

DENSE

**A new sensor suite for
automated driving in all
weather conditions**

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degraded
informationfog
rain
snow
dust/smog

24/7 all-weather sensor suite (new sensors)

SWIR-Camera

SWIR-LIDAR

MIMO-Radar

Signal enhancement

fusion 24/7 all-weather perception

restored
information

DENSE



Gated Camera



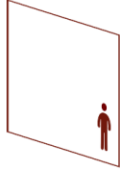
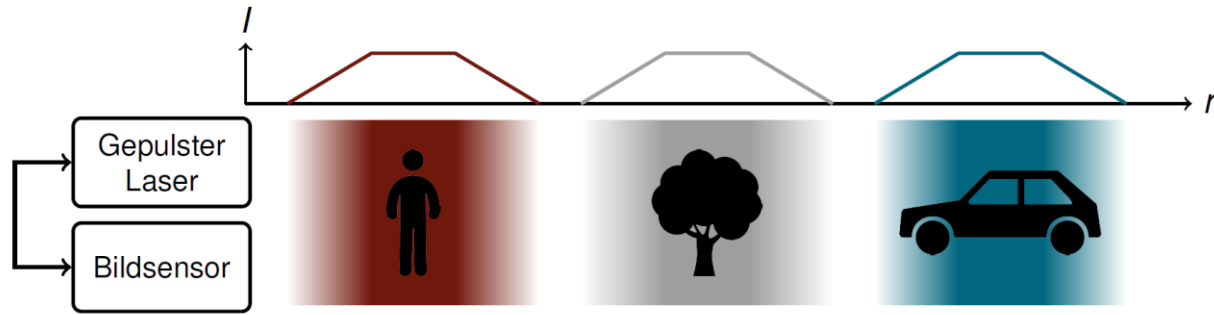
Standard Camera



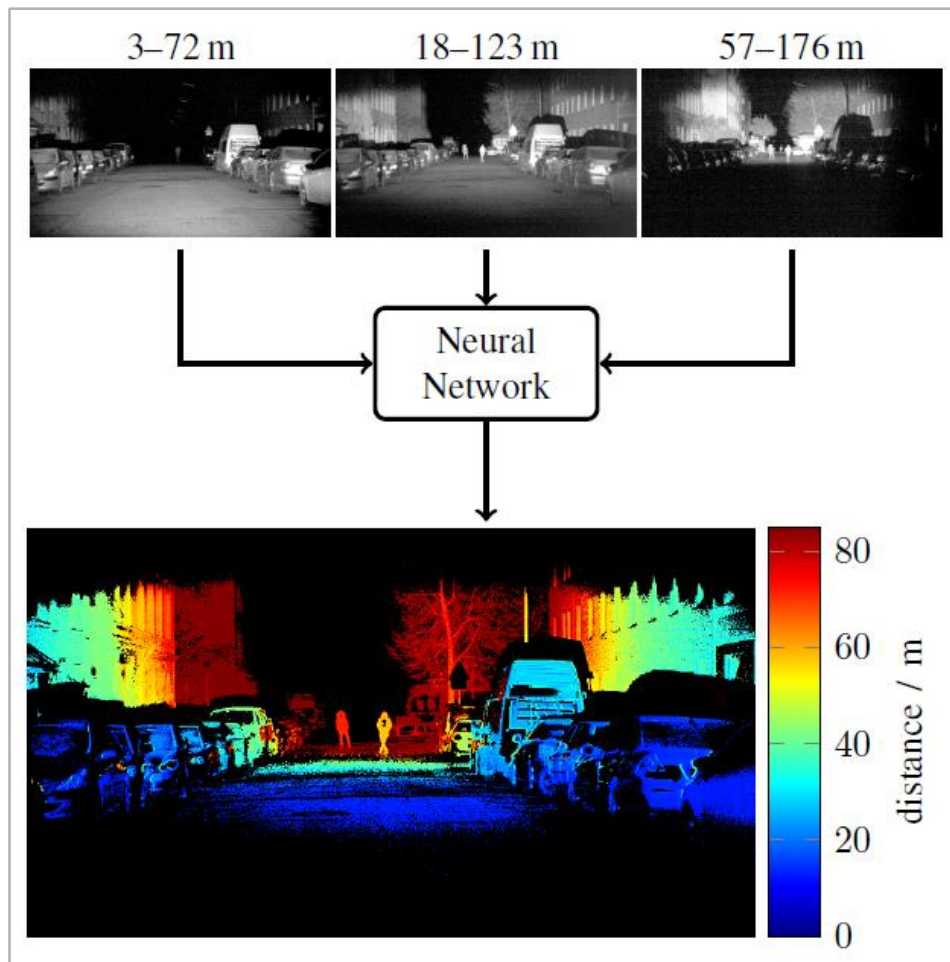
Gated Camera

Experimental Setup in Fog Chamber
Visibility 50 m

Gated Camera

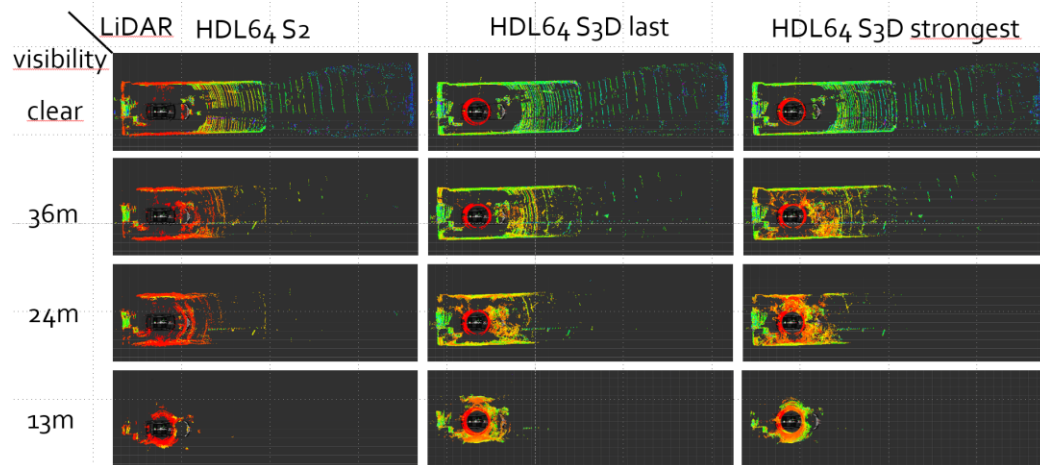


Gated Camera





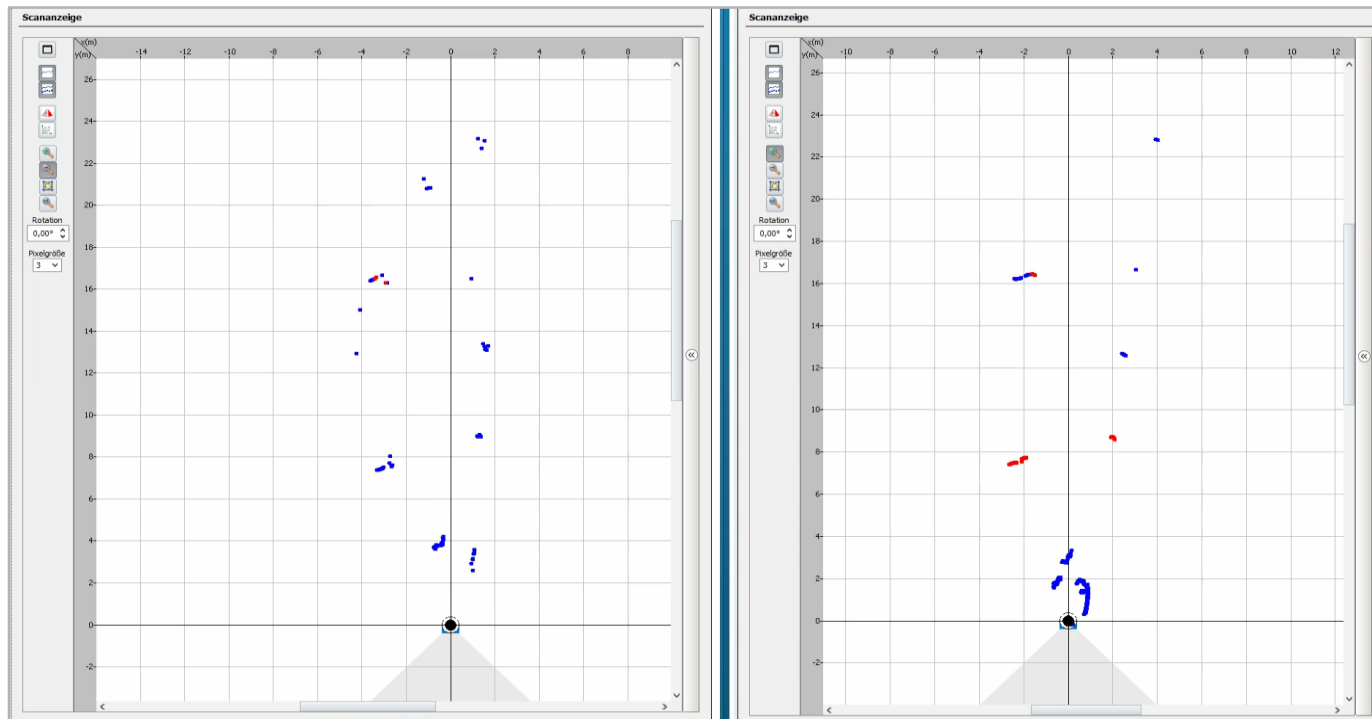
→ Experimental Setup
in Fog Chamber



1550 nm



905 nm



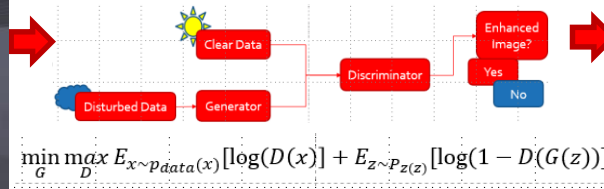
Vehicle with 905 nm and 1550 nm lidars installed



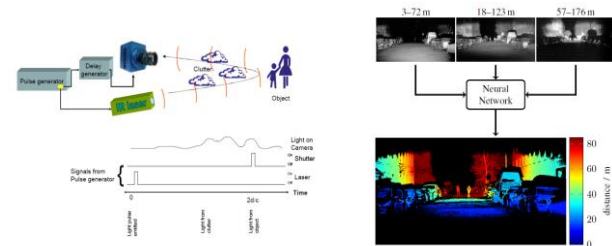
Signal Enhancement



Generative Adversarial Network (GAN)



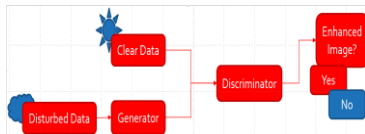
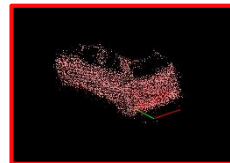
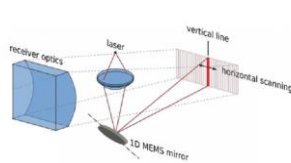
Summary



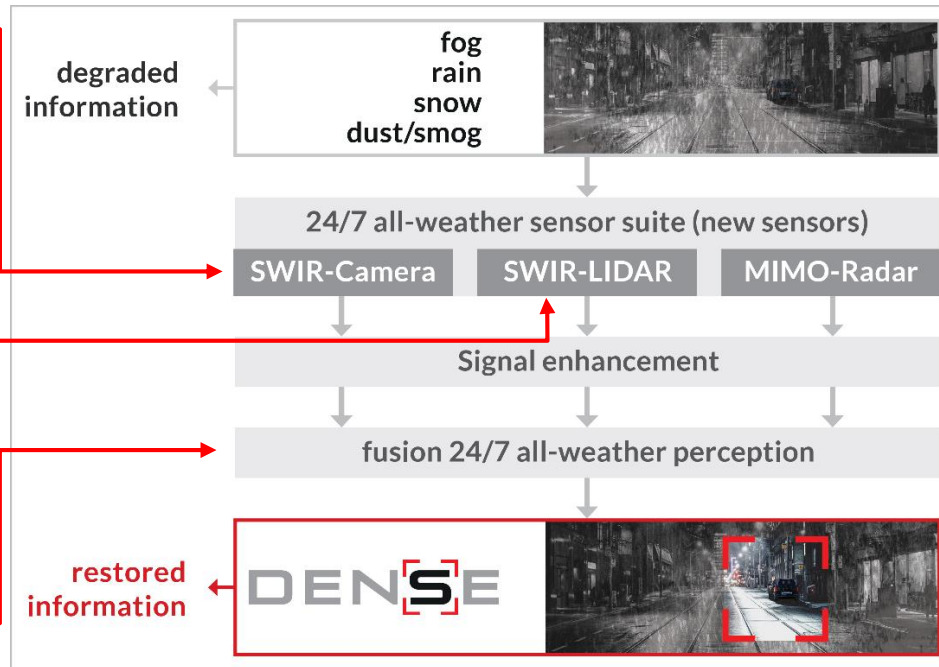
Gated Camera incl. depth map generation



1550nm vs 905nm Lidar



Signal enhancement via Generative Adversarial Networks (GAN)





Thank you.

Dr. Werner Ritter, Daimler AG

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