Technische Universität Braunschweig

MUSEN

Data-driven Methods for Simulating and Controlling Fluids

Lecture of
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Okerhochhaus, Pockelsstraße 3,
Seminarraum EG

Physically-based fluid simulations have become an essential part in many graphics applications. One of the main problems is that the design of these simulations is labor-intensive and time-consuming as it involves a permanent trial-and-error process due to the large complexity of the dynamics and solver parameters. This is particularly a problem in the 3D industry where multiple revision cycles are required until the end result converges to the envisioned output. In our work, we develop data-driven methods for simulations and animations, aiming at transforming existing workflows of practitioners and hence to reduce production time. We combine physics simulations with machine learning to reduce the computational costs of simulations and to enable creative assistance. This includes our work on learning and predicting the dynamics, fast reconstruction and interpolation of parameterized simulations, and machine assisted artistic control.