





Aalto University

Autonomous cars in winter conditions

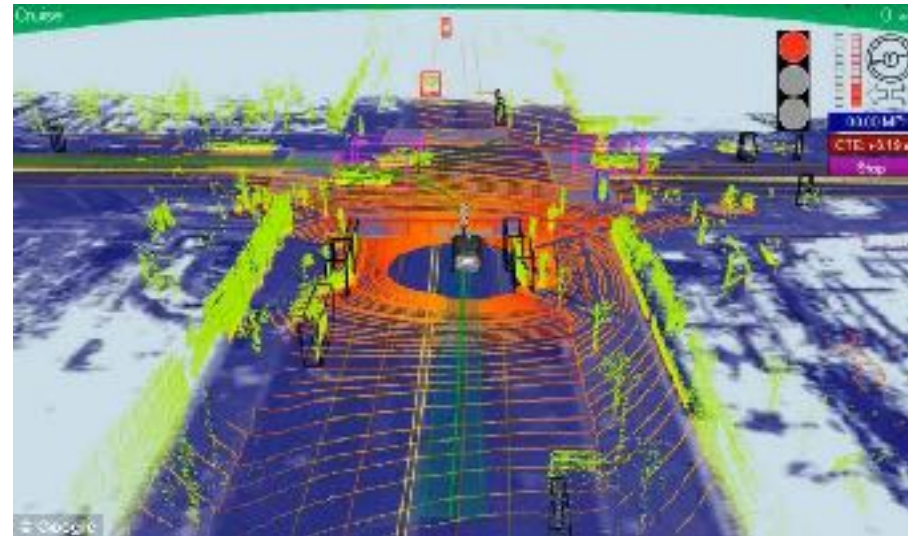
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Autonomous cars

- 1. Situation today**
- 2. Problems with winter conditions**
- 3. Solutions to these problems**

Autonomous cars in summer conditions

- Are close to human performance
- Does not get sleepy
- Does not have road rage
- Does not get distracted
- Have great reaction times



A photograph of a narrow, snow-covered path winding through a dense forest. The trees are bare and heavily laden with snow, their branches creating a complex web against a clear blue sky. The path is covered in a thick layer of snow, with some darker patches visible. The overall scene is serene and wintry.

What if the scene looks like this?

What if the scene looks like this?



Problems in winter conditions

- No clear road markings
- Alternating road surfaces
- Weather that disturbs the sensors

What can we do?

- Train, train and train the models
- Use AI as a co-pilot
 - Accidents
 - Bad conditions
 - Driver monitoring
- Build suitable infrastructure

Conclusion

- 1. Autonomous cars are amazing**
- 2. There are some problems in winter conditions**
- 3. They will be solved**

Sources:

Chris Urmson and William “Red” Whittaker, Self-Driving Cars and the Urban Challenge

Gim Hee Lee, Friedrich Fraundorfer, Marc Pollefeys, Motion Estimation for Self-Driving Cars With a Generalized Camera

Questions?