must be calibrated before any data can be collected.
• Open files

• Calibrate

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**Traffic Video Analyzer**

**Project File:** Rice and University.mtl

**Data Video:** Movie001.avi

**Calibration Image:** Calibration Image.png

**Calibrate Video**

Video calibration is necessary before any data can be collected. This video has not yet been calibrated.

**Set Region Of Interest**

Data will be collected from the entire frame. To only collect data from a particular region, you can specify a region of the video that is of

**Analyze Video**

The video must be calibrated before any data can be collected.
Click and drag the mouse to draw lines in the plane of the ground that are parallel to one another. Then, double-click the distances to enter the correct distance between these lines.
Draw lines in the plane of the ground that are also perpendicular to the lines you drew in the parallel line section.
Draw lines that are perpendicular to the plane of the ground.
Calibrating...

Please be patient. This process may take a few minutes.

The results of the calibration are shown above. Click and drag to rotate the grid to the correct orientation.
The results of the calibration are shown above. Click and drag to rotate the grid to the correct orientation.
The results of the calibration are shown above. Click and drag to rotate the grid to the correct orientation.
- Open files
- Calibrate
- Set Region of interest

![Traffic Video Analyzer](image)

**Project File**: Rice and University.fml

**Data Video**: Movie001.avi

**Calibration Image**: Calibration Image.png

- **Calibrate Video**: This video has already been calibrated. It is not necessary to recalibrate it.

- **Set Region Of Interest**: Data will be collected from the entire frame. To only collect data from a particular region, you can specify a region of the video that is of

- **Analyze Video**: Click the button to select a task.
Click on one of the corners of the region of interest you want to define.
You can move around and reshape the region now. To add a point, right click or control-click on the boundary of the region. To delete a point, select it and press delete. To delete the entire region, select it and press delete.
You can move around and reshape the region now. To add a point, right click or control-click on the boundary of the region. To delete a point, select it and press delete. To delete the entire region, select it and press delete.
• Open files
• Calibrate
• Set Region of interest
• Analyze

Traffic Video Analyzer

- Project File: Rice and University.fnml
- Data Video: Movie001.avi
- Calibration Image: Calibration Image.png

- Calibrate Video
  - This video has already been calibrated. It is not necessary to recalibrate it.

- Set Region Of Interest
  - Data will be collected from a specific region. To change the region or collect data from the entire frame, click the button above.

- Analyze Video
  - Click the button to select a task.
Select a task to perform on this project file.

**Collect Trajectories...**
- View Results (Vehicle Counts)
- View Results (Speeds, Accelerations, Decelerations)
- View Results (Miscellaneous statistics)

Collects trajectory data from the input video and computes traffic statistics. You will be given additional options about the video after selecting this algorithm.

[Cancel] [OK]
**Configuration options for "Collect Trajectories..."**

**Preset:** Daylight, Near View  
**Category:** Basic

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Conditions</td>
<td>Daylight</td>
</tr>
<tr>
<td>Intersection Distance</td>
<td>Near</td>
</tr>
<tr>
<td>Video Start Time</td>
<td>10:59:00 AM</td>
</tr>
<tr>
<td>Statistics Collection Interval</td>
<td>{5.0,15.0,30.0,45.0,60.0,120.0}</td>
</tr>
</tbody>
</table>

The time of day that the video starts.
Select a task to perform on this project file.

- Collect Trajectories...
- View Results (Vehicle Counts)
- View Results (Speeds, Accelerations, Decelerations)
- View Results (Miscellaneous statistics)

Displays the results of the analysis.
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<th>L</th>
<th>M</th>
<th>N</th>
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<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>start time</strong></td>
<td>duration</td>
<td>lane than</td>
<td>vehicle on</td>
<td>S-N</td>
<td>vehicN</td>
<td>S</td>
<td>vehicW</td>
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<td>vehicN</td>
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<tr>
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<td>3</td>
<td>4</td>
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<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>20</td>
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<td>1</td>
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<td>93</td>
<td>4</td>
<td>1</td>
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<td>40</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>9</td>
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<td>1</td>
<td>73</td>
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<td>10:09:00 AM</td>
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<td>6</td>
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<td>21</td>
<td>2</td>
<td>8</td>
<td>13</td>
<td>39</td>
</tr>
</tbody>
</table>
Test Videos

Alexandria

Rice & University
Unreliable Directions

Close to edge of video
Vehicles may never entirely enter video
Vehicles on screen too briefly for reliable tracking
Unreliable Directions
Rice Vehicle Counts

- SN: Manual: 120, Automatic: 110
- WE: Manual: 80, Automatic: 70
- WN: Manual: 50, Automatic: 40
- ES: Manual: 20, Automatic: 10
- SW: Manual: 100, Automatic: 90
- SE: Manual: 50, Automatic: 40
- NW: Manual: 20, Automatic: 10
- NE: Manual: 10, Automatic: 5
Specific Problems - Alexandria

Black and white

East to west direction

Sign blocks vehicles as they enter

Initial tracking poor, causes problems later on
Specific Problems - Rice & University

Busier than Alexandria

Vehicles block view of each other

Can cause miscounting
Partial Resolutions

High-quality color video works best
Careful camera placement essential