Ego-Spurmarkierung (Region Growing)

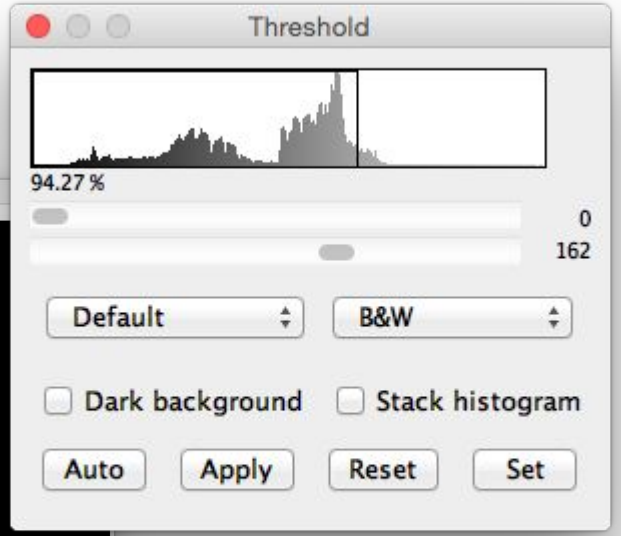
DBV-Projekt

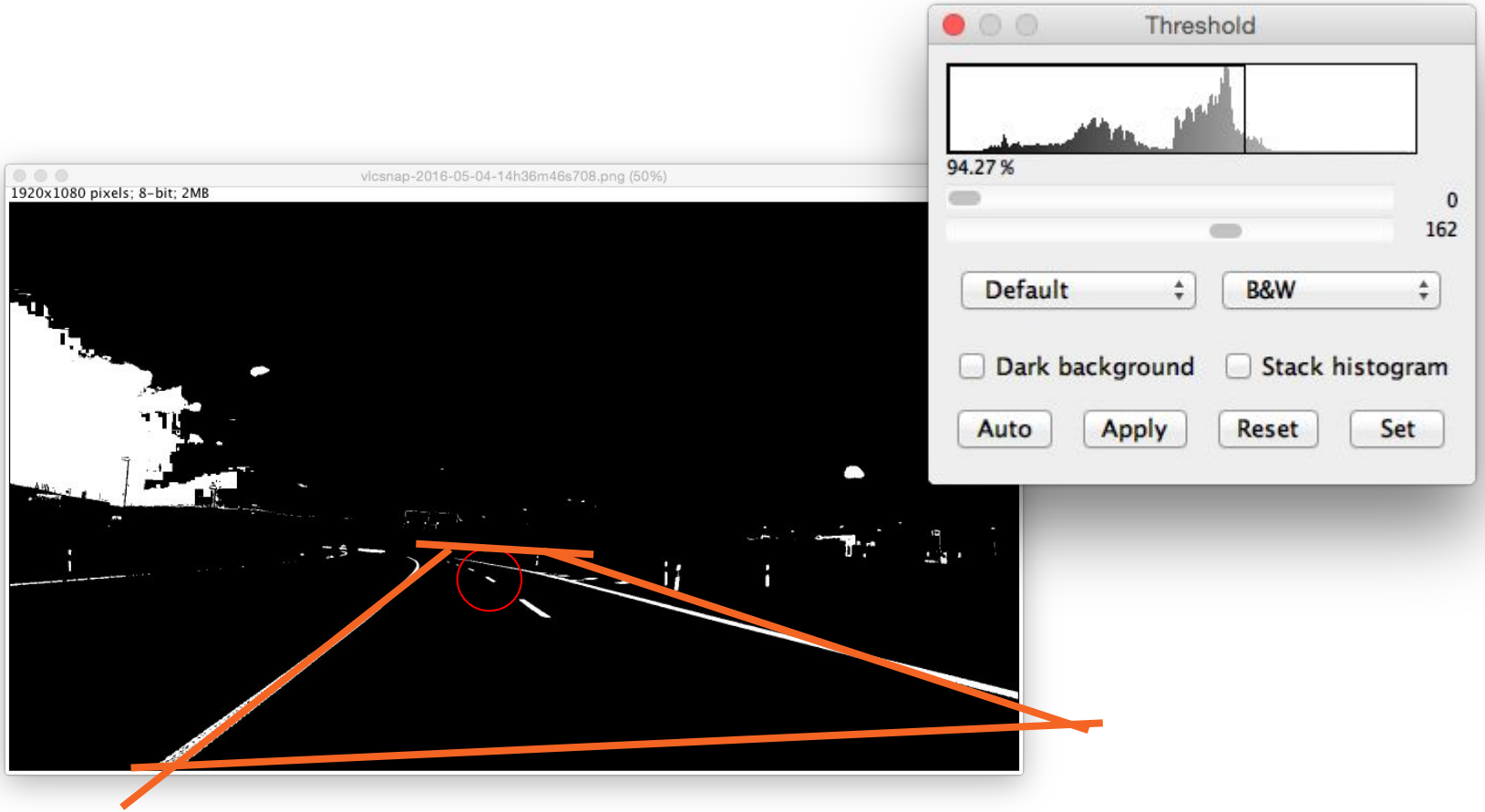
Lucas Hauswald (INM) & Philipp Anders (MIM)

Ziel

Region Growing - wie einsetzen?


vlcsnap-2016-05-04-14h36m46s708.png (50%)
1920x1080 pixels; 8-bit; 2MB


Threshold
94.27 %
0
162
Default
B&W
Dark background
Stack histogram
Auto
Apply
Reset
Set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Set
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Demo

Neuer Ansatz:

Straße finden via Kanten

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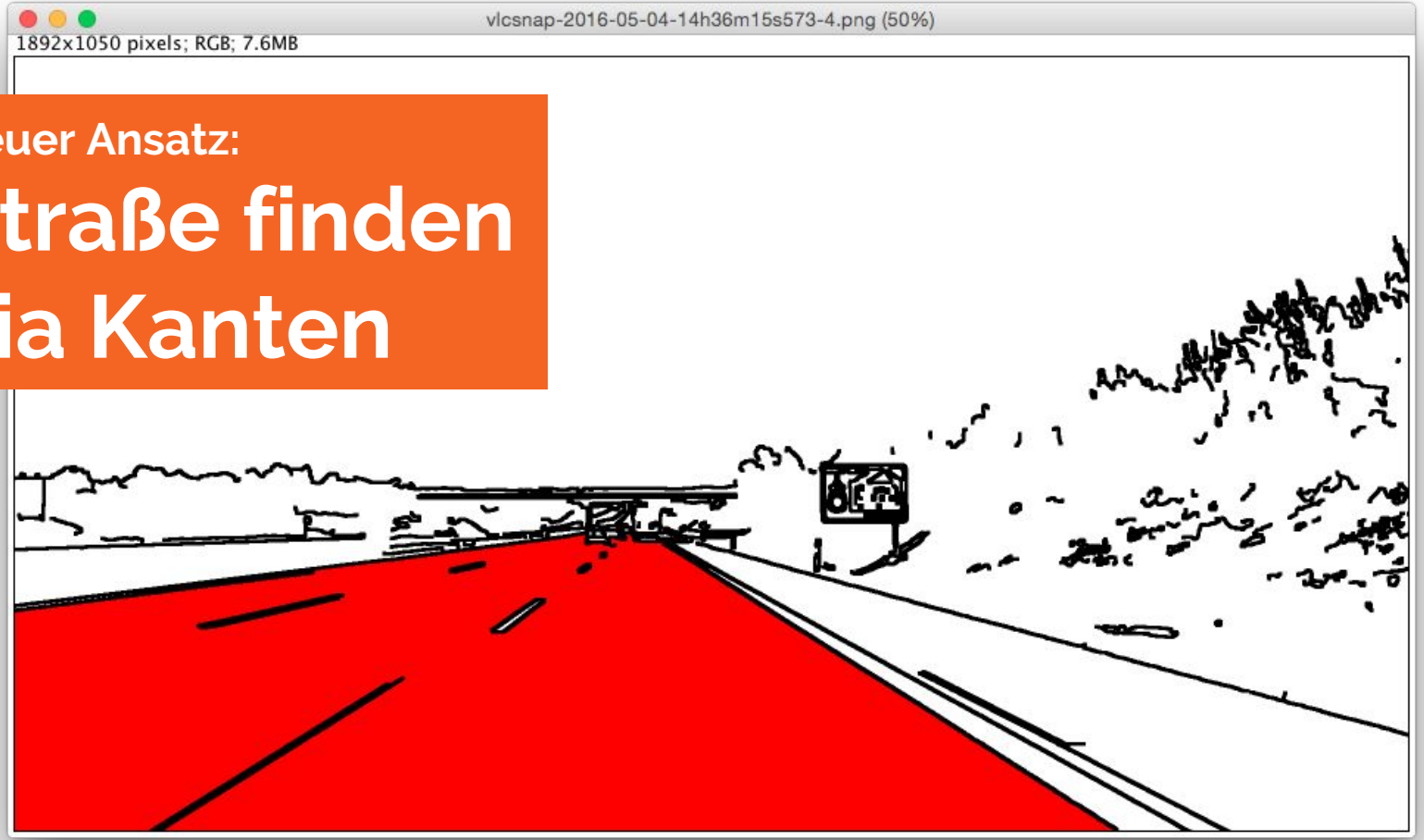
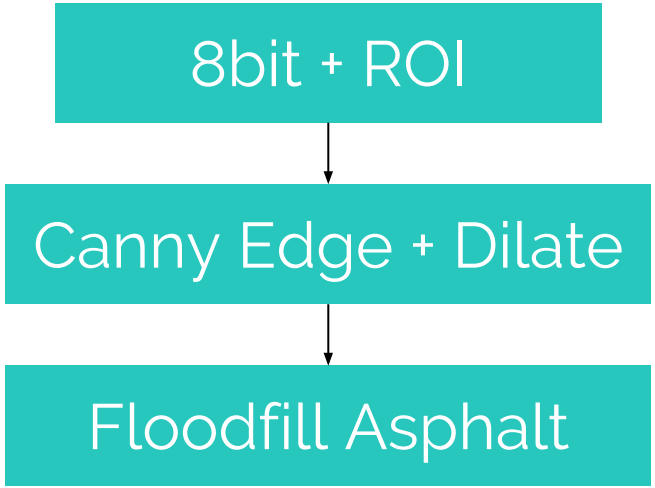
Straße finden via Kanten



Neuer Ansatz:

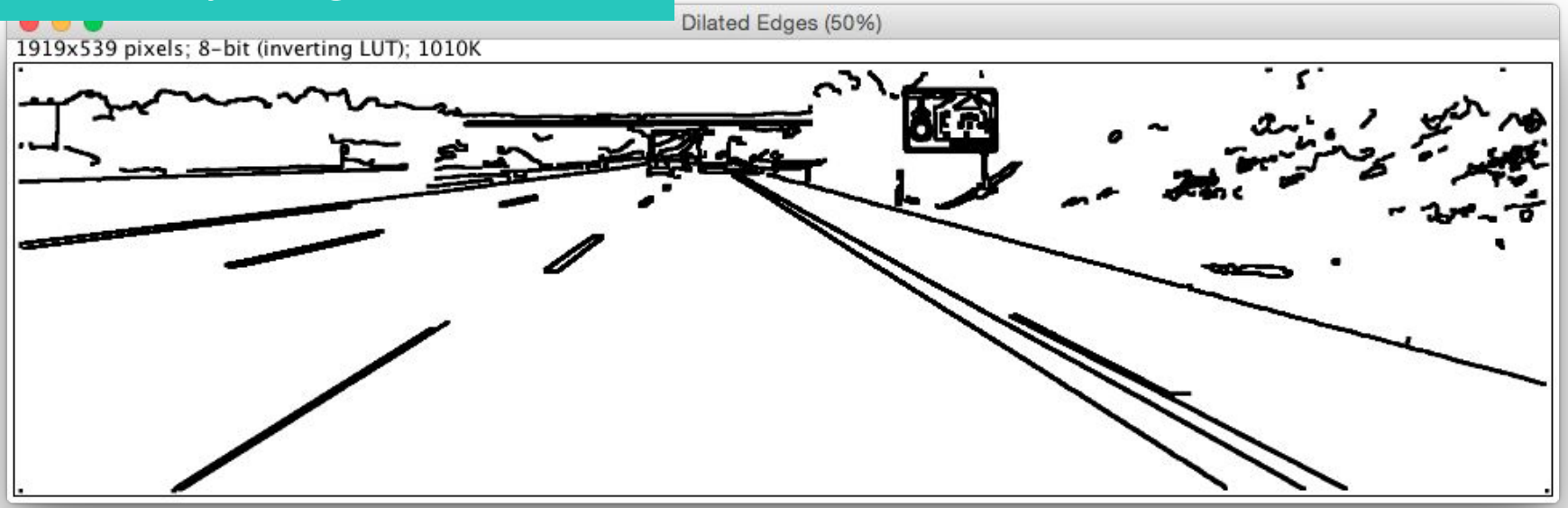
Straße finden via Kanten

Pipeline

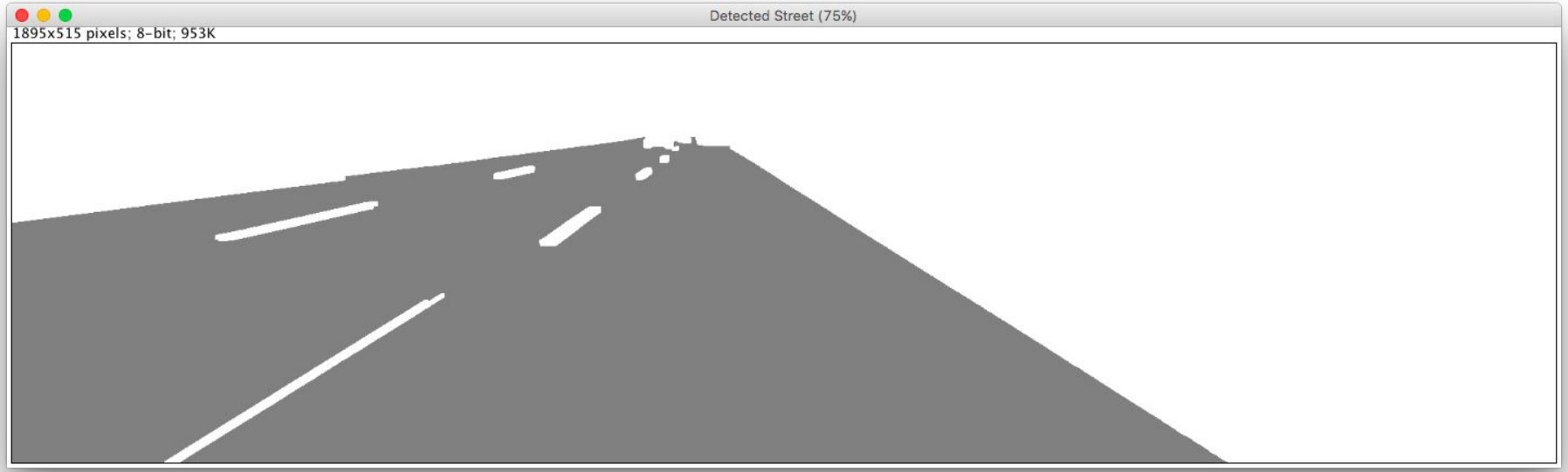


8bit + ROI

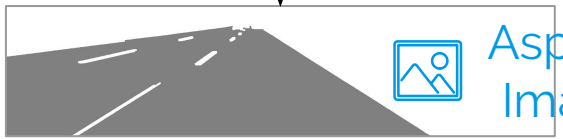
Canny Edge + Dilate



Floodfill Asphalt



Pipeline



Asphalt Image

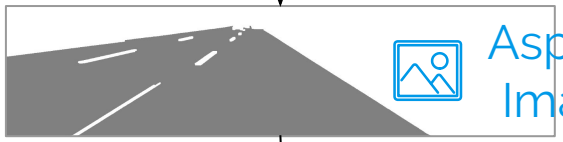
8bit + ROI

Canny Edge + Dilate

Floodfill Asphalt

Äußerste Fahrspuren

Pipeline



Asphalt Image

Übrige Regionen extrahieren

Regionen filtern

Regionen verbinden

8bit + ROI

Canny Edge + Dilate

Floodfill Asphalt

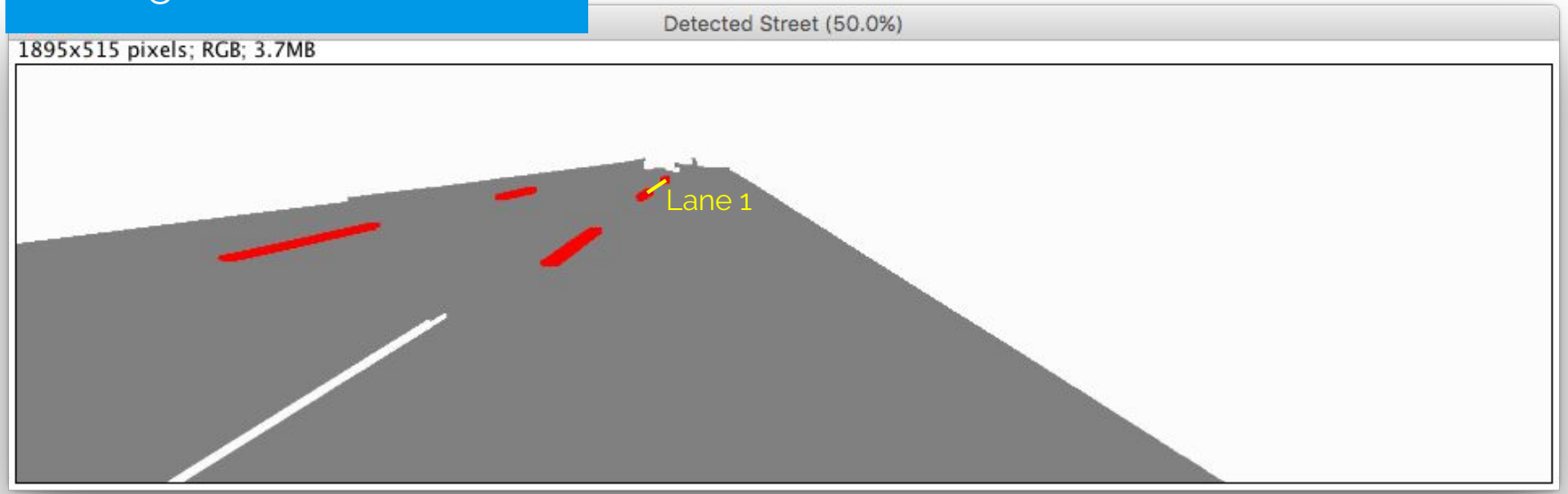
Äußerste Fahrspuren

Übrige Regionen extrahieren

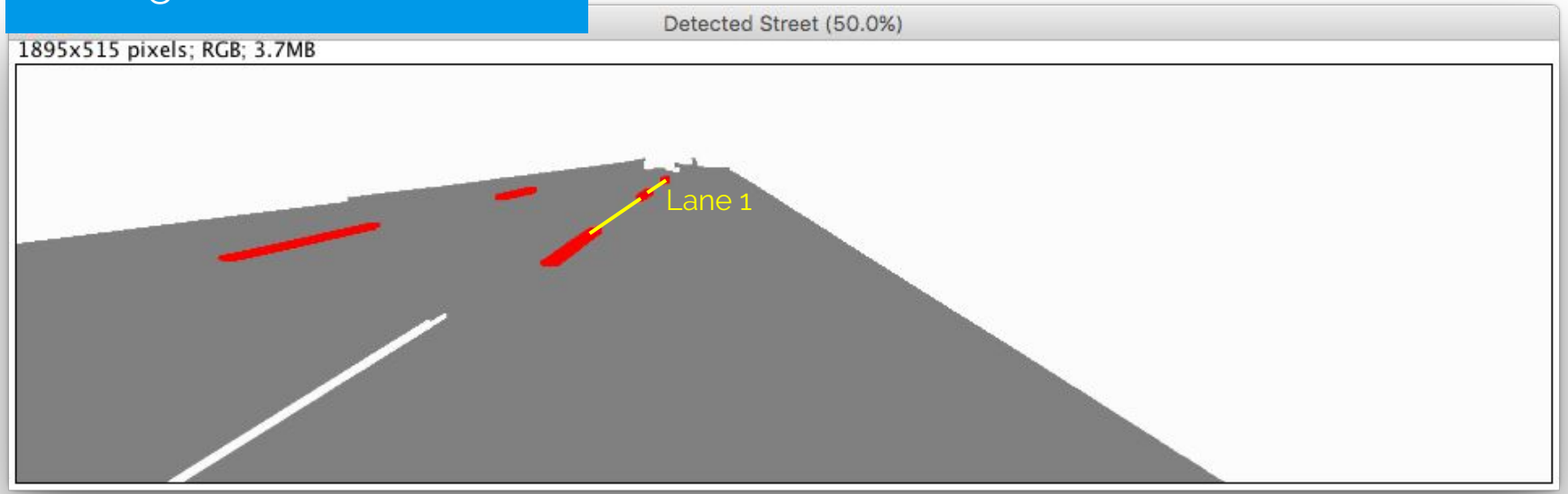
Regionen Filtern

- Größe
- Intensität

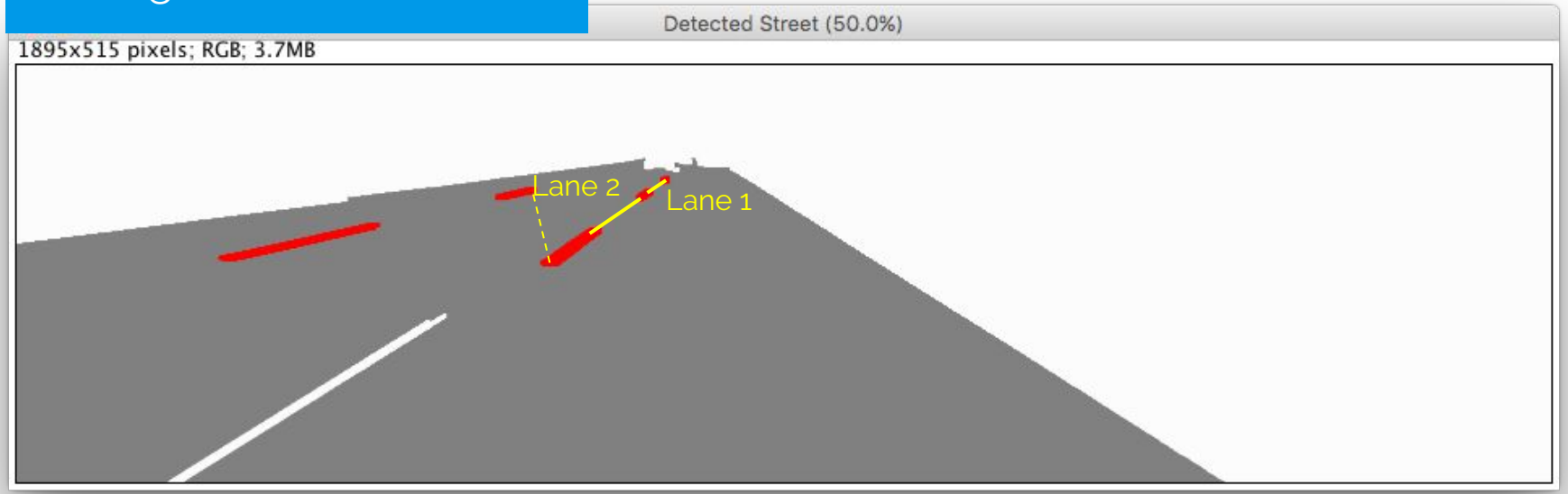
Regionen verbinden



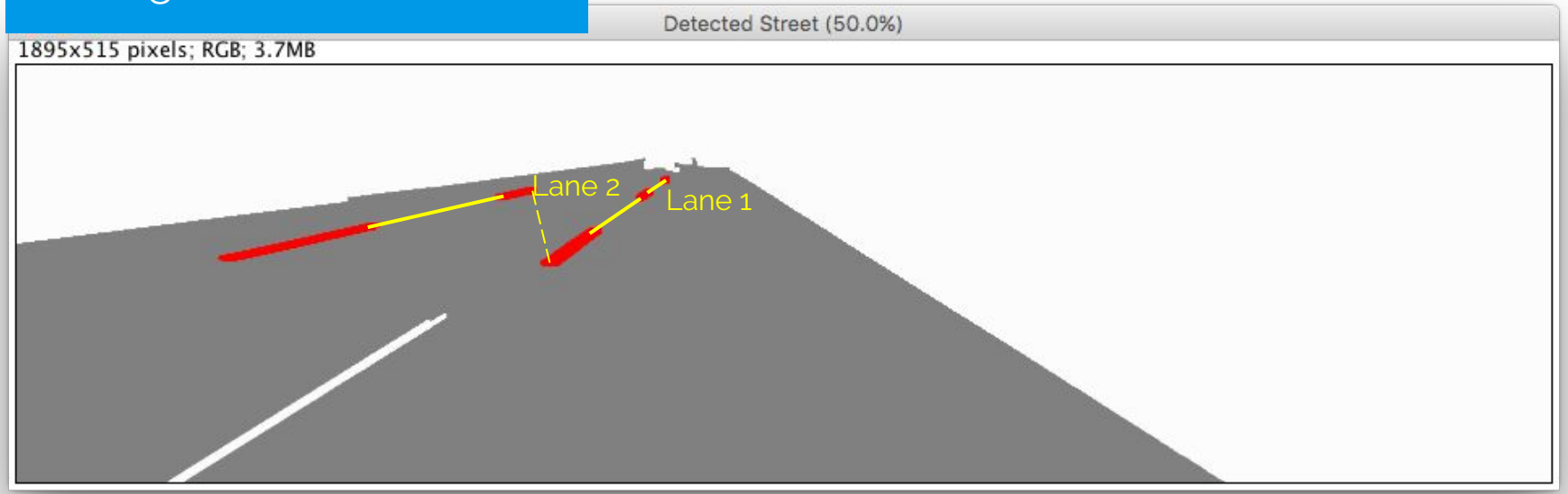
Regionen verbinden



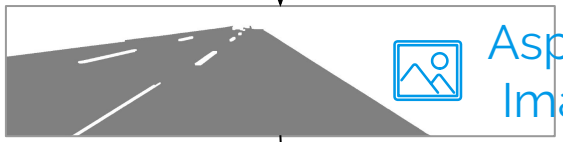
Regionen verbinden



Regionen verbinden



Pipeline



Asphalt Image

8bit + ROI

Canny Edge + Dilate

Floodfill Asphalt

Übrige Regionen extrahieren

Regionen filtern

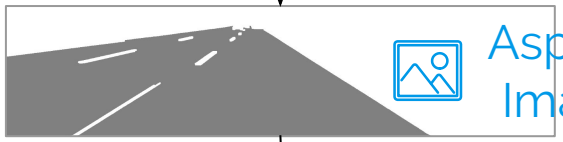
Regionen verbinden

Äußerste Fahrspuren

+

Mittlere Fahrspuren

Pipeline



Asphalt Image

Übrige Regionen extrahieren

Regionen filtern

Regionen verbinden

8bit + ROI

Canny Edge + Dilate

Floodfill Asphalt

Äußerste Fahrspuren

+

Mittlere Fahrspuren

Kategorisieren + Färben

vlcsnap-2016-05-04-14h36m15s573.png (50%)

1920x1080 pixels; RGB; 7.9MB

Ergebnisse

vlcsnap-2016-05-04-14h37m13s832.png (50%)

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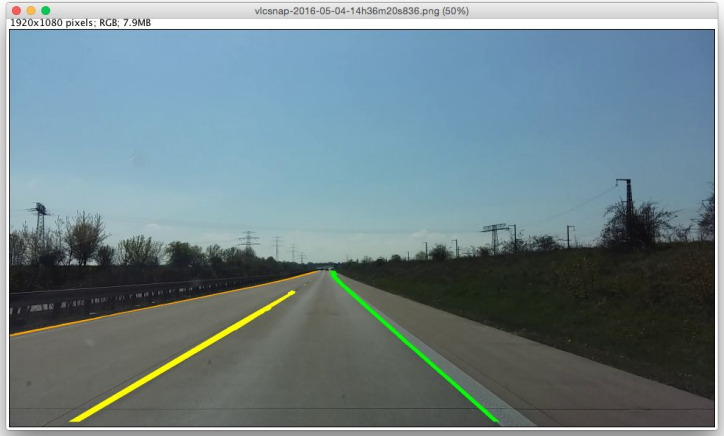
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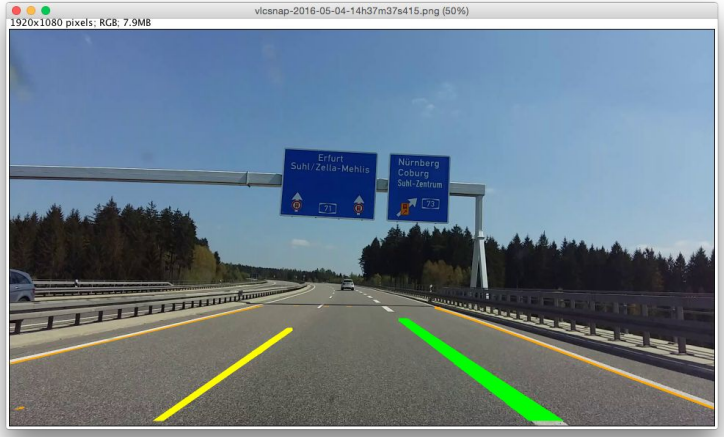

vlcsnap-2016-05-04-14h37m37s415.png (50%)
1920x1080 pixels; RGB; 7.9MB
Erfurt
Suhl/Zella-Mehlis
Nürnberg
Coburg
Suhl-Zentrum


vlcsnap-2016-05-04-14h36m23s960-1.png (50%)
1920x1080 pixels; RGB; 7.9MB

vlcsnap-2016-05-04-14h37m22s093.png (50%)

1920x1080 pixels; RGB; 7.9MB

vlcsnap-2016-05-04-14h37m22s093.png (50%)

1920x1080 pixels; RGB; 7.9MB

vlcsnap-2016-05-04-14h36m41s426.png (50%)

1920x1080 pixels; RGB; 7.9MB

vlcsnap-2016-05-04-14h36m41s426.png (50%)

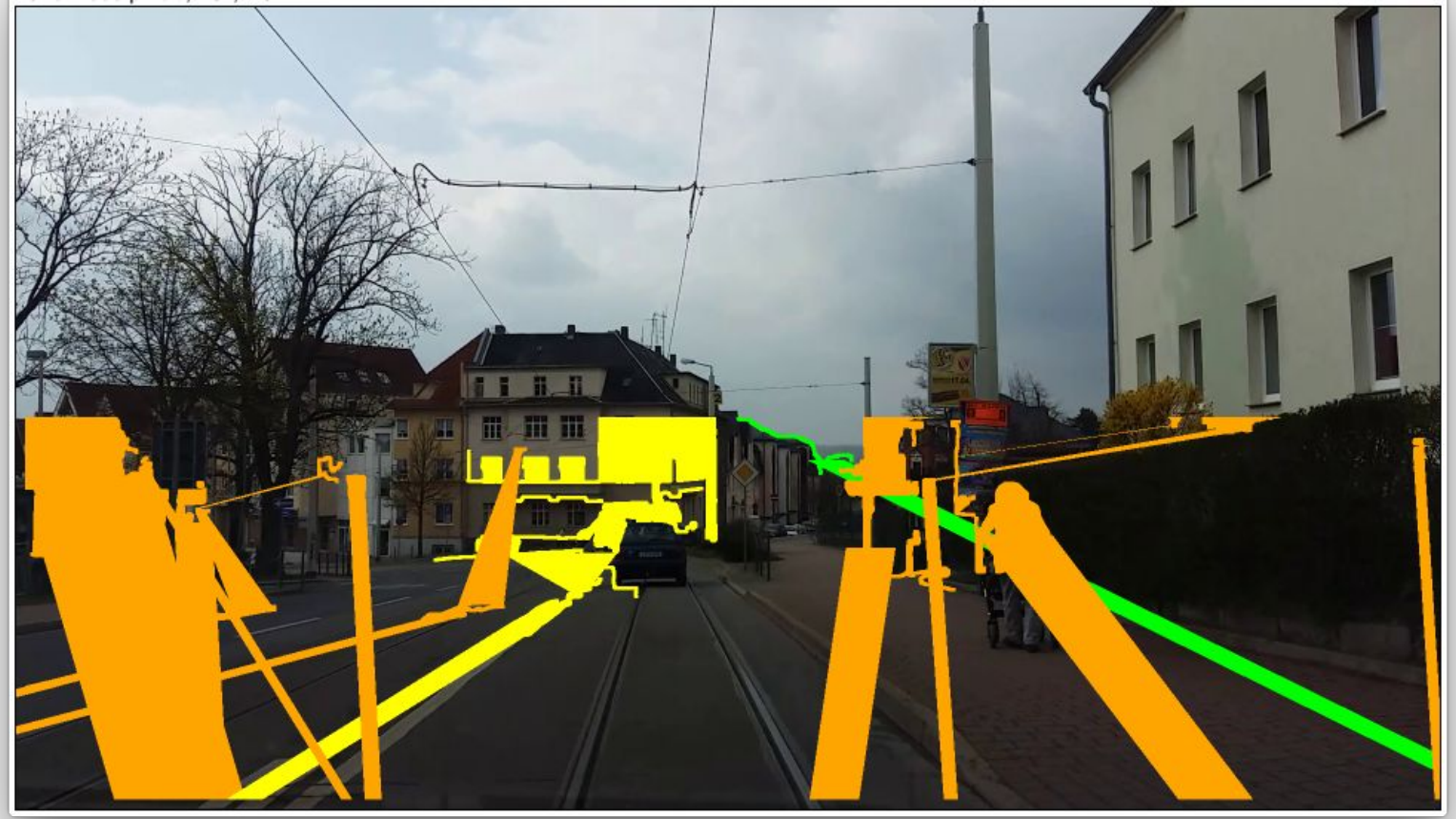
1920x1080 pixels; RGB; 7.9MB

vlcsnap-2016-05-04-14h36m04s284-1.png (50%)

1920x1080 pixels; RGB; 7.9MB

vlcsnap-2016-05-04-14h36m04s284.png (50%)

1920x1080 pixels; RGB; 7.9MB



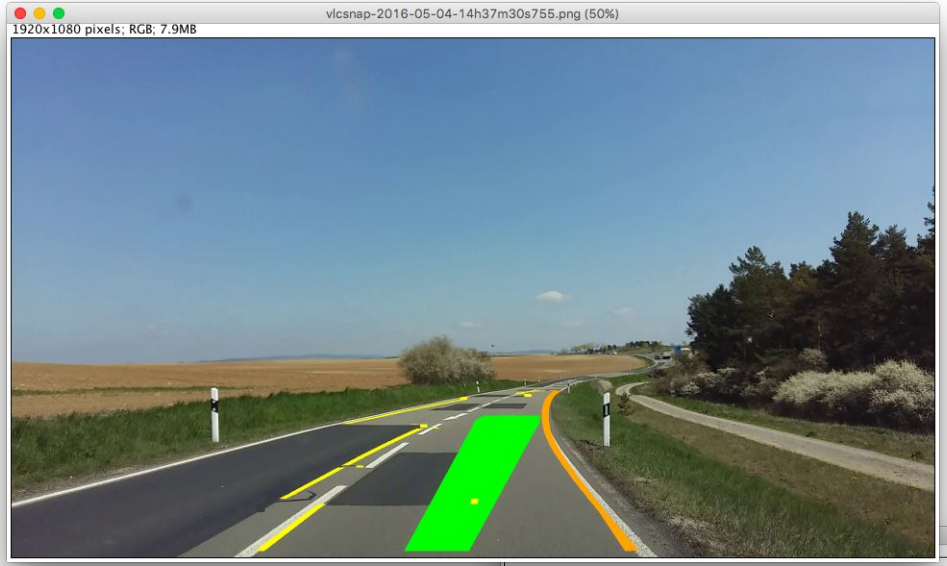
vlcsnap-2016-05-04-14h36m57s068.png (50%)

1920x1080 pixels; RGB; 7.9MB

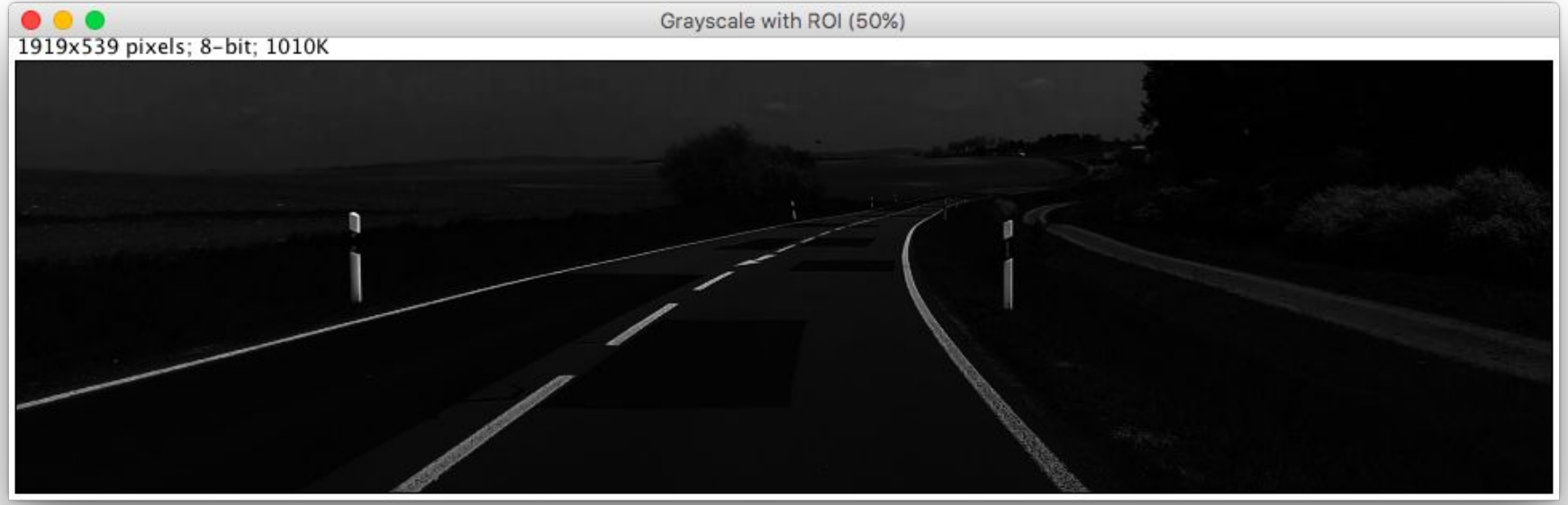

vlcsnap-2016-05-04-14h36m57s068.png (50%)
1920x1080 pixels; RGB; 7.9MB

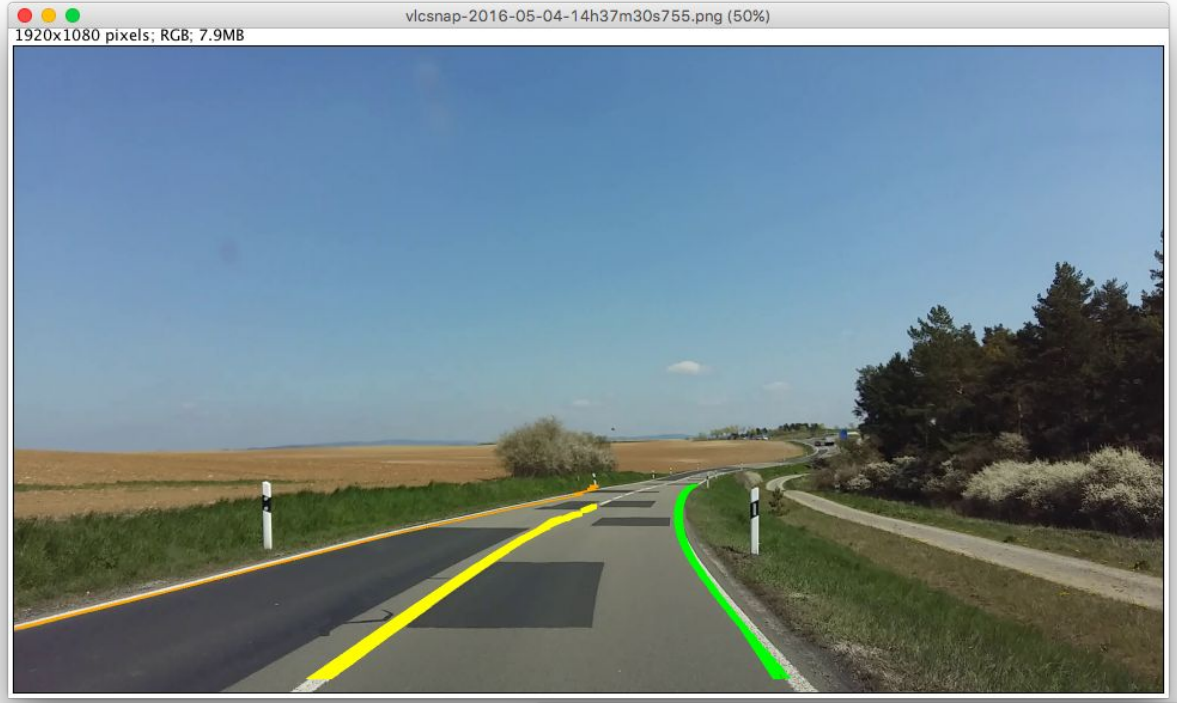
vlcsnap-2016-05-04-14h37m30s755.png (50%)

1920x1080 pixels; RGB; 7.9MB


vlcsnap-2016-05-04-14h37m30s755.png (50%)
1920x1080 pixels; RGB; 7.9MB


Detected Street (75%)


Grayscale with ROI (50%)
1919x539 pixels; 8-bit; 1010K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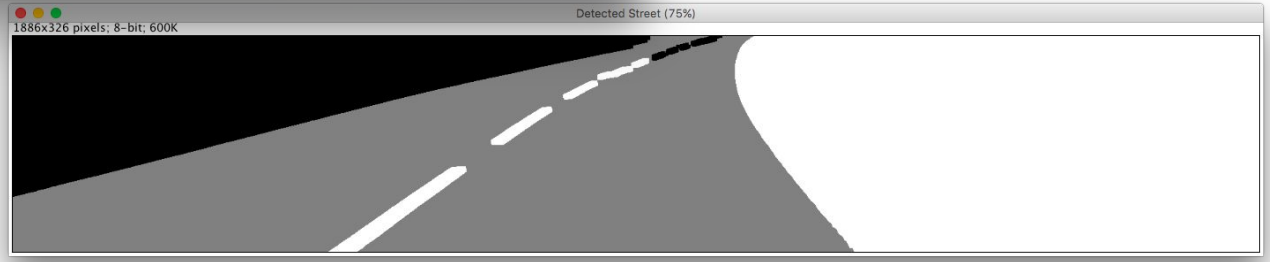
Detected Street (75%)
1886x326 pixels; 8-bit; 600K

Zusammenfassung

- ⅔ Erkennungsrate
- Beliebig viele mittlere gestrichelte Linien
- Keine weißen Außenlinien nötig
  (solange Kontrast ausreichend)

- Abhängigkeit zum **Canny Edge Detector** Plugin
- Außenlinien "schlängeln" um Hindernisse
- Sehr langsam (Canny Edge)
- Klare, durchgezogene Außenlinien nötig
- Stoppt bei durchgezogenen mittleren Linien