The Immersive Engineering Lab IELab is a work and presentation environment, which allows for accurately rendering immersive 3D graphics in real-time. Using Virtual Reality (VR), virtual prototyping is applied to a variety of sectors. The research focuses not only on VR technology and software interfaces for seamlessly integrating data from various sources, but also on methods to design custom VR-sessions for collaborative decision-making.

A key target group is the construction sector, which is currently making the digital transition towards building information modeling (BIM). In the IELab, the BIM model becomes a 1:1-scale prototype of the building, to walk through and experience. This way stakeholders can have what is known as an »immersive site consultation meeting« and make decisions efficiently.

Further potential applications:
- Product development
- Ergonomic evaluation
- Production planning
- Urban planning

The main component of the laboratory is a 3D projection system with a powerwall measuring 5.5 meters in length and 3.4 meters in height and a built-in four-sided CAVE. For these, 11 projectors produce a picture of 25 million pixels that is so rich in intensity and contrast, that a lab flooded with daylight is no problem. Real-time visualization and a high-precision tracking system allow users to immerse themselves in the virtual environment. Combining the VR-system with modern conferencing infrastructure means that meetings can benefit from both: conventional face-to-face contact and VR. This turns »virtual prototyping« into »immersive engineering«.