# The KITTI Vision Benchmark Suite

A project of Karlsruhe Institute of Technology and Toyota Technological Institute at Chicago



## Evaluation Results

Your results are shown at the end of this page!
Before proceeding, please check for errors.
To proceed you have the following **two options**:

### (1) Add results to evaluation table

**Note:** All fields except 'Bibtex' and 'Url' must be filled in order to proceed!

**Important Policy Update:** As more and more non-published work and re-implementations of existing work is submitted to KITTI, we have established a new policy: from now on, only submissions with significant novelty that are leading to a peer-reviewed paper in a conference or journal are allowed. Minor modifications of existing algorithms or student research projects are not allowed. Such work must be evaluated on a split of the training set. To ensure that our policy is adopted, new users must detail their status, describe their work and specify the targeted venue during registration. Furthermore, we will regularly delete all entries that are 6 months old but are still anonymous or do not have a paper associated with them. For conferences, 6 month is enough to determine if a paper has been accepted and to add the bibliography information. For longer review cycles, you need to resubmit your results.

**Important Note:** Please add the type of additional information that you have used into the 'Full Method Name' field according to the following specifications.

- [mv] Multiview: Method uses more than 2 temporally adjacent images
- [ms] Motion stereo: Method uses epipolar geometry for computing optical flow
- [at] Additional training data: Use of additional data sources for training (see details)

E.g., instead of 'Amazing New Method' enter for example 'Amazing New Method [st] [fl] [ms]'.

**Full Method Name**
(e.g., Amazing New Method)

**Short Method Name**
(e.g., ANM)

**Running Time per Image**
(e.g., 1 s) for tracking: excluding detection time
seconds

**Environment**
(e.g., C++, i7, 1 Core)
C/C++
1 core
2.5 Ghz

**Method Description**
(e.g., 3-5 sentences)

**Parameters**
(e.g., \alpha=0.2)

**Bibtex Entry**
(e.g., \inproceedings{...})

**URL to Code Download**
(e.g., http://my.site.net/downloads)

**Privacy**
(for double-blind submissions)
**Anonymous** entry in evaluation table

Submit

### (2) Update an existing entry

**OR**

# Detailed Results

This page provides detailed results for the method(s) selected. For the first 20 test images, the percentage of erroneous pixels is depicted in the table. We use the error metric described in Object Scene Flow for Autonomous Vehicles (CVPR 2015), which considers a pixel to be correctly estimated if the disparity or flow end-point error is **<3px or <5%** (for scene flow this criterion needs to be fulfilled for both disparity maps and the flow map). Underneath, the left input image, the estimated results and the error maps are shown (for disp_0/disp_1/flow/scene_flow, respectively). The error map uses the log-color scale described in Object Scene Flow for Autonomous Vehicles (CVPR 2015), depicting correct estimates (<3px or <5% error) in blue and wrong estimates in red color tones. Dark regions in the error images denote the occluded pixels which fall outside the image boundaries. The false color maps of the results are scaled to the largest ground truth disparity values / flow magnitudes.

# Test Set Average

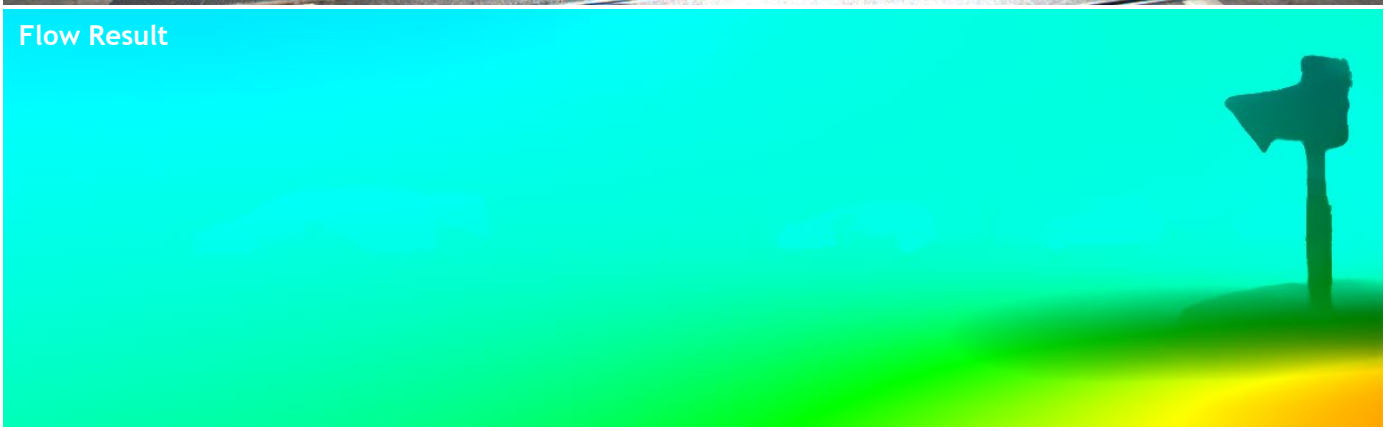
| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 4.71 | 6.46 | 5.00 |
| All / Est | 4.71 | 6.46 | 5.00 |
| Noc / All | 2.90 | 3.40 | 3.00 |
| Noc / Est | 2.90 | 3.40 | 3.00 |

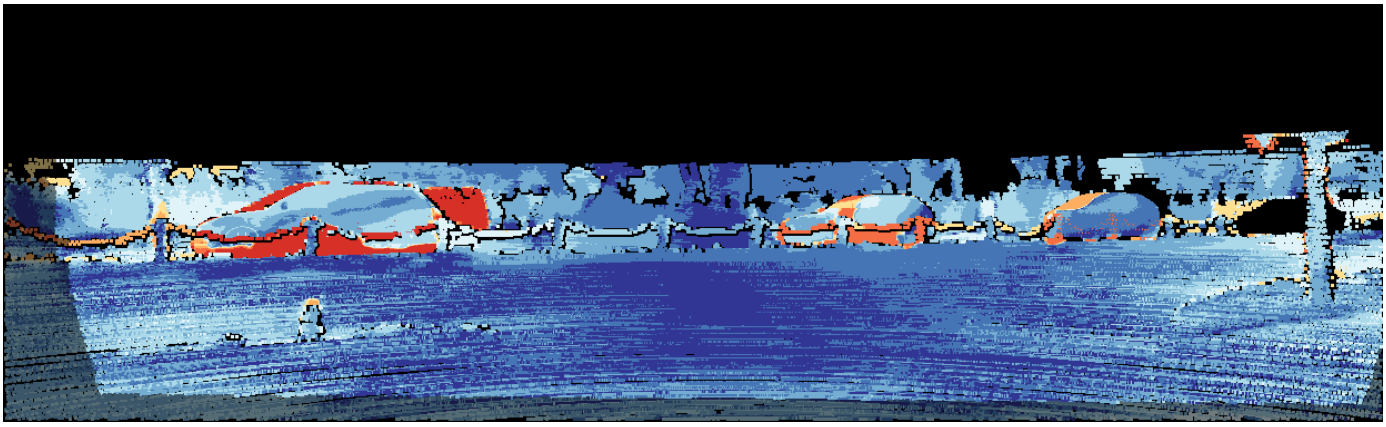
This table as LaTeX

# Test Image 0

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 1.84 | 20.72 | 4.43 |
| All / Est | 1.84 | 20.72 | 4.43 |
| Noc / All | 1.91 | 20.72 | 4.76 |
| Noc / Est | 1.91 | 20.72 | 4.76 |

This table as LaTeX

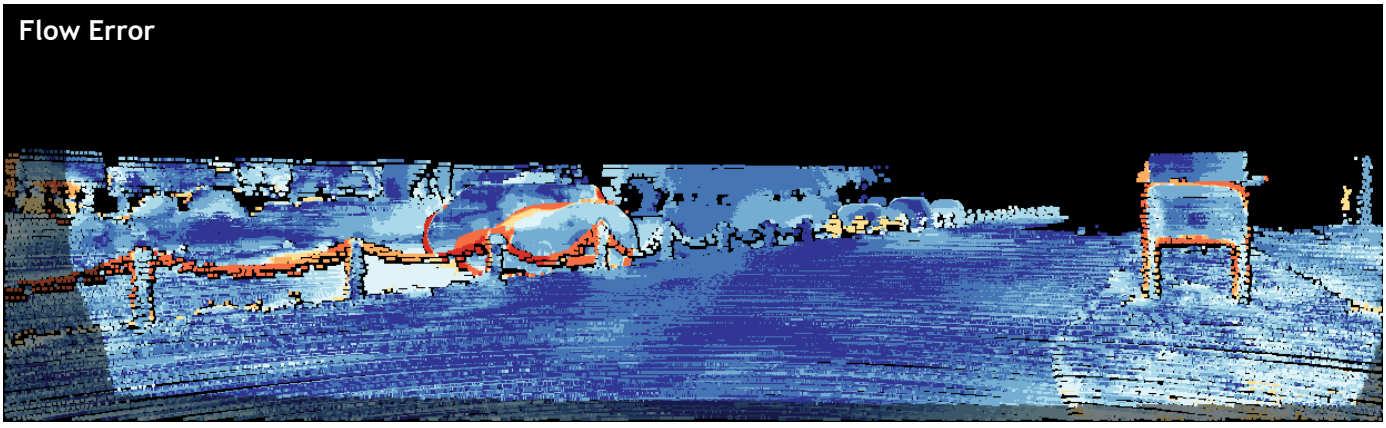


# Test Image 1

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 2.01 | 12.24 | 3.15 |
| All / Est | 2.01 | 12.24 | 3.15 |
| Noc / All | 1.80 | 12.24 | 3.09 |
| Noc / Est | 1.80 | 12.24 | 3.09 |

This table as LaTeX



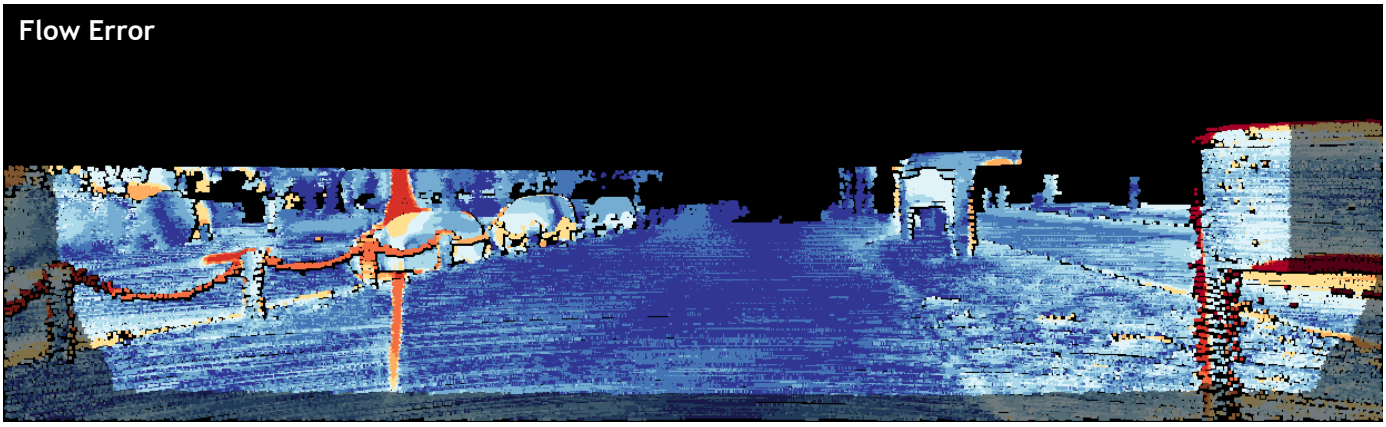


# Test Image 2

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 4.48 | 10.05 | 4.75 |
| All / Est | 4.48 | 10.05 | 4.75 |
| Noc / All | 3.88 | 10.05 | 4.24 |
| Noc / Est | 3.88 | 10.05 | 4.24 |

This table as LaTeX

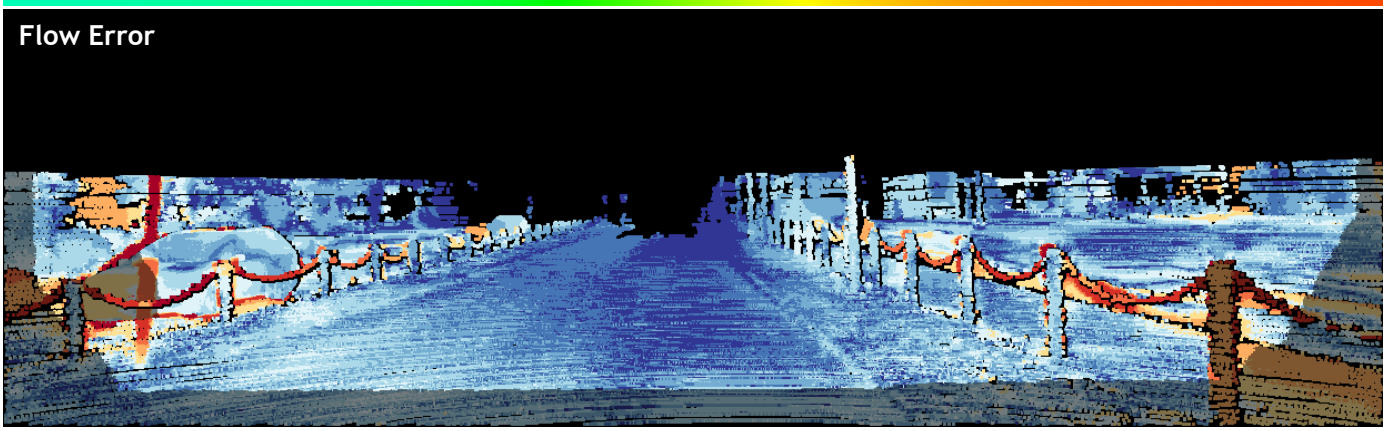





# Test Image 3

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 6.90 | 24.39 | 8.51 |
| All / Est | 6.90 | 24.39 | 8.51 |
| Noc / All | 4.58 | 6.91 | 4.78 |
| Noc / Est | 4.58 | 6.91 | 4.78 |

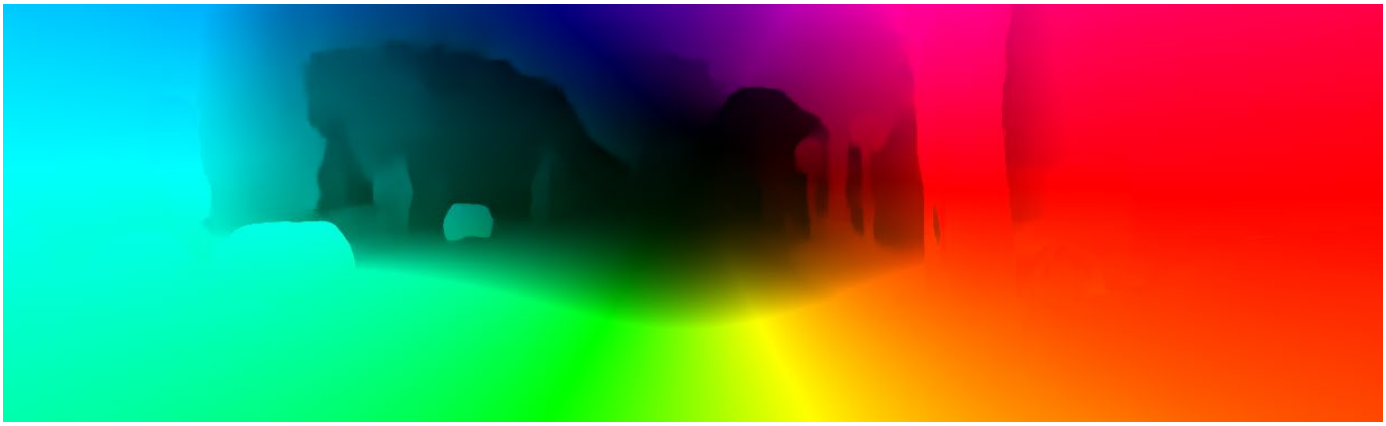
This table as LaTeX

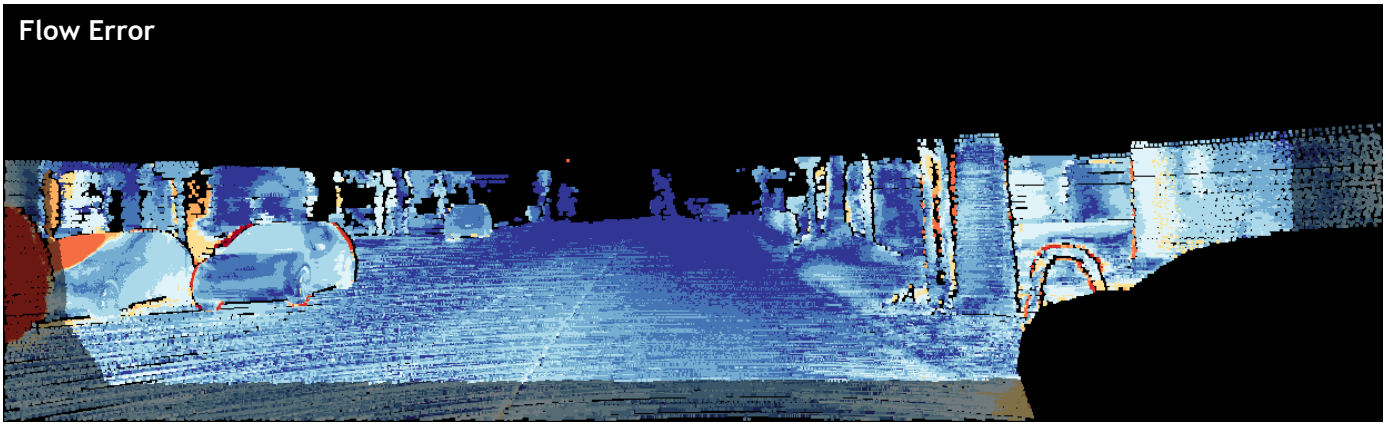




# Test Image 4

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 3.20 | 8.28 | 4.04 |
| All / Est | 3.20 | 8.28 | 4.04 |
| Noc / All | 1.71 | 7.03 | 2.71 |
| Noc / Est | 1.71 | 7.03 | 2.71 |

This table as LaTeX

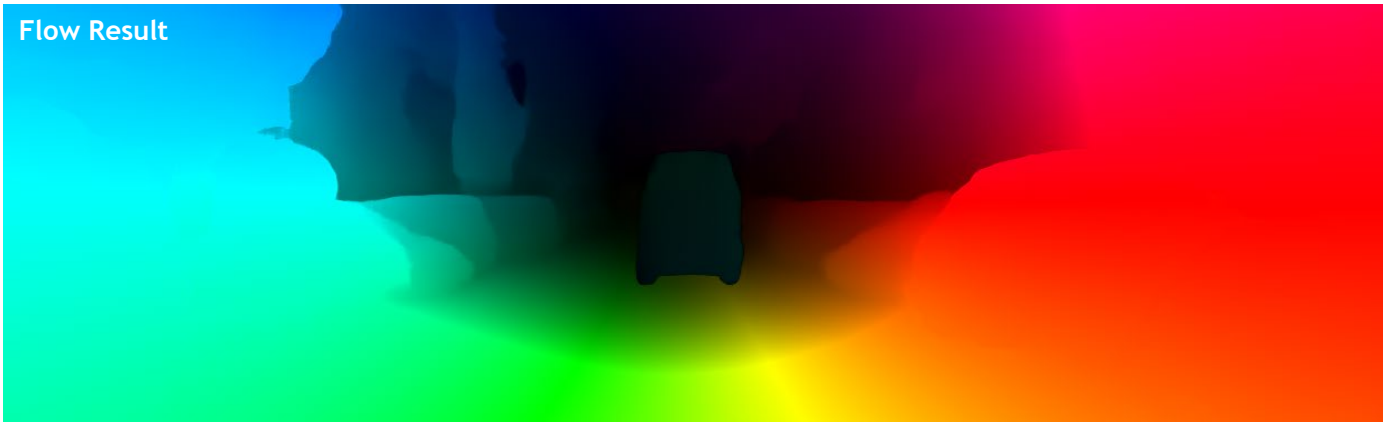


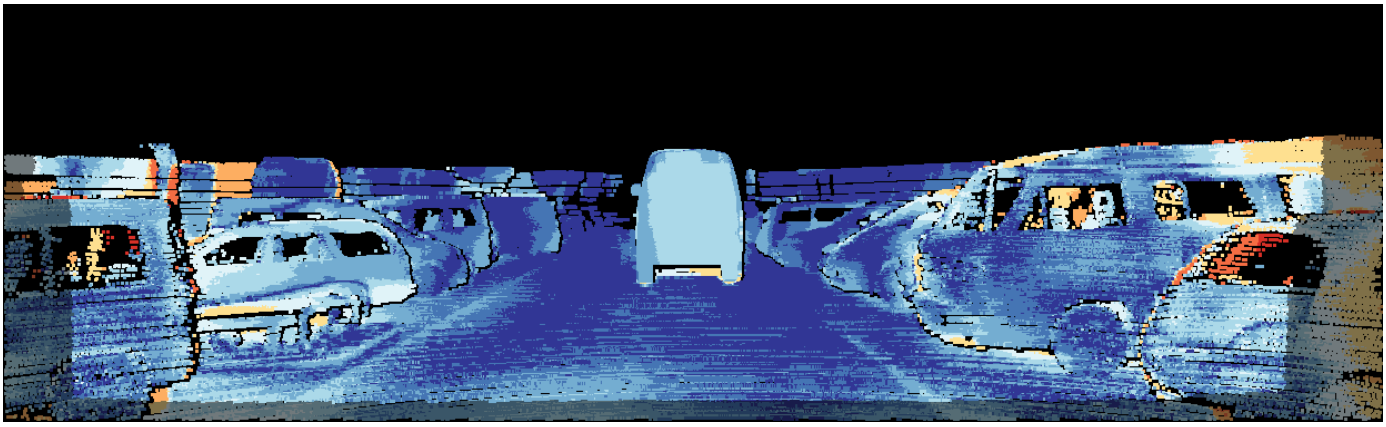



# Test Image 5

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 4.58 | 0.07 | 4.17 |
| All / Est | 4.58 | 0.07 | 4.17 |
| Noc / All | 3.09 | 0.07 | 2.78 |
| Noc / Est | 3.09 | 0.07 | 2.78 |

This table as LaTeX

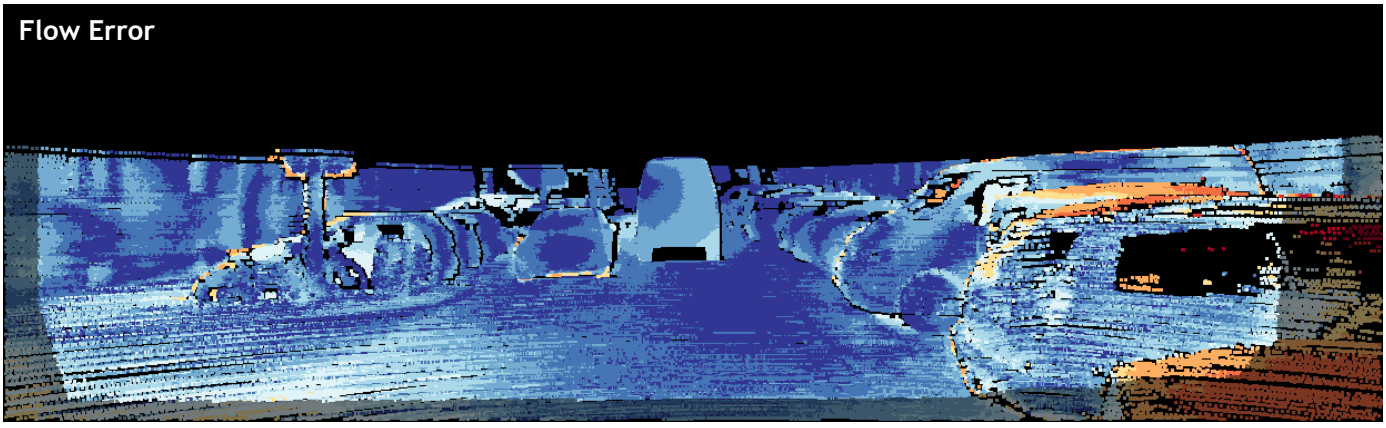





# Test Image 6

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 4.88 | 0.59 | 4.43 |
| All / Est | 4.88 | 0.59 | 4.43 |
| Noc / All | 2.50 | 0.59 | 2.27 |
| Noc / Est | 2.50 | 0.59 | 2.27 |

This table as LaTeX

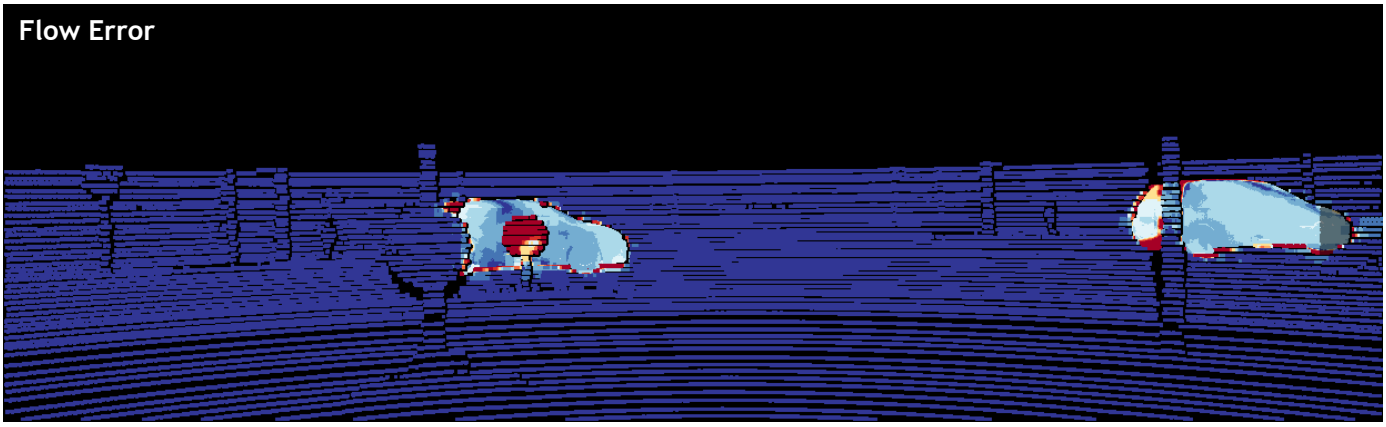



# Test Image 7

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 1.08 | 4.19 | 1.69 |
| All / Est | 1.08 | 4.19 | 1.69 |
| Noc / All | 1.08 | 4.25 | 1.67 |
| Noc / Est | 1.08 | 4.25 | 1.67 |

This table as LaTeX

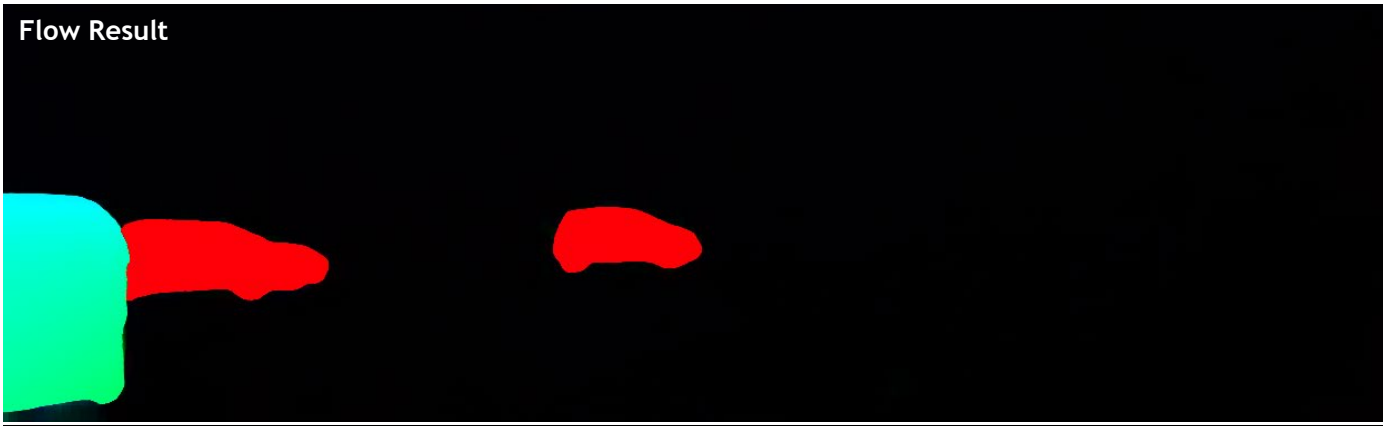


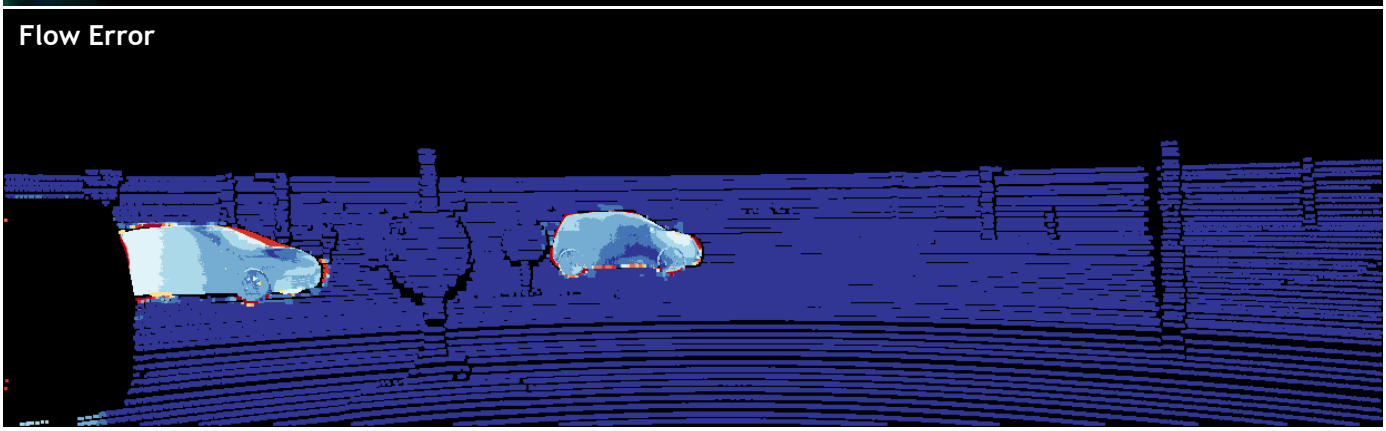



# Test Image 8

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 0.18 | 3.99 | 0.89 |
| All / Est | 0.18 | 3.99 | 0.89 |
| Noc / All | 0.18 | 3.99 | 0.89 |
| Noc / Est | 0.18 | 3.99 | 0.89 |

This table as LaTeX

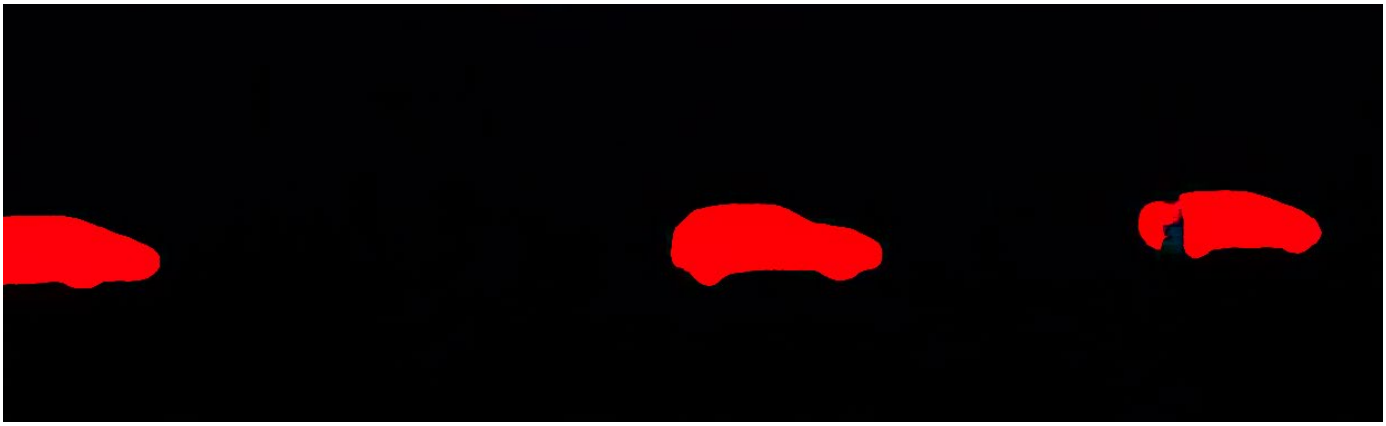


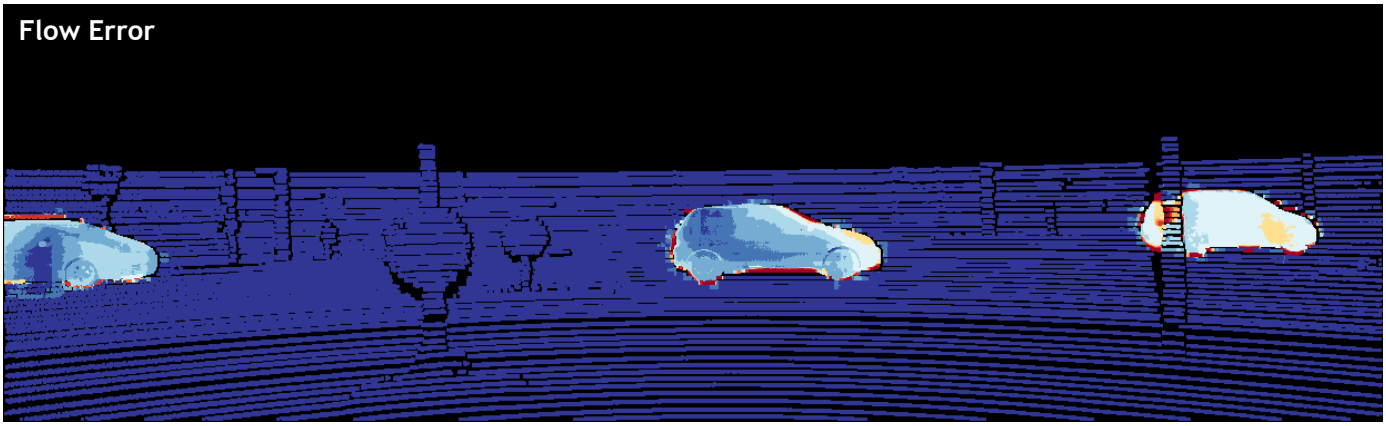




# Test Image 9

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 0.39 | 6.66 | 1.99 |
| All / Est | 0.39 | 6.66 | 1.99 |
| Noc / All | 0.39 | 6.66 | 1.99 |
| Noc / Est | 0.39 | 6.66 | 1.99 |

This table as LaTeX

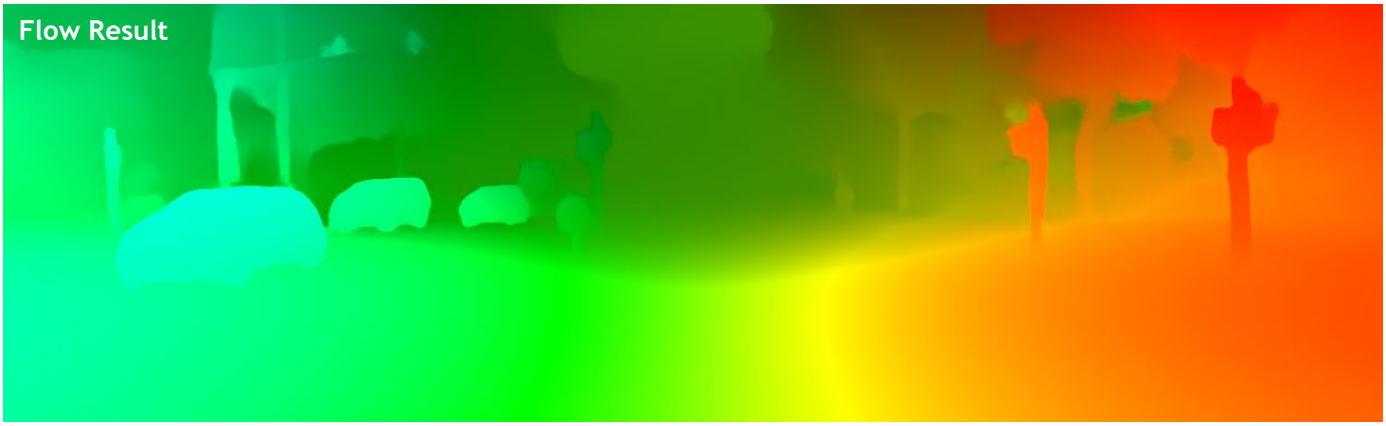


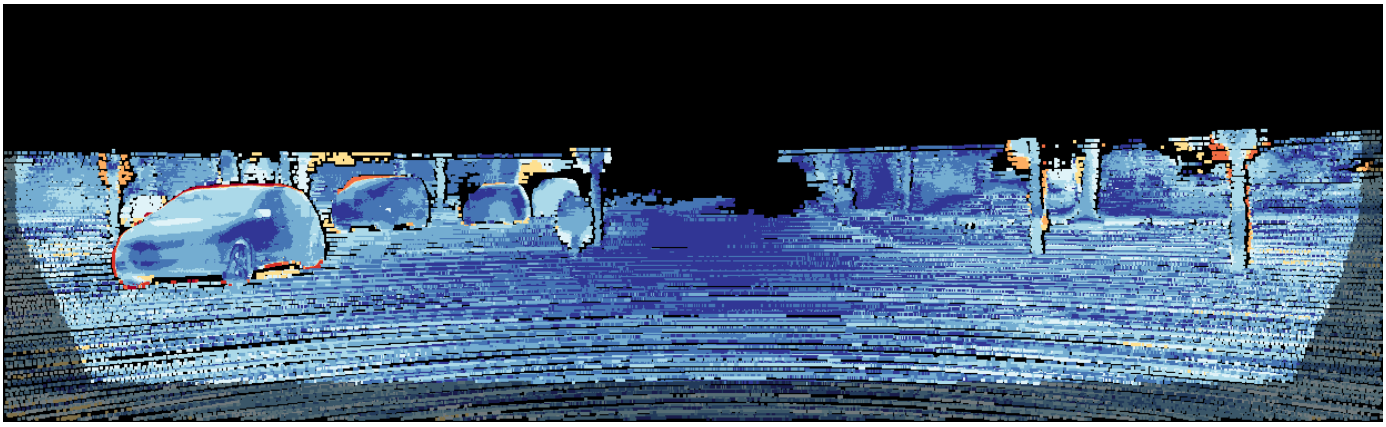



# Test Image 10

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 1.22 | 3.93 | 1.84 |
| All / Est | 1.22 | 3.93 | 1.84 |
| Noc / All | 1.23 | 3.93 | 1.93 |
| Noc / Est | 1.23 | 3.93 | 1.93 |

This table as LaTeX

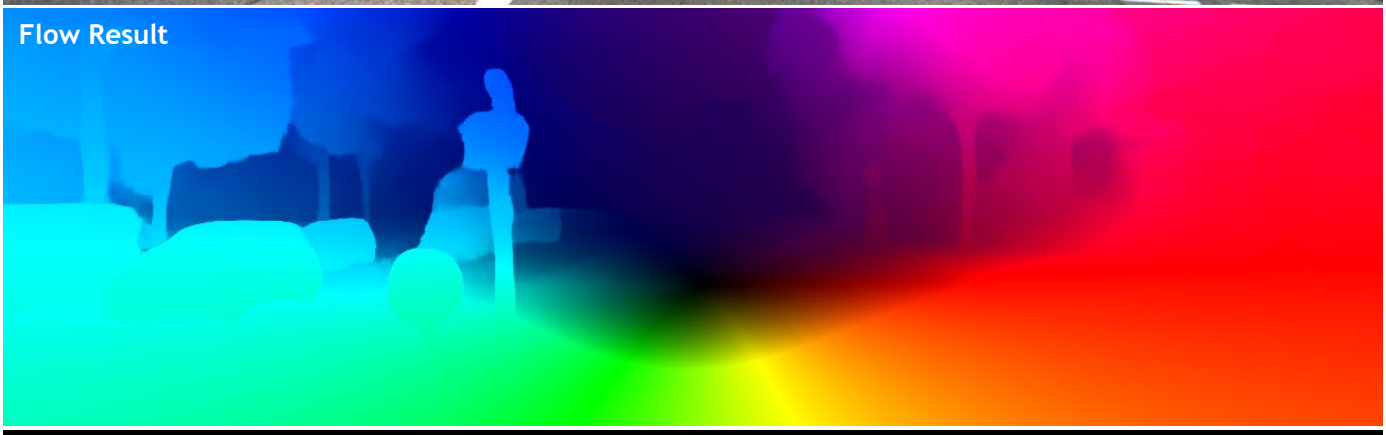



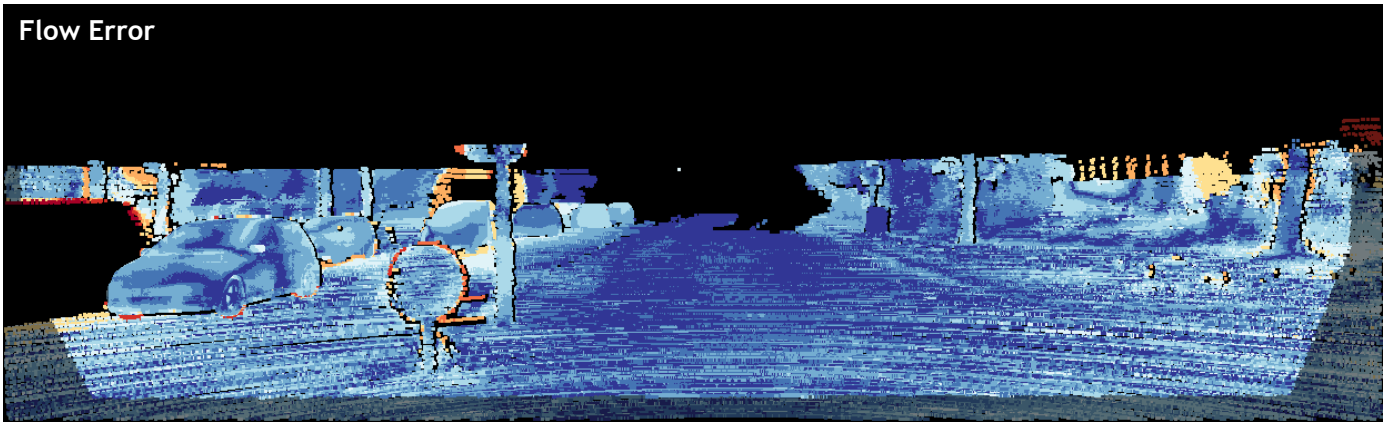


# Test Image 11

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 1.92 | 1.01 | 1.75 |
| All / Est | 1.92 | 1.01 | 1.75 |
| Noc / All | 1.95 | 1.01 | 1.76 |
| Noc / Est | 1.95 | 1.01 | 1.76 |

This table as LaTeX

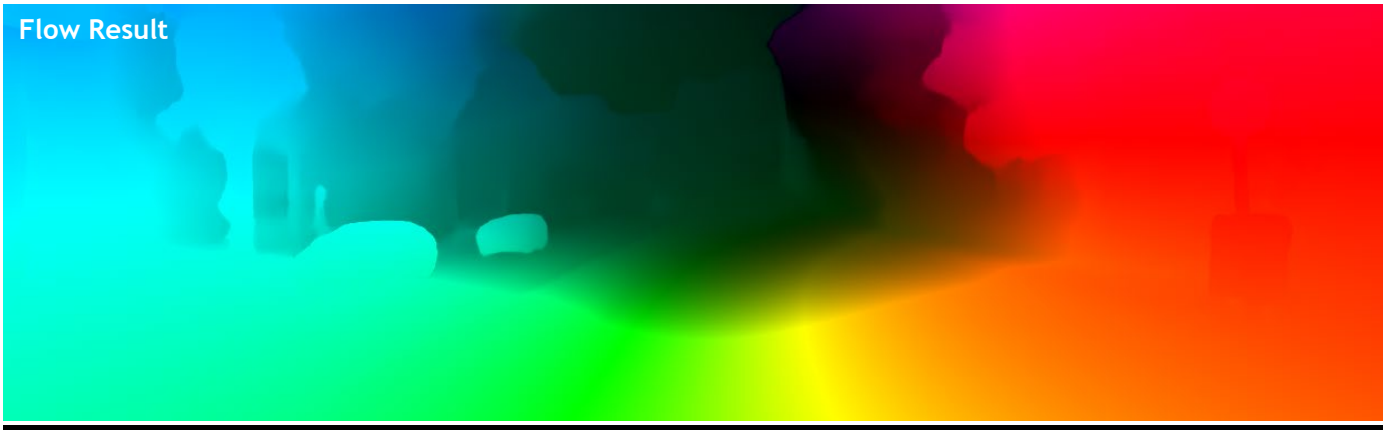



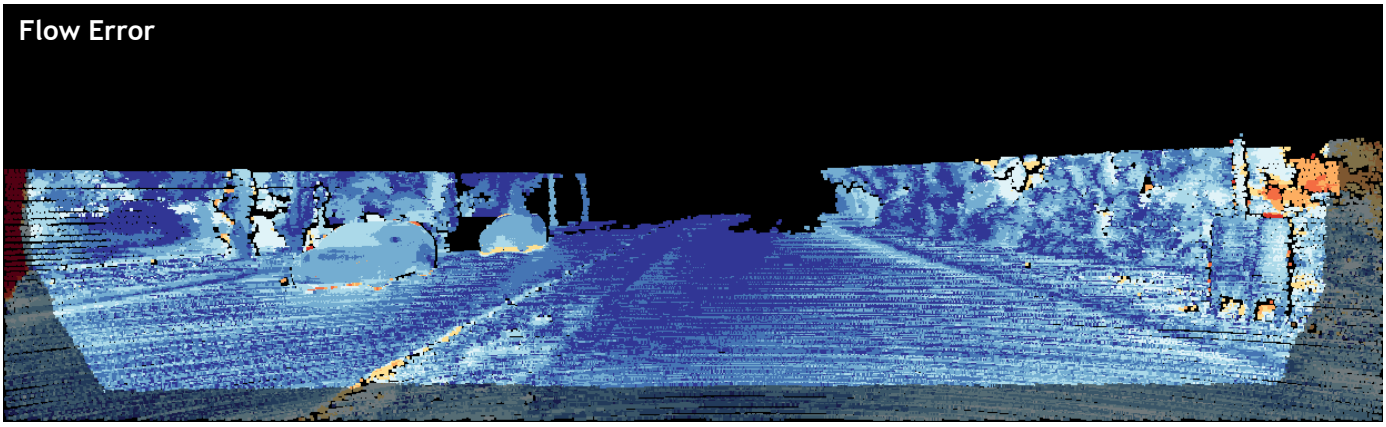



# Test Image 12

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 1.72 | 0.66 | 1.65 |
| All / Est | 1.72 | 0.66 | 1.65 |
| Noc / All | 1.11 | 0.66 | 1.07 |
| Noc / Est | 1.11 | 0.66 | 1.07 |

This table as LaTeX

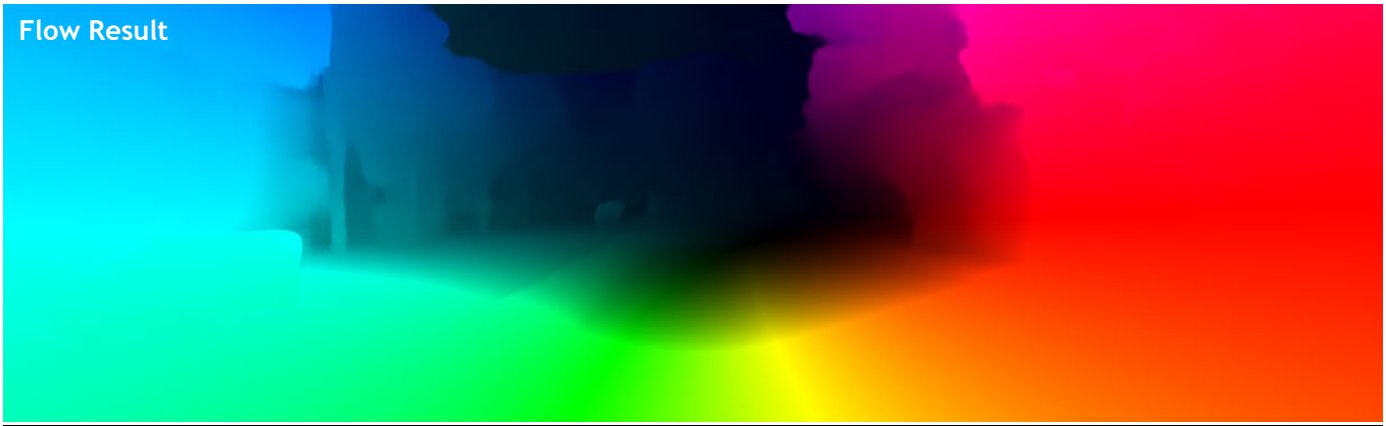



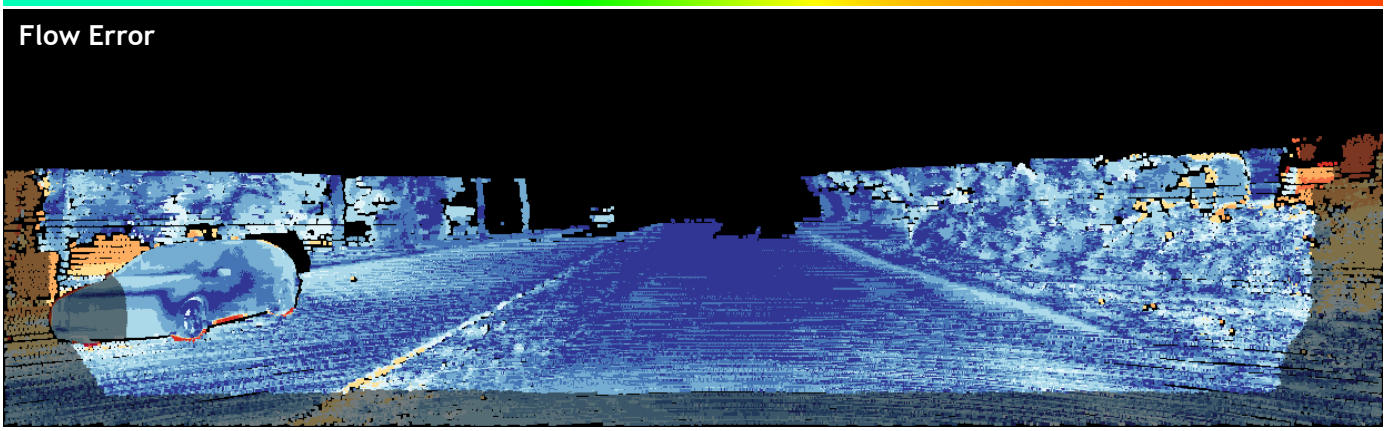




# Test Image 13

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 3.76 | 1.86 | 3.52 |
| All / Est | 3.76 | 1.86 | 3.52 |
| Noc / All | 1.29 | 1.16 | 1.28 |
| Noc / Est | 1.29 | 1.16 | 1.28 |

This table as LaTeX

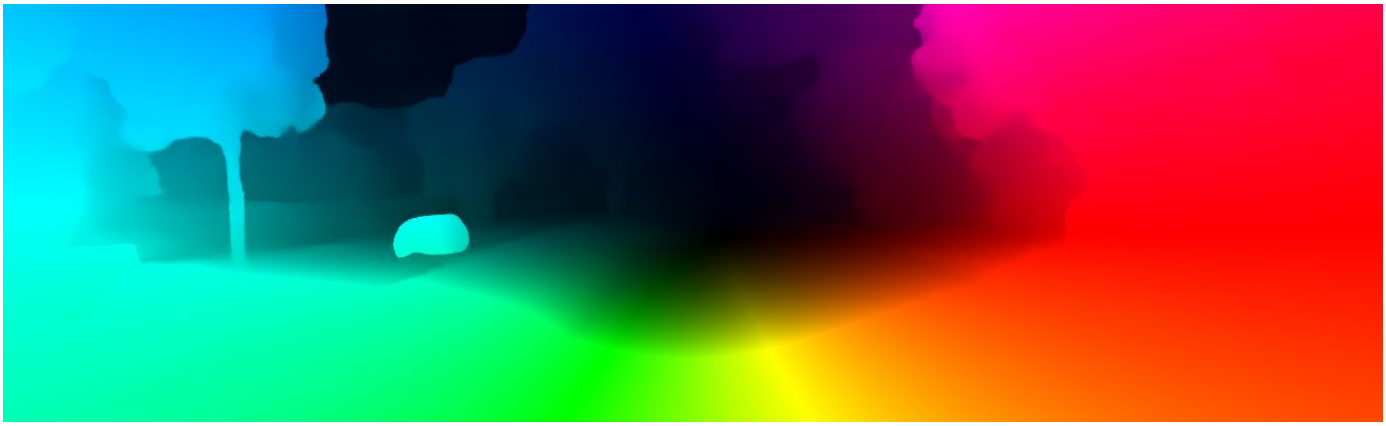


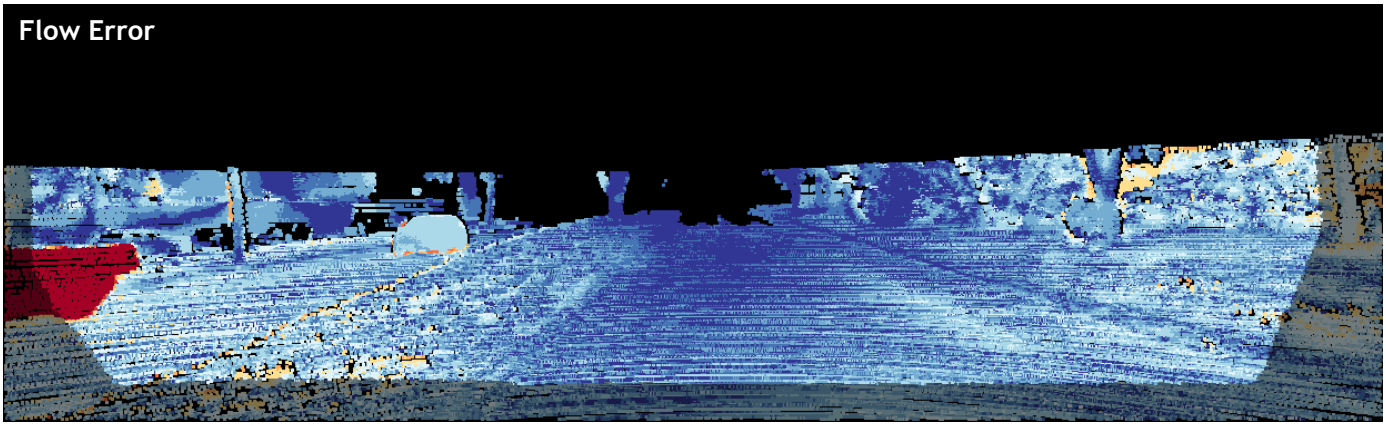




# Test Image 14

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 2.73 | 1.12 | 2.70 |
| All / Est | 2.73 | 1.12 | 2.70 |
| Noc / All | 2.01 | 1.12 | 1.99 |
| Noc / Est | 2.01 | 1.12 | 1.99 |

This table as LaTeX

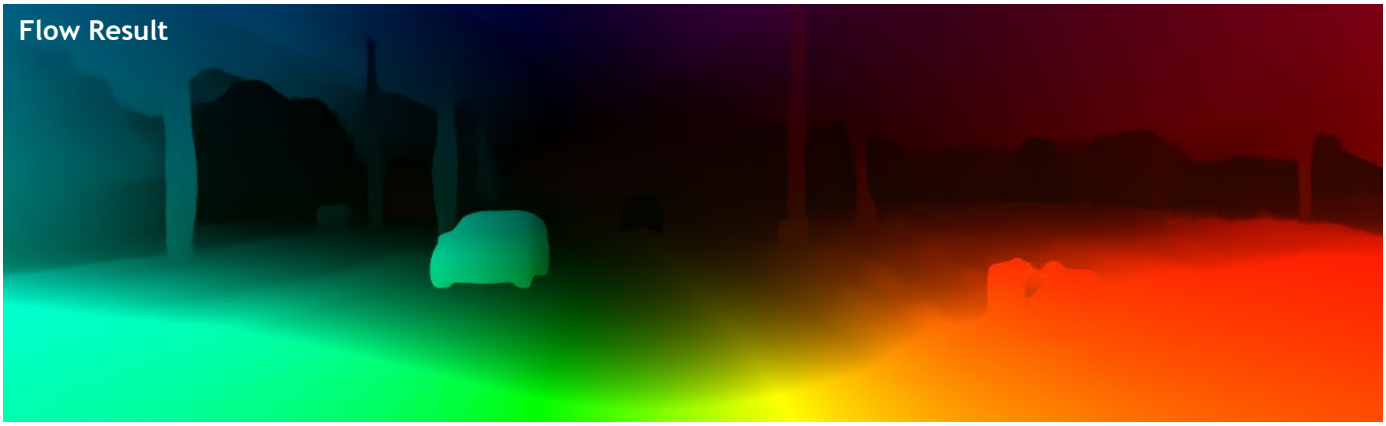


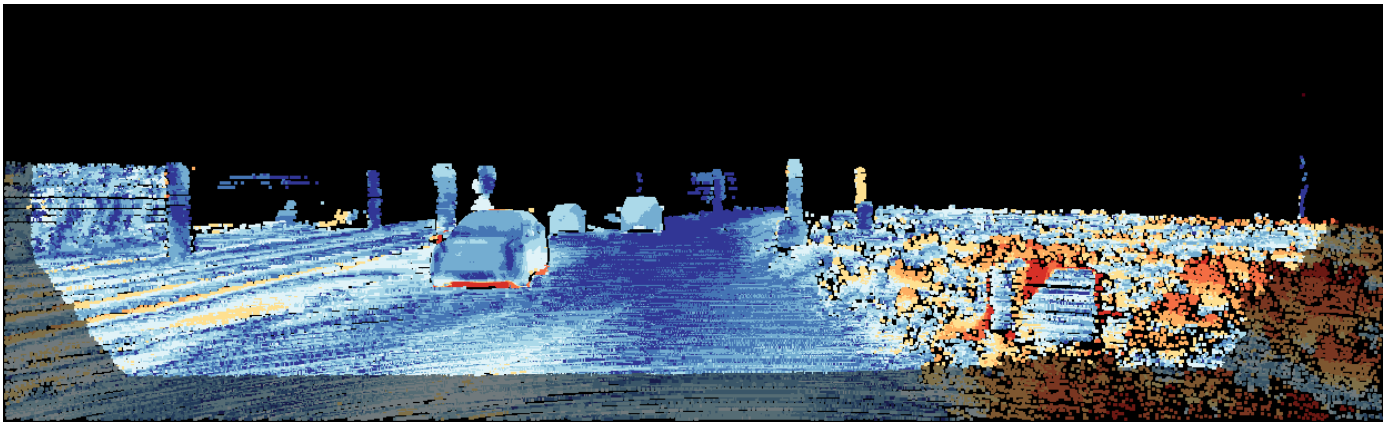



# Test Image 15

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 10.84 | 3.32 | 10.16 |
| All / Est | 10.84 | 3.32 | 10.16 |
| Noc / All | 8.17 | 3.32 | 7.61 |
| Noc / Est | 8.17 | 3.32 | 7.61 |

This table as LaTeX

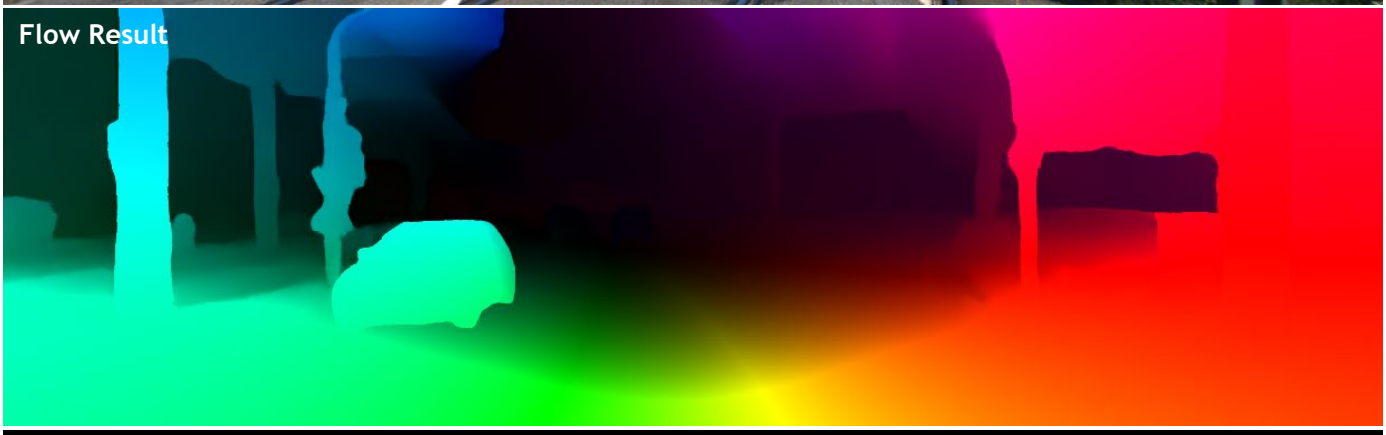



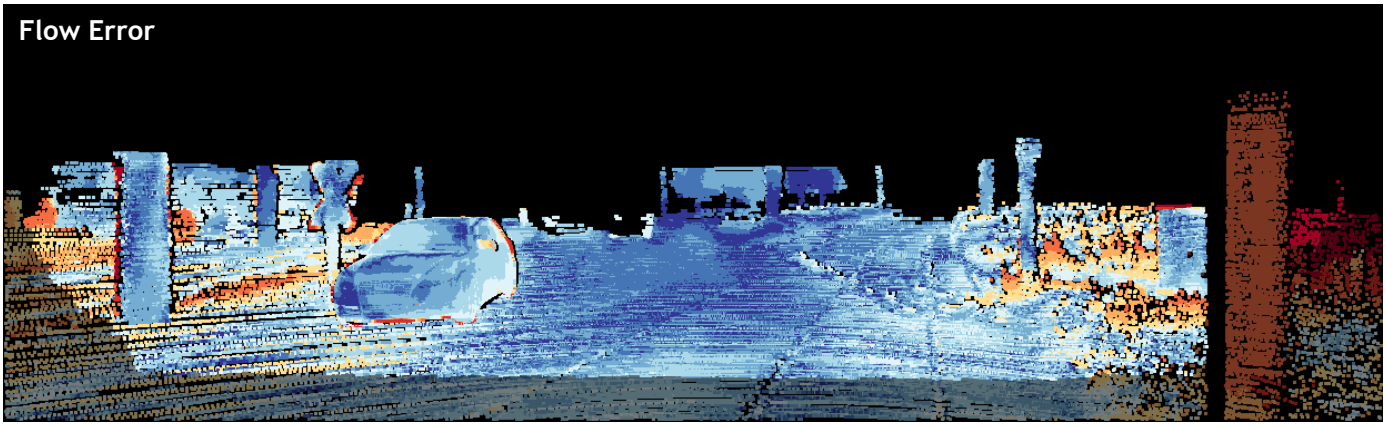


# Test Image 16

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 13.24 | 2.34 | 11.64 |
| All / Est | 13.24 | 2.34 | 11.64 |
| Noc / All | 7.35 | 2.34 | 6.45 |
| Noc / Est | 7.35 | 2.34 | 6.45 |

This table as LaTeX

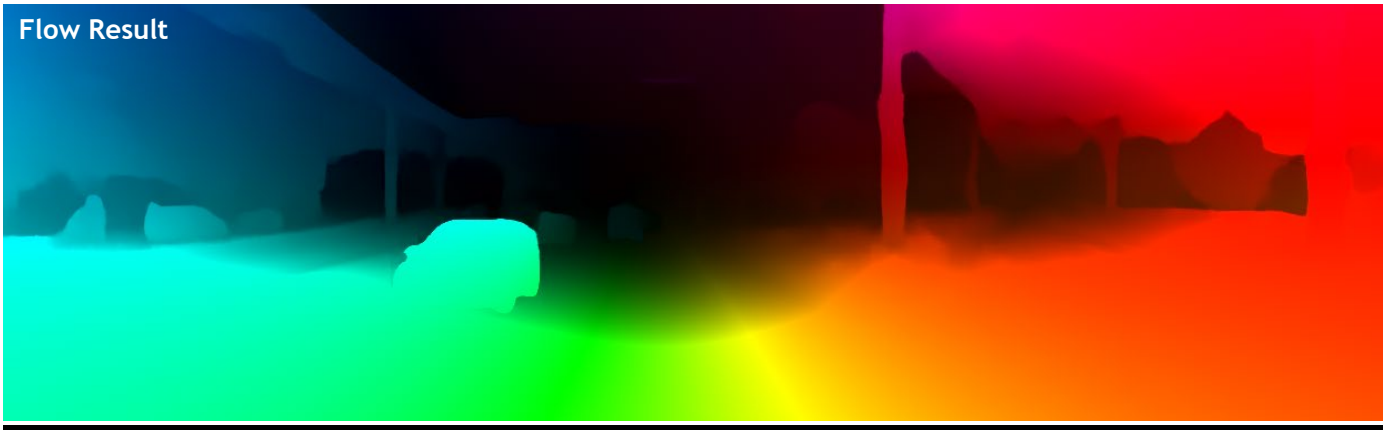



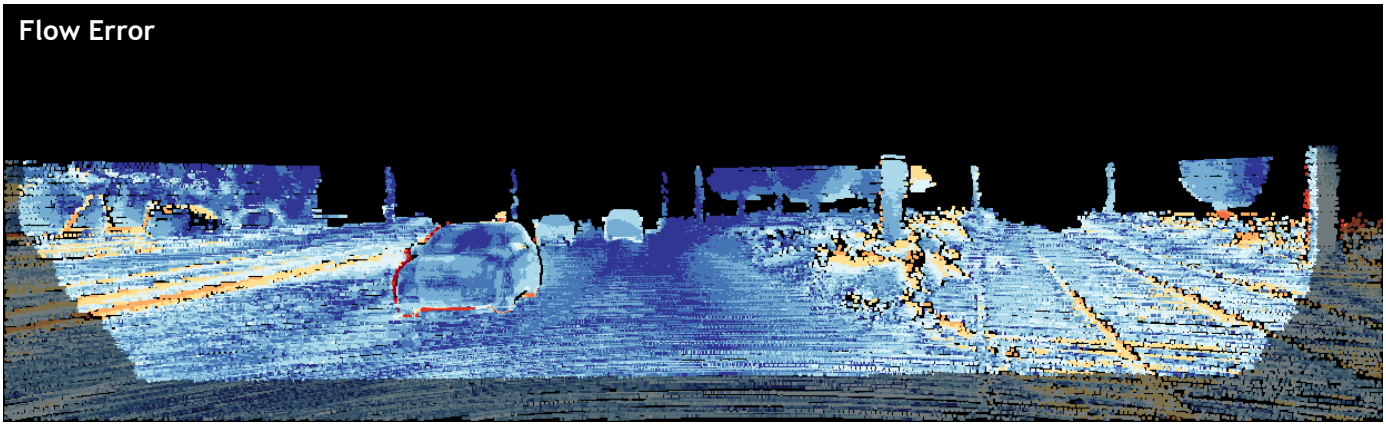



# Test Image 17

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 5.46 | 1.67 | 5.07 |
| All / Est | 5.46 | 1.67 | 5.07 |
| Noc / All | 4.98 | 1.67 | 4.55 |
| Noc / Est | 4.98 | 1.67 | 4.55 |

This table as LaTeX

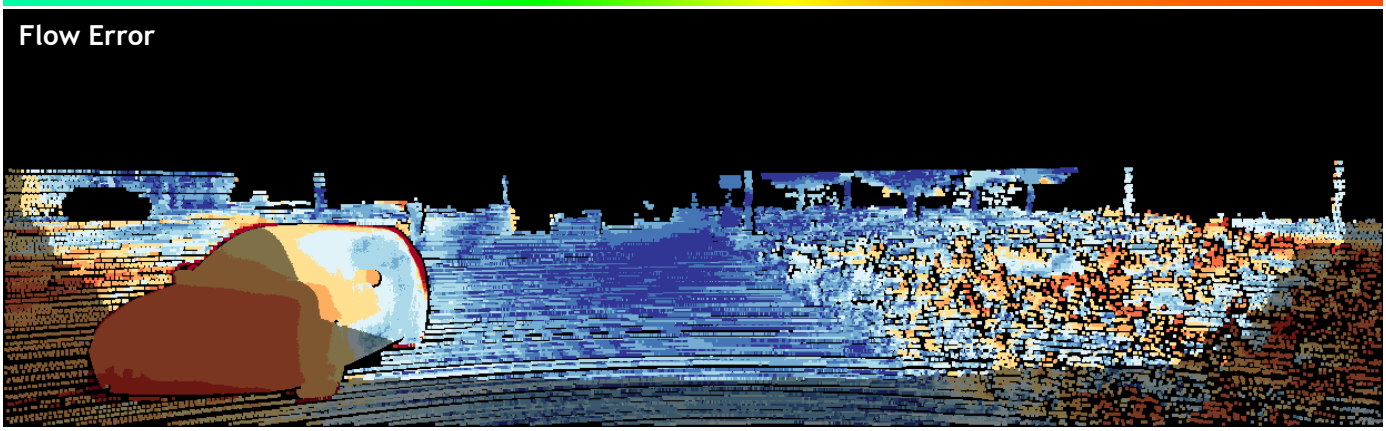




# Test Image 18

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 17.75 | 79.36 | 47.02 |
| All / Est | 17.75 | 79.36 | 47.02 |
| Noc / All | 11.21 | 39.82 | 19.10 |
| Noc / Est | 11.21 | 39.82 | 19.10 |

This table as LaTeX


# Test Image 19

| Error | Fl-bg | Fl-fg | Fl-all |
|---|---|---|---|
| All / All | 4.33 | 1.43 | 4.00 |
| All / Est | 4.33 | 1.43 | 4.00 |
| Noc / All | 3.56 | 1.43 | 3.25 |
| Noc / Est | 3.56 | 1.43 | 3.25 |

This table as LaTeX