

THEIA^{XR} NEWSLETTER

ISSUE No. 4



UPDATE ON THEIA^{XR}

Three months into the year 2025 and we are very proud to present to you the 4th edition of our THEIA^{XR} project newsletter. Our last months have been full of expos, meetings and integration of our research. You can find all the details in the articles below. Please enjoy this issue which brings you very nice insights to our fruitful discussions and developments over the last few months. Don't miss out on the next issue and be sure to continue to follow our journey in making the invisible visible.



Martijn Rooker, THEIA^{XR} project coordinator states:

"We are entering the third year of the THEIA^{XR} project and slowly, but surely working towards the end of the project. The last half year, we have seen some exciting events that have taken place within the project. We received the feedback from the midterm review meeting, confirming the direction of the work. Furthermore, the developments are going towards the final phase of implementation. We are starting on integrating the technologies into the final demonstrators and we had some

major events like the EuroXR in Athens and Stereopsia in Brussels, where results of the project were presented to a larger industrial, scientific and general audience. Finally, we started this year with our fourth consortium meeting, which this time was hosted by partner Prinoth in Sterzing, Italy. The consortium meeting was combined with a large integration meeting, which enables the majority of the partners to work together on bringing the solutions in an integrated matter into the demonstrators."

THEIA^{XR} @ Stereopsia



Author: Kaj Helin, VTT

THEIA^{XR} recently presented a simulation of the reach stacker's remote operation concept at Stereopsia. The final operation concept featured a simulated 360° camera view with embedded

augmented content, which was highlighted multiple times during the initial evaluation. The augmented reality content was based on various available sensors and other data. Users could choose between four different camera views, including the cabin view from the driver's perspective, the spreader top-down view, the

rear view from the counterweight, and the drone or bird's eye view. At the booth, visualization was done on a large screen, and interaction was based on a joystick and gestures.



Figure 1: Our THEIA^{XR} booth at the Stereopsia

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The demonstration was a success, with several EC representatives and other participants were testing our demo.



At Stereopsia, THEIA^{XR} also presented the first version of the Privacy and Ethics Guidelines for off-highway machinery! Based on our work with various

Author: Anastasia Sergeeva, UL

stakeholders in the project and extensive research in the literature, we identified the main challenges in XR implementation for off-highway machinery. We are now collecting feedback from different stakeholders and representatives from the off-highway machinery industry. During Stereopsia, we were proud to discuss our work with other groups and organizations working to make XR more privacy-preserving while addressing humanistic and ethical values. We look forward to further collaborations in this direction!

THEIA^{XR} @ EUROXR



Author: Martijn Rooker, TTC

The 21st EuroXR Conference is the main conference organized by the European Association for eXtended Reality. This year the conference took place in Athens, Greece from the 27th to 29th of November 2024. THEIA^{XR} was present with a large

part of its consortium and contributed with multiple presentations, poster and demonstration. Partner HAP, being one of the organizers of the conference, presented their results on haptic solutions for usage within off-highway machinery. Partner HdM provided a presentation highlighting the role of the operator in the design of XR applications. Partner TUG presented their technical results in the domain of snowgrooming, focusing on spatial augmented reality. Partner TUD presented the usage of XR technologies in the construction domain, partner VTT demonstrated the reach stacker use cases and provided the

opportunity to the audience to work with the simulator.



Figure 2: The project partners present at the EUROXR

Finally, TTC provided a project pitch, presented the THEIA^{XR} project to the whole conference. Additionally, together with our sister projects Didymos, SUN and Sharespace and the projects Cortex2 and Luminous a special session was organized targeting the results of the European projects currently running in the same call.

Overall, it was a great experience and opportunity to present the results to a larger audience and interact and exchange ideas with fellow researchers in the XR domain.

THEIA^{XR} Integration Meeting and 4th Consortium Meeting in Sterzing



Author: Martijn Rooker, TTC

Our first event of the year 2025 was the 4th consortium meeting, hosted by partner Prinoth in Sterzing, Italy, taking place from 15th-16th January. We decided to combine this meeting with an integration meeting, so all partners working on the snow grooming use case could be together and interact and cooperate on bringing the developed technologies one step closer to the final integration into the machine. Many important steps were made at the meeting and major technology developments results were reached. It was an amazing experience to work directly on the cabin of the snow groomer and it provides a even better understanding of how everything is coming together.



Figure 3: Group picture at the integration meeting/consortium meeting at Prinoth in Sterzing

The following days, the focus was on the 4th consortium meeting in the project. The first day of the consortium meeting focused on the use cases and where are the latest challenges and

what the plan is for the final year of the project. First ideas were provided for the final demonstration and what the next steps are going to be to finalize the use cases.



Figure 4: Insights from the meeting room at Prinoth

The second day focused on the work in the individual technical work packages. Additionally, a large session on this day focused on the exploitable results and the exploitation plans that need to be updated. Finally, a workshop targeting the ethics guidelines, was organized by partner UL, enabling all the partners to provide their input and feedback to the currently available ethics guidelines. These will be updated based on these results and will be made available to the larger audience.



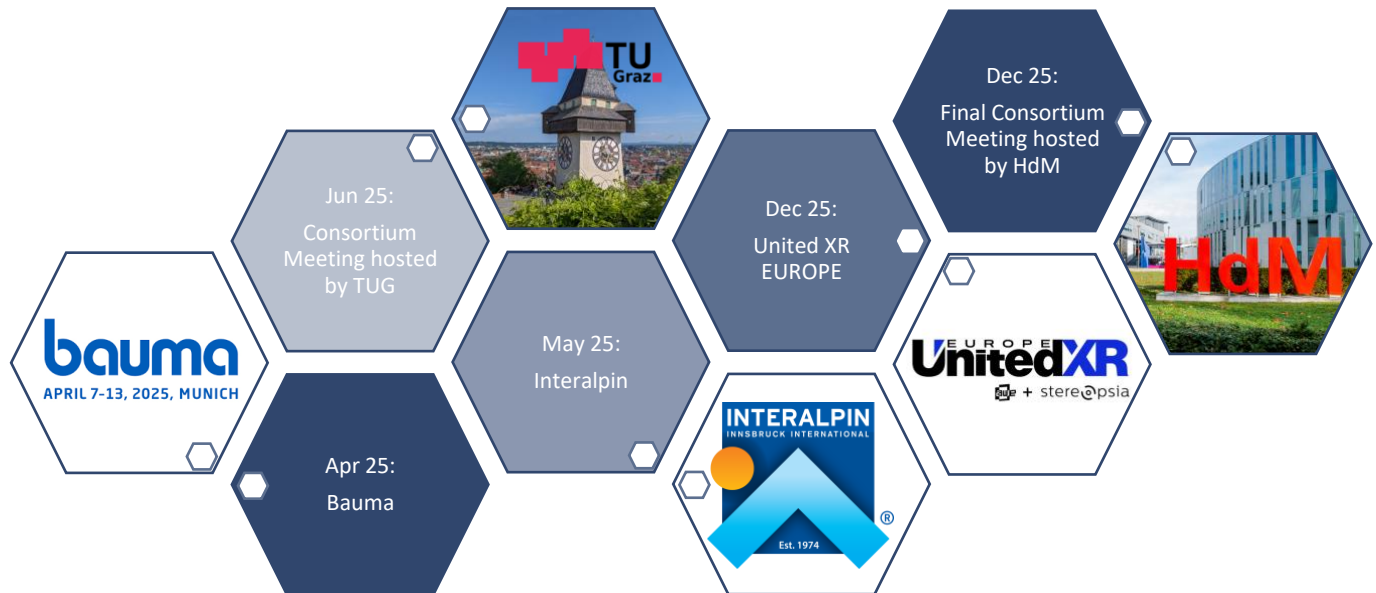
Figure 5: Operating the snowgroomer

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COMING UP



TTControl HYDAC INTERNATIONAL **TTTech**



TECHNISCHE UNIVERSITÄT DRESDEN



Kalmar

VTT

CREANEX SIMULATORS BY GOMFORT



Pinotti



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