

Could you please briefly introduce yourself, your functions, and roles at Premium Robotics, and what Premium Robotics is doing?

As a Development Engineer at Premium Robotics GmbH, I am responsible for the areas of control and regulation technology for our innovative robotic system, alongside my team. Premium Robotics GmbH develops system solutions for scalable automation and networking of complex depalletizing processes in the retail and logistics sectors.

Can you give us examples of successful collaborations or projects in which your company and our cluster have been involved? Please briefly outline the context/topic in which you have worked with SimTech.

Together with the SimTech cluster, we are working on a generic modeling and simulation workflow to represent mechatronic systems. The goal of this joint project is to make the tools of modeling and simulation accessible, especially to small and medium-sized enterprises (SMEs) with limited expertise in these areas. This aims to lower the threshold for using these methods and enhance innovation and competitiveness in Germany.

How did the collaboration come about?

As a start-up, close contact with university research institutions is very important to us in order to directly transfer the latest scientific advancements and insights into industrial applications. Due to our proximity, some employees completed their studies at the University of Stuttgart and established contacts with SimTech and the involved institutions during this time. Consequently, we were already familiar with the competencies and experiences at SimTech, particularly in modeling and simulating complex relationships. The SimTech METEOR Challenge then provided us with an excellent opportunity to initiate an industrial research collaboration.

How would you describe/rate the collaboration and what benefits has it brought?

The unique strength of the collaboration is the fusion of research and industry expertise. SimTech is an expert in analyzing and modeling complex issues and is directly at the source of the latest research approaches and solutions. However, the main challenge of these solutions is often to transfer them into practical, industrially viable concepts. As an industry partner, we are familiar with the current challenges, as well as the requirements and implementation hurdles of industrial companies. Our joint goal is to make promising research topics industrially applicable and thus promote the future viability of SMEs.

Which specific aspects of the cluster have the greatest added value or potential for your company? What advantages do you see for your company and your projects in a partnership with our cluster?

Our focus is on shaping the science-industry transfer. The workflows developed jointly with SimTech allow us to significantly improve the modeling and simulation of our mechatronic systems. The main task of our developed robotic system is the handling process of variable product types. Understanding the exact behavior enables us to use compliant lightweight structures and achieve a highly dynamic operation of the system while maintaining sufficient positional accuracy. Thus, the tools developed together contribute to improving the company's development cycles and to a resource-optimized life cycle of our products through reduced material use and energy demand during operation.

How would you like to shape or improve future cooperation with our cluster?

We are very keen to continue the cooperation with the SimTech cluster even beyond the end of the current project. Possible avenues include further developing the current topic or exploring new areas of interest.

Are there specific areas or topics in which you can imagine closer cooperation with our cluster?

Additional relevant topics in our company where we can envision cooperation with SimTech include examining decision-making processes with uncertain input parameters. Such decision-making processes are crucial in the planning of logistics processes in warehouses to optimize the utilization of automation solutions. Another exciting area for cooperation is the development of AI-supported motion planning for time- and energy-optimized motion control of automation systems.

Written interview with M.Sc. Jonas Scheid, Development Engineer at Premium Robotics GmbH