ITEA project results enhancing people's lives

Digital human simulation helps manufacturers improve productivity and safety

Even in today's age of automation, the assembly of vehicles and other manufactured products still requires significant manual work. Much about the production planning process can be improved, as workers' tasks are typically not visualised in 3D but described in text. Additionally, validation for these tasks occurs on hardware prototypes. Simulation can make this experience more efficient but generating a process simulation is time-consuming and requires tools for experts.

As the production of cars, trucks, buses, etc. become increasingly complex and competitive, the need to maximise efficiency is paramount. At the same time manufacturing companies are looking for new ways to design safe and ergonomic workplaces.
Reliance on physical testing and optimisation not only hinders productivity and inflates costs, but often leaves manufacturers lacking confidence in their operational efficiency.

The ITEA project MOSIM created an open-sourcef framework for digital human simulations that can simulate different manual assembly actions and scenarios comprehensively. This dynamic simulation of humans in production – based on predefined motion units with a standardised interface - has the ability to simulate assembly worker tasks in minutes rather than weeks. From identifying ergonomic opportunities during the assembly process to improving worker productivity, safety and training, MOSIM has enormous potential to impact numerous stages of production.

Companies can improve production planning, increase worker productivity and safety, and reduce risks and costs. The main benefit for the workers is that digital human modelling helps to identify work-related risks in scenarios that are difficult to assess with traditional approaches. The approach helps by eliminating working conditions that negatively impact safety and worker well-being.

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