

AMZ News

START OF THE TESTING SEASON



olivier in the wind tunnel

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Close-up of a suspension part of *alvier*

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What is happening in the electric team?

After a lot of work right before the new year, the motivation and eagerness to improve *alvier* was still present in the last couple of weeks. Different new concepts were tested on test benches or on the car itself. Thanks to our partners, we were able to gain further knowledge of *alvier*, which will be fundamental for the performance on the track. As the weather becomes warmer, we are pushing to make use of the many testing days ahead before we will compete for trophies in the summer.

Competition

In the months of December and January, everyone invested a lot of time into preparing for the annual registration quizzes. Despite the difficulty of not being able to attend physically, we managed to qualify for four events in the upcoming summer. The competitions will start in early July, when we will be heading to Assen, Netherlands, in order to compete in the first event: FS Netherlands. Shortly after, we will participate in FS Switzerland. Based on the current covid numbers and restrictions from the government, FS Switzerland decided to do an online event this year. So there will be no

dynamic disciplines in FS Switzerland, only static. The third event will be held in Spielberg, Austria. In early August, we will join our driverless team for the final event of the season when we will be travelling to the Zala Zone in Hungary, where FS East will take place.

Fairytale sessions

Since AMZ is well known for its rather small but competent team, we have organised so called "fairytales", during which the different modules explain their systems on the car to the other members. This helps the team to get an overall understanding of *alvier*, which will definitely be necessary for being



Rear push rod of **alvier**

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competitive at the events. The main goal of this concept is to get every team member in the position of being able to talk about, discuss and work on all parts of the car, even if they were not developed by that specific person. This allows us to be more independent when

it comes to problem solving because everyone is able to work on the different subsystems.

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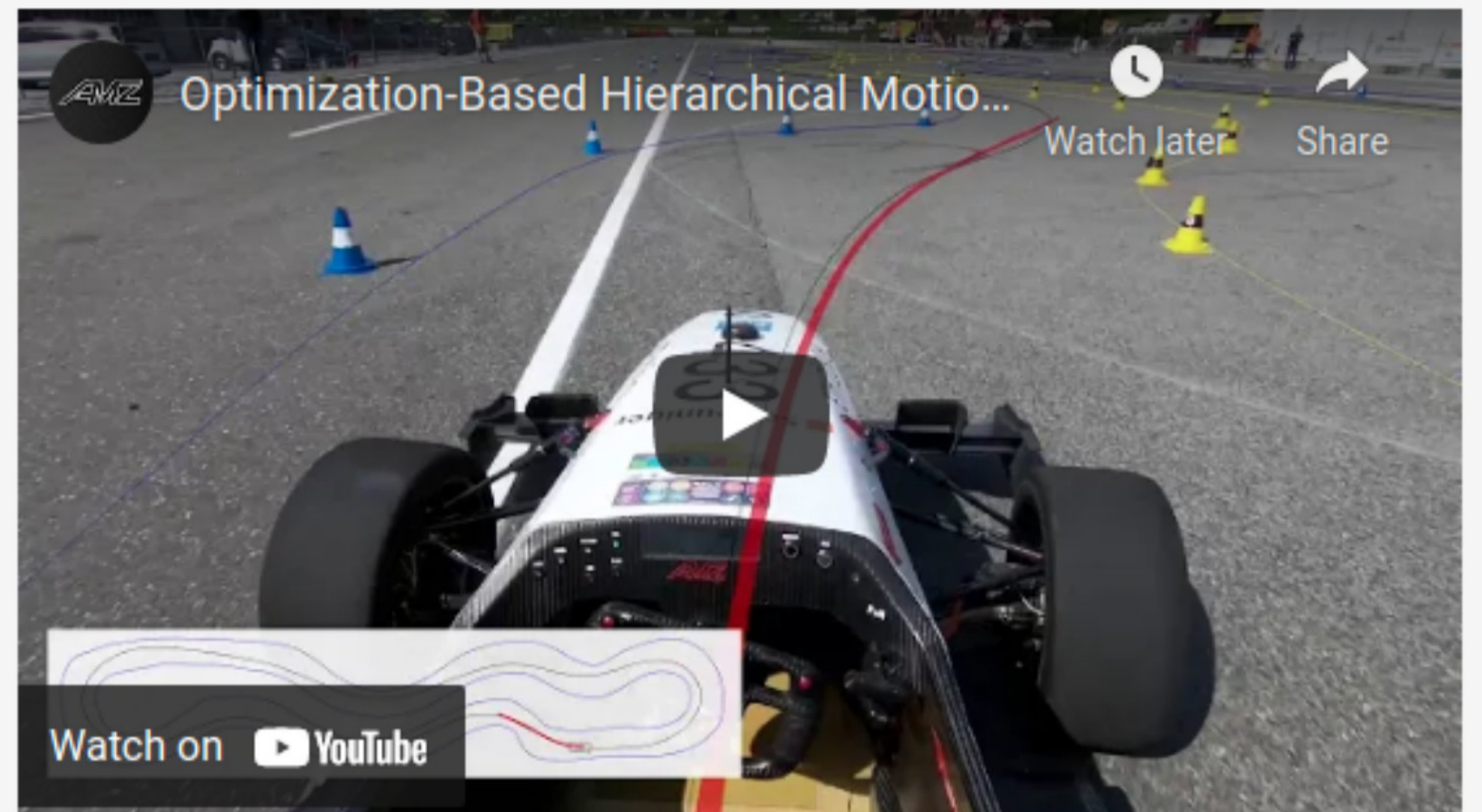
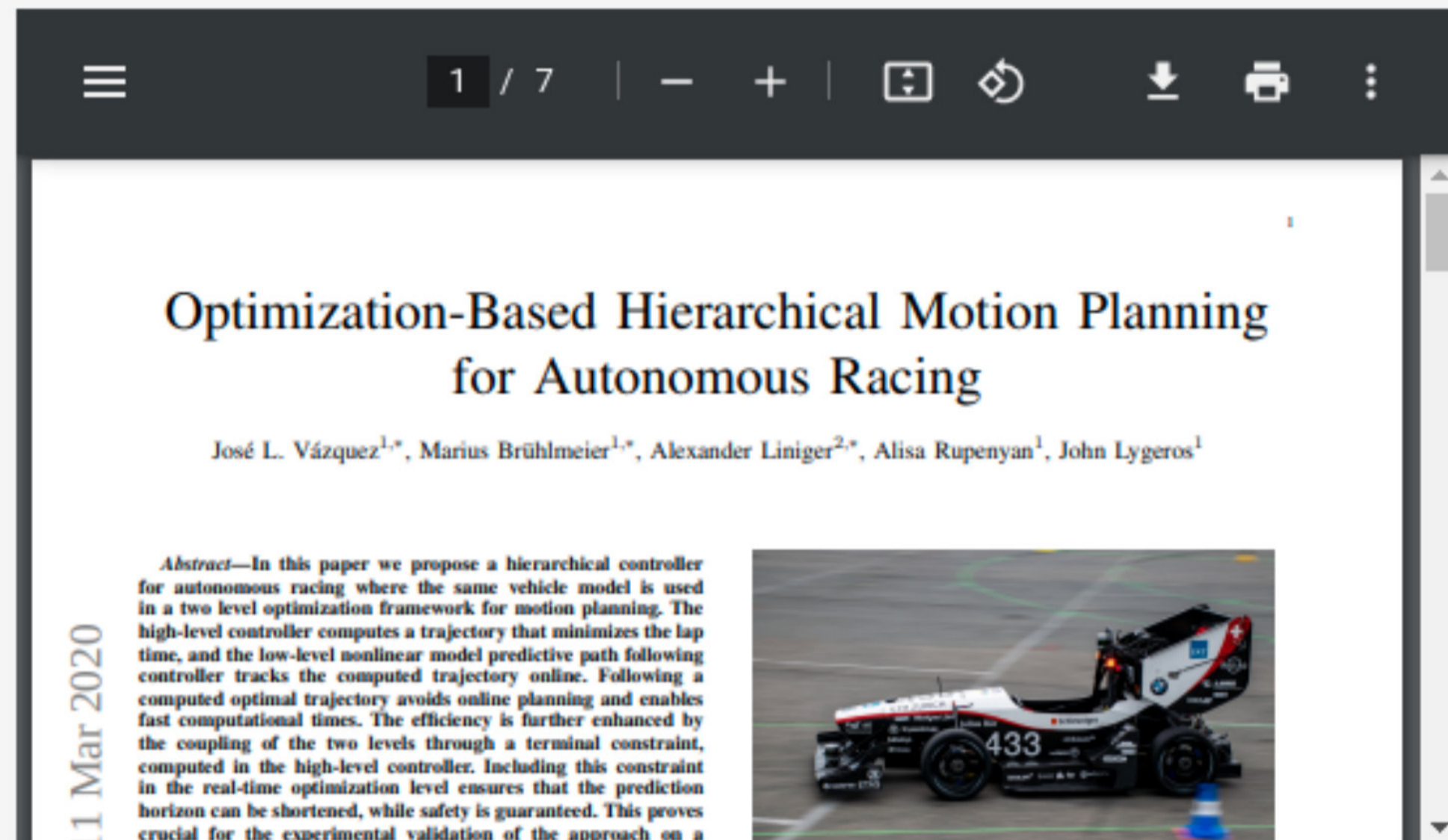
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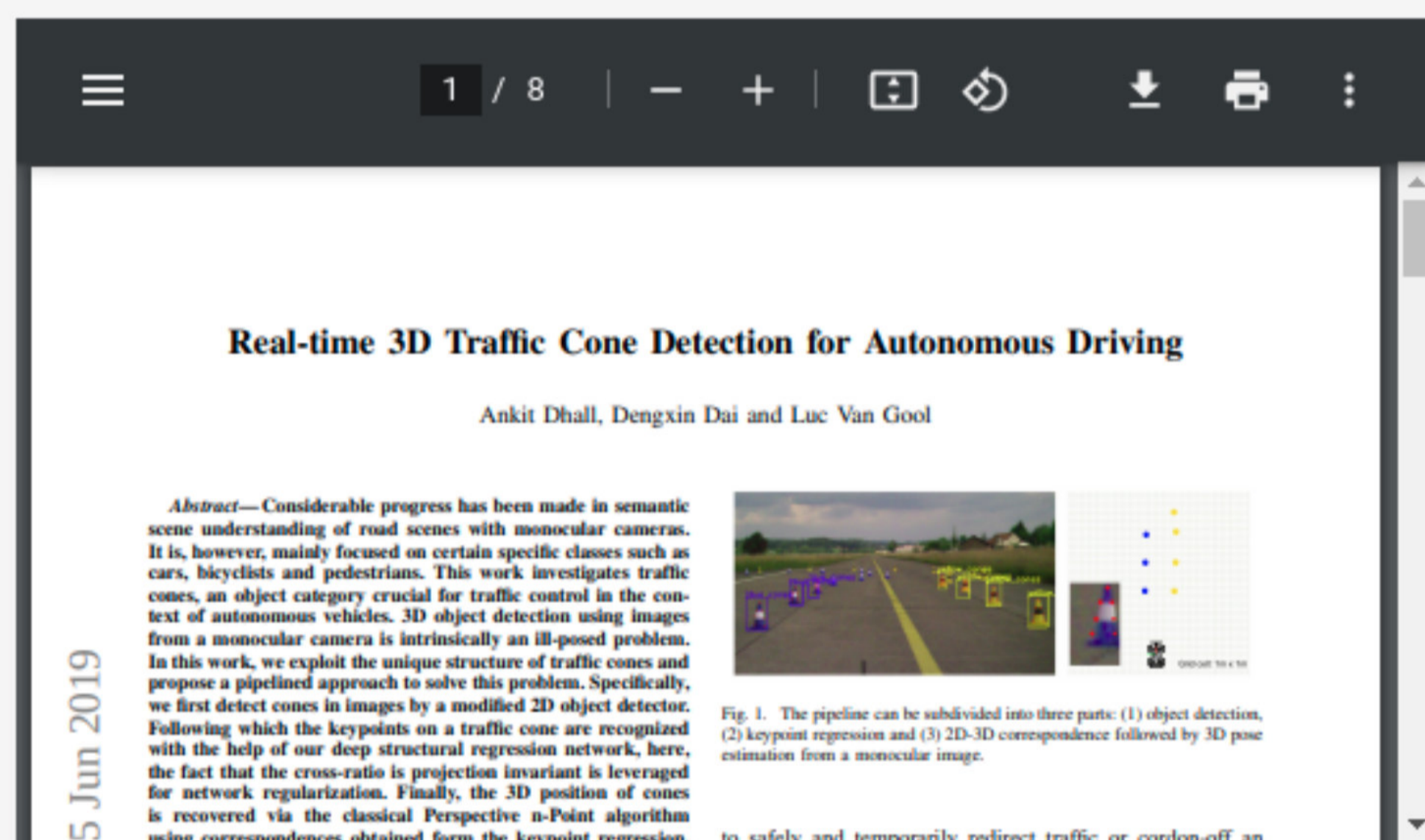
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Optimization-Based Hierarchical Motion Planning for Autonomous Racing (March 2020)



Real-time 3D Traffic Cone Detection for Autonomous Driving (June 2019)



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Research Paper Website

Mission

We, the AMZ driverless team, proudly present our revised mission statement. With this we want to strengthen our identity and align our team culture:

Our mission is to push the limits of autonomous racing and inspire young minds to take on challenges in engineering and business. As a multidisciplinary team, we build on the foundation of our previous successes to once more establish ourselves as a world reference in autonomous racing. Through learning and innovating together, we aim to serve the scientific and student community.

Research Paper Website

Over the years, the team has published a variety of scientific papers to

robotic conferences and journals like iROS and the IEEE Intelligent Vehicle Symposium, where we describe our autonomous hardware and software systems. Our papers are now easily accessible on our webpage, driverless.amzracing.ch/en/research-papers.

Competition

This season, we have qualified to go to the following three competitions in summer: Formula ATA, FS East and FS Germany. The Formula ATA competition is going to take place at the "Riccardo Paletti" Circuit in Varano de' Melegari in July, followed by FS East at the Zala ZONE automotive proving ground in Hungary in early August. Lastly, we will compete in FS Germany, the initiators of the driverless competition, at the

Hockenheimring in late August. A big thanks goes to our alumni from 2019, who performed exceptionally well, winning both FS East and FS Germany, the two competitions they attended. This grants us pre-registration spots in both events. Although restrictive regulations are to be expected, we are fired up and ready to perform!

ARWo

The Autonomous Racing Workshop (ARWo), organized by the e-ignition team of Hamburg, has always been a great platform for the Formula Student community to mingle and to learn through workshops and talks. True to the motto of "sharing is caring", this year's ARWo was realized through a live-stream, in which young and experienced teams alike shared their



pilatus driverless on the test track

© AMZ

unique stories and challenges. An upside of this year's virtual ARWo was the inclusion of teams from many different countries. It was an inspiring experience, watching the other teams' workshops and seeing their autonomous race cars. Cheers to our colleagues from Hamburg for organizing the event and we will see each other again at the competitions!

Tech Talks

Since day one AMZ is a learning-oriented community. Throughout the

weekly team meetings, the individual team members prepared tech talks to introduce the different technical aspects of *pilatus driverless*' autonomous system and the racing vehicle itself. By now each team member has become an expert in his field and can educate the other team members by giving comprehensible introductions to the theoretical basis of their work. The tech talks give the whole team a better overview of *pilatus driverless*' technical systems, they spark discussion and facilitate diving into other people's work packages.

Rollout

The time has come to once again reveal and roll out our passion. Due to the pandemic, we have had two years instead of only one to work on and develop our race car prototypes. Dear sponsors, friends and family, stay tuned for more information on the AMZ rollout 2021.

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