



We make autonomous racing happening

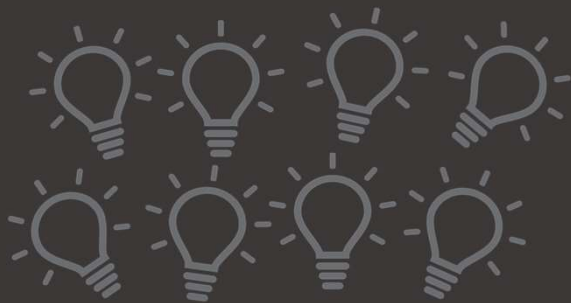
Daniel Watzenig | Markus Schratter

About ARG



10

Team Members



2

Organizations



1

Goal

*Take autonomous
driving to the limit*

About ARG



autonomusracing.ai

Competitions

ARG competes in



Roborace



Indy Autonomous Challenge

“It is all about software: The best software wins”

Main challenges:

Performance

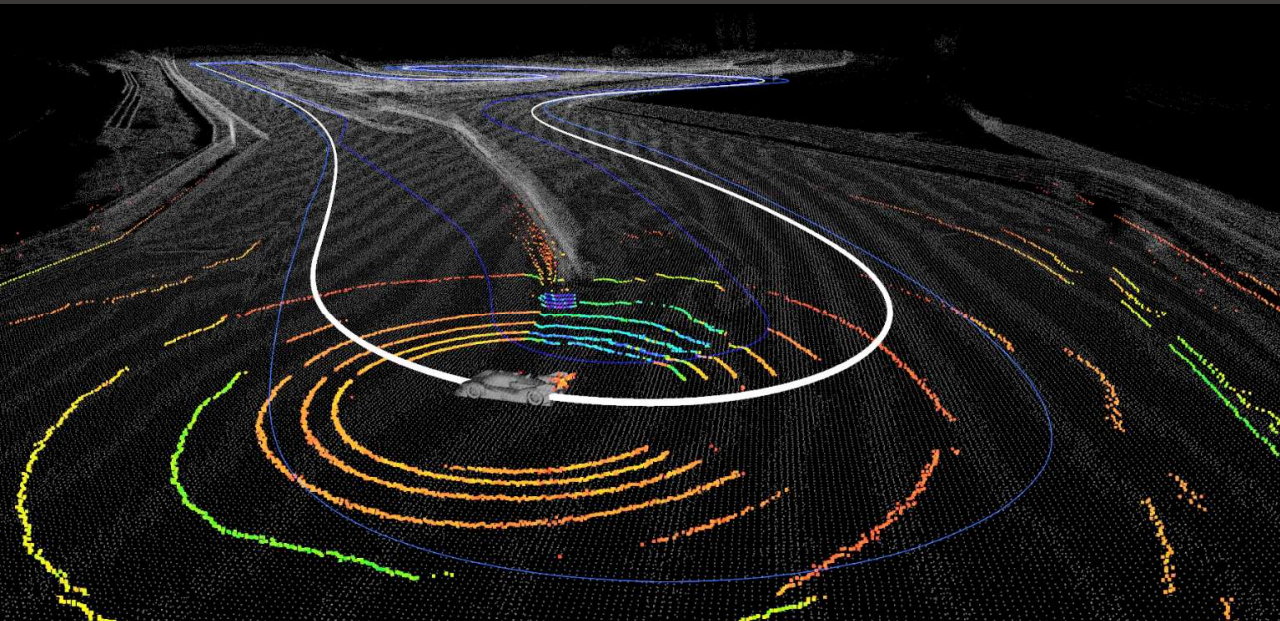
Precision

Wheel-to-Wheel Racing

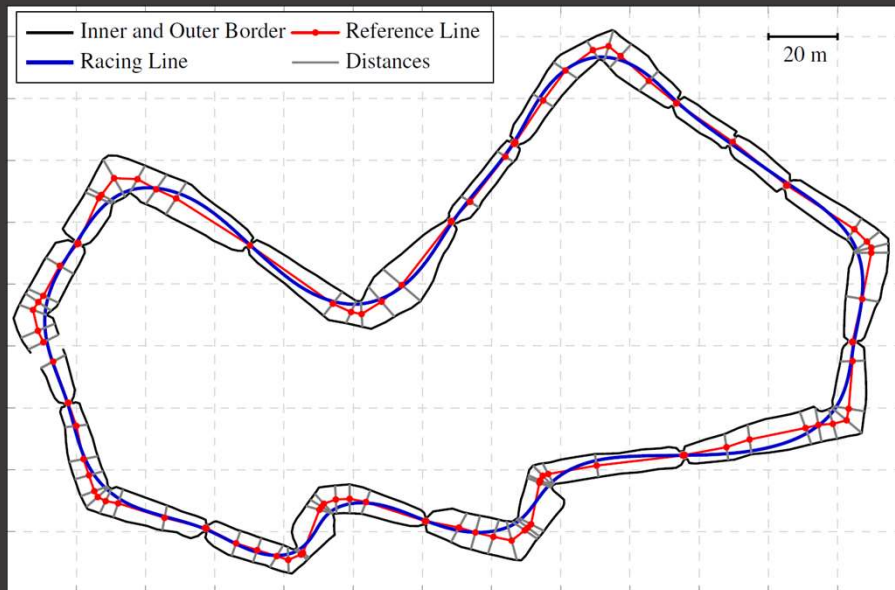
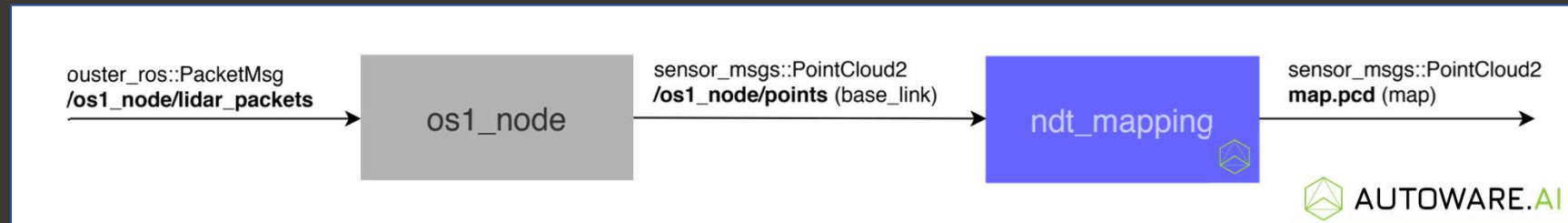
Lidar-based Racing

- Racetrack layout
- Lidar-based localization

powered by  AUTOWARE.AI

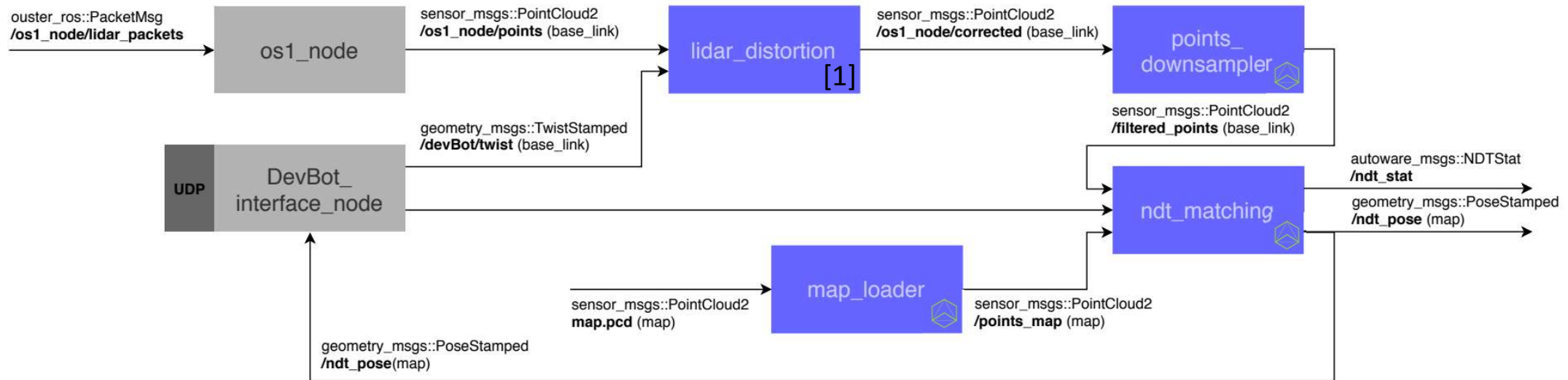


Racetrack Mapping



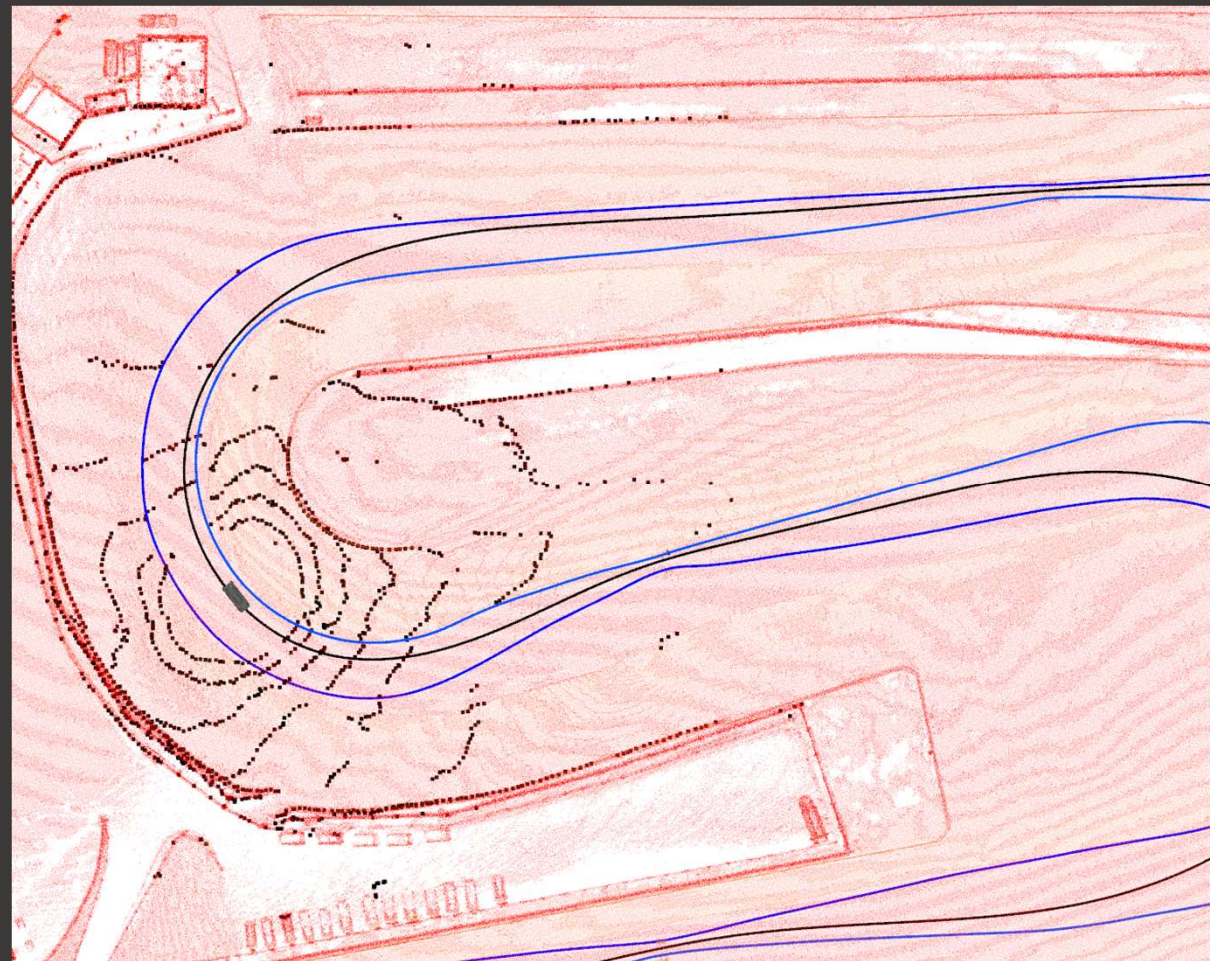
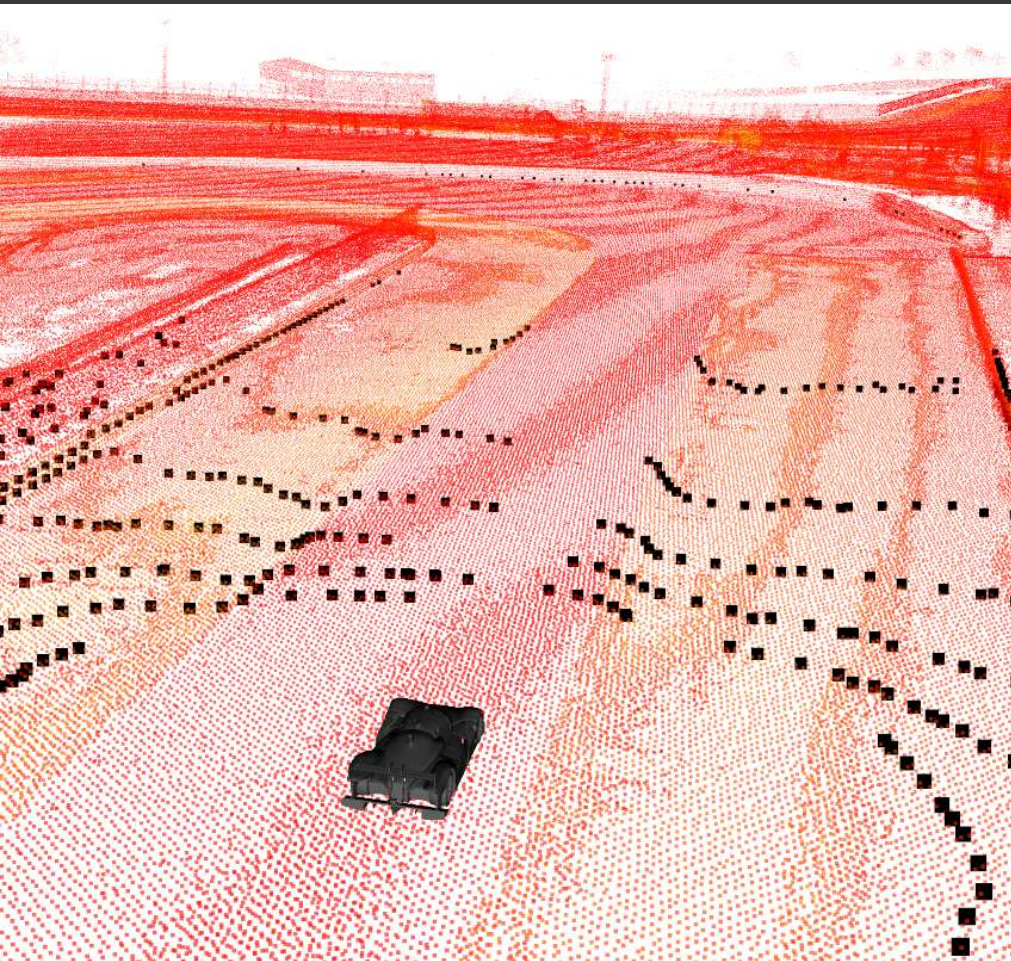
J. Zubača, M. Stolz, D. Watzenig, "Smooth Reference Line Generation for a Race Track with Gates based on Defined Borders", IEEE Intelligent Vehicle Symposium, 2020.

Lidar-based Localization



[1] T. Renzler, M. Stolz, M. Schratter, D. Watzenig, "Increased Accuracy For Fast Moving LiDARS: Correction of Distorted Point Clouds", IEEE International Instrumentation and Measurement Technology Conference, 2020.

Localization on the track



[1] Localization Challenge Zalazone (HU)





What does the DevBot 2.0 see?

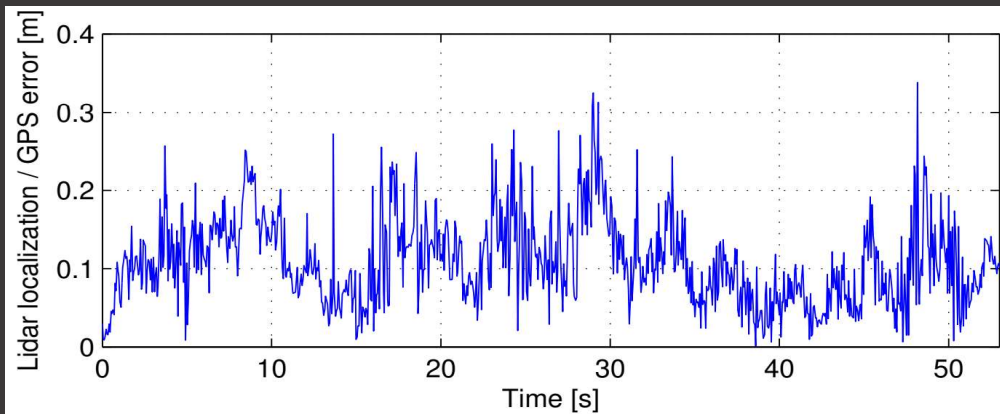


Where is the driver?

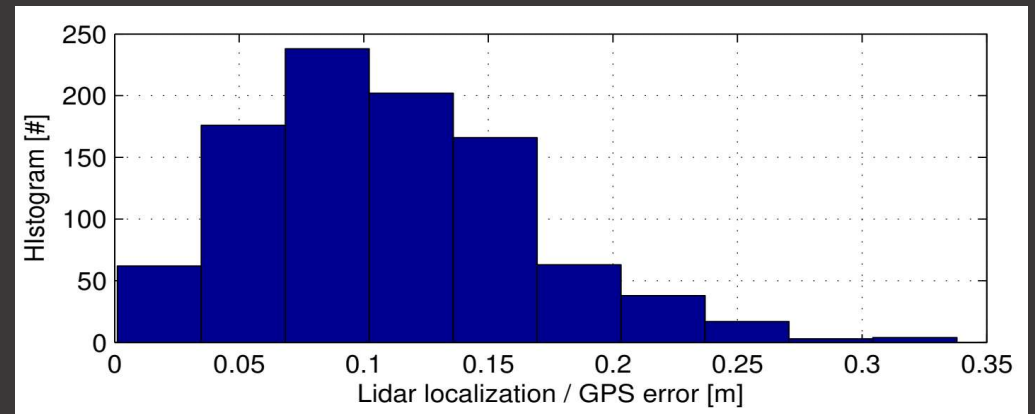


Results from the competition

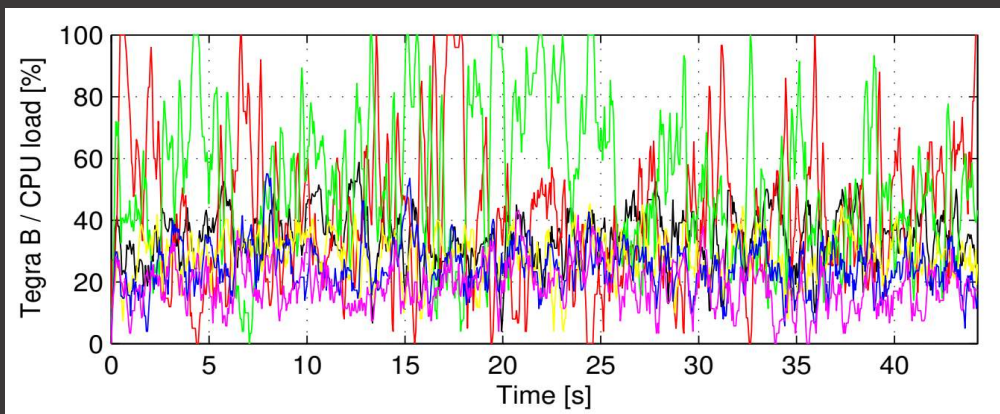
Position error [m]



Position error [m]

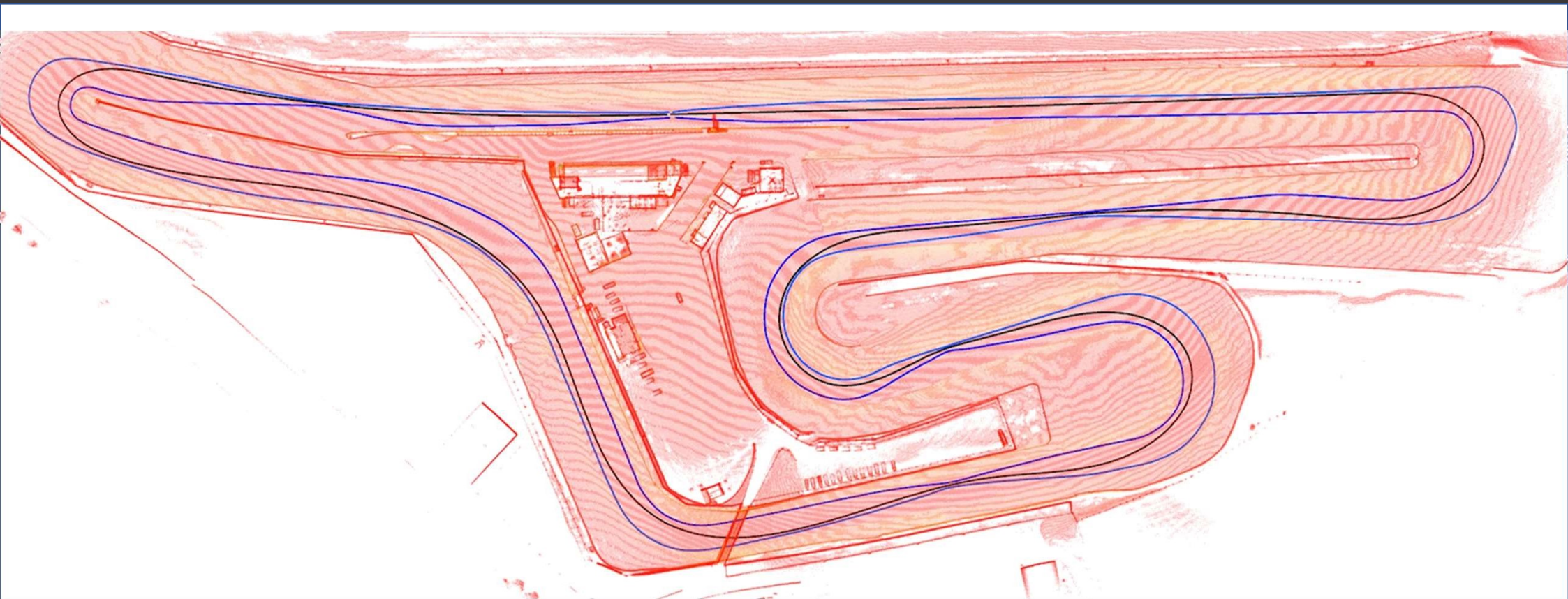


CPU load (Nvidia Drive PX2)



- NDT CPU mode
- High CPU load @ high accelerations ($>1g$)
- Stable localization

[2] Precision and Performance Challenge Croix-en-Ternois (FR)





AUTONOMOUS
RACING GRAZ



SEASON
ALPHA

LABORACE

V2X

virtual  vehicle

SAE JCAV Special Issue

SAE International Journal of Connected and
Automated Vehicles

Special Issue on Autonomy and Connectivity at the
Edge – Autonomous Racing



Call for Papers

DEADLINE

December 15th, 2020

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