AUTONOMOUS RACING WORKSHOP

The aim of this report is to summarize our experiences as participants at the Autonomous Racing Workshop (ARWo) 2025 edition.

INTRODUCTION

We in Revolve NTNU are a team of students dedicated to racing in Formula Student, a racing competition for students. Here events are both with and without a driver, meaning our self-developed car needs to be capable of driving by itself, i. e. autonomously. Therefore, we have a group dedicated to developing the self-driving software full-time.

ARWo is an annual event organized by our friends in Hamburg, the German racing team e-gnition. The purpose of this event, according to their website, is to bring more than 40 Formula Student teams from all over Europe as well as industry partners to talk, learn, share and have fun.

The way it all comes together is through community contributions. All weekend, lecture halls and meeting rooms are occupied by presentations and discussions hosted by the different participating teams. This often leads to a great diversity when it comes to presented content, and participants are free to put together their schedule as they like.

IMPRESSIONS

What follows are the different impressions from three of our participating members after attending the entire weekend.

Mikael Skrivervik

As a leadup to the workshop we had created both a poster and our contributions to the event, and my favorite part of the workshop is probably the poster session. Upon arrival the first day, after the welcome ceremony, every team's poster had been printed and hung up, showcasing everyone's autonomous system. What followed was several hours of discussing ideas and concepts with other teams. We defended our own concepts while questioning everyone else, and it was generally a really good time. We got a lot of insights, and even though many teams might have very similar solutions, others were very interesting and original.

As the group leader of Revolves autonomous systems group, I also found a lot of value in the discussions/presentations of both onboarding and managing of members. As our field is usually very theoretically complex, getting new members up to a level on which they are comfortable contributing takes a long time.

Other than that, I really enjoyed spending time with members from the other racing teams. People with a very different perspective from mine, yet with a lot of similar experiences, as we are all working towards the same goal.

Ruben Vega Bjørkøy

I am a data engineer at Revolve NTNU. Approaching ARWo, I knew I had a lot to learn from others but also feared I wouldn't have a lot to give back to the event. Arriving at ARWo and checking the itinerary, I quickly learned that this was not the case. There were a lot of discussions and presentations regarding more general uses of software within formula student than just autonomous systems. This opened me up to sharing my experiences with my role to others who may not have as dedicated software developers.

Some of the teams, especially German teams, have had a few members dabble in analysis software for analyzing track drives with the car, or for sharing data more seamlessly between team members. I had a lot to discuss with them regarding possible implementations and caveats we've experienced and worked around that they haven't reached yet. This created a very open and sharing relationship between us students across teams, which I believe makes this entire event as it should be.

Very early on we were reminded of the importance of sharing, and this was a philosophy we stood by dearly when attending talks as it reduced the threshold of questions that could be asked and the answers that could be given.

I very much enjoyed the experience of meeting other students who work towards reaching the same goal as I am, and with the same level, if not more, of ambition in our projects.

Maciej Kowalik

As an autonomous system engineer, I am always keen to explore new technologies and solutions, so I was anticipating the ARWo conference all year. As part of the build-up to the conference, there was a requirement that each group should prepare a poster. Apart from this, our group also held a discussion session and a presentation. I was involved in designing the poster, and this proved to be an excellent opportunity to get back into subsystems that I wouldn't usually be working with and improve my level of expertise.

Mikael and I also prepared and held the discussion session, where we talked about our automatic tests system. Preparing for this gave us a good incentive to document our setup more rigorously and think over what we could do to improve, and to leave ourselves open to useful feedback from others.

After arriving at ARWo, an introductory presentation was held briefly before we were invited to walk around and judge posters presented by the other teams. This part of the event turned out to be one of the highlights of my time there. It was motivating to see everyone so passionate about their projects, and I enjoyed seeing various different methods used by other teams. There was a genuine sense of community, and it was clear that everyone was very eager to learn and share their knowledge.

The next day got off to a bit of a difficult start - we hadn't slept much the night before due to late-night discussions, time change, and problems with public transportation. I was still excited to get into two full days of lectures, presentations, and workshops. One of my top highlights was a talk by industry professionals at the Volkswagen Group, where they gave us insight into their research of driverless vehicles and even got to show us a prototype. It was really a big opportunity to hear what is going on at the industry level and see similarities to what we are doing.

Overall, the ARWo conference was a wonderful experience. I left with new ideas, a new boost of motivation, and a better sense of direction for the competitions, waiting ahead.