

Digital Twin Implementation in Logistic Environments

(Software-Defined Manufacturing für die Fahrzeug- und Zulieferindustrie)
(SDM4FZI)

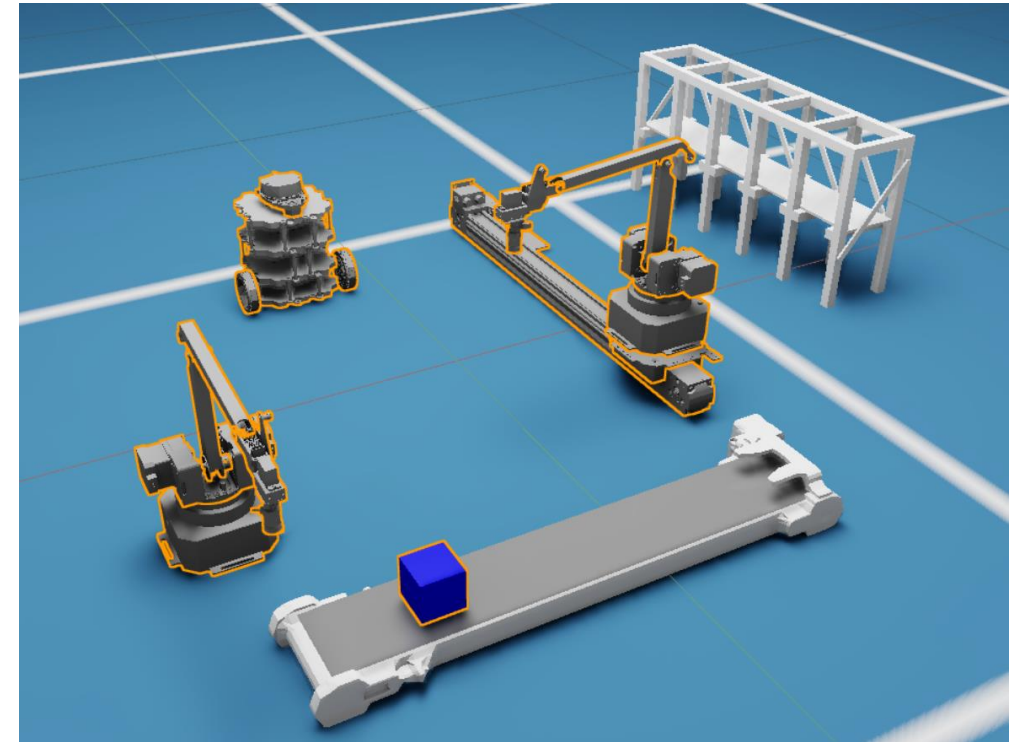
Benchun Zhou



Digital Twin - Definition

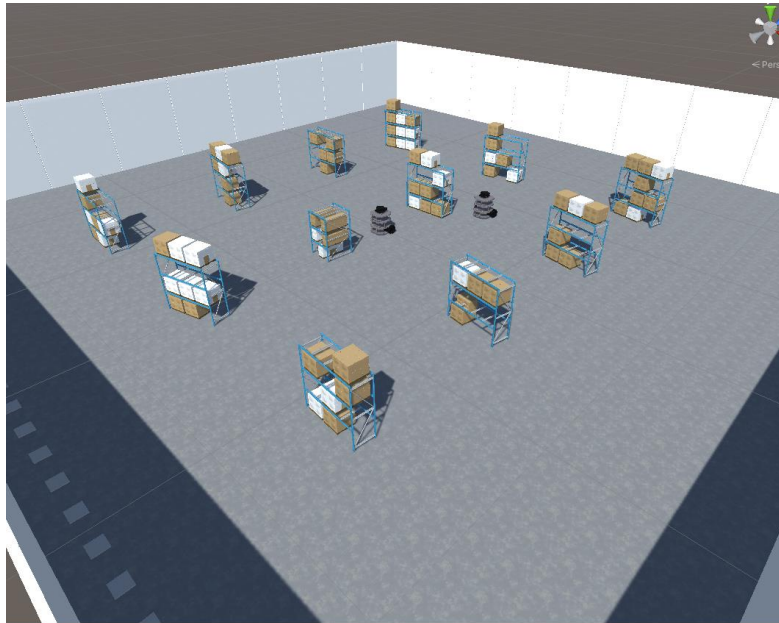
- *„A digital twin is an integrated multi-physics, multi-scale, probabilistic simulation of a vehicle or system that uses the best available physical models, sensor updates, fleet history, etc., to mirror the life of its flying twin.“ [Shafto et. al. 2012]*
- *„virtual representation of a physical system (and its associated environment and processes) that is updated through the exchange of information between the physical and virtual system.“ [Van der Horn et. al. 2021]*

Simulation vs Real World



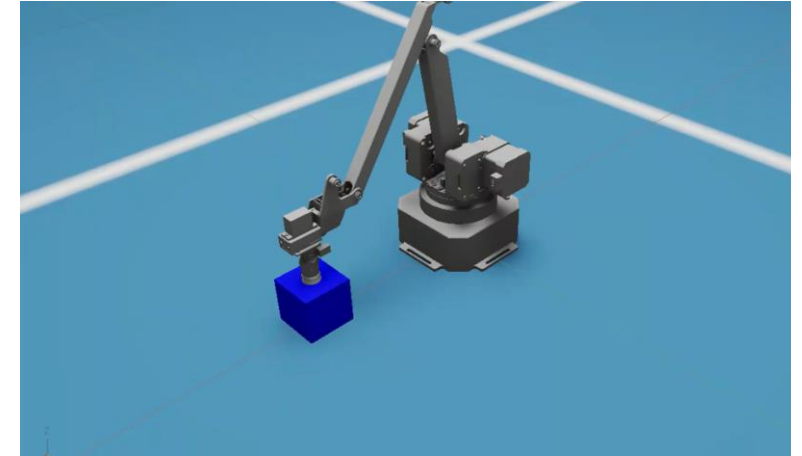
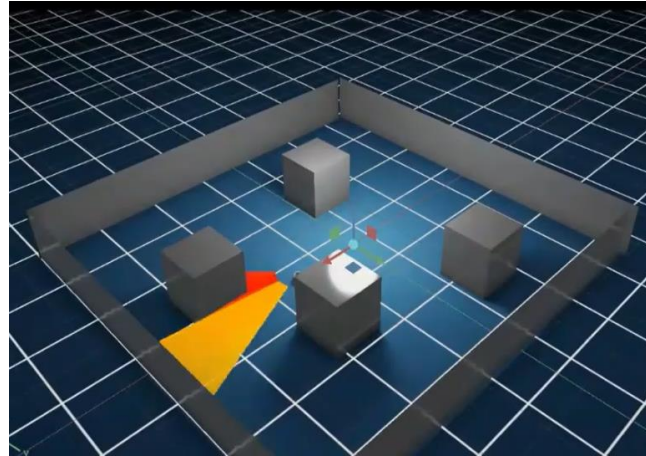
Simulator

- *Gazebo*
- *Unity*
- *Isaac Sim*



Simulator - Issac Sim

- *Turtlebot*
- *uArm*
- *Conveyor*
- *Slider ...*



ROS

