URoboSim — a simulation-based predictive modelling engine for cognition-enabled robot manipulation

Motivation:

- creation of a predictive modelling engine
- closing Sim2Real gap by creating a Sim2Real2Sim setup

UroboSim:

- equivalent interfaces to real robot allow integration into perception action loop

- maintains a scene graph as belief state
- UroboSim scene graph is a virtual symbolic knowledge base

- enables rendering of expected camera image

Applications:
- continuous belief state based on robot sensor data

- simulating real robot actions

- logging of events as first-order time interval logic according to Flanagan action model possible
- publication of data on openEASE
  https://data.open- ease.org/QA?neem_id=213 603127322113d53026863697

Summary/Conclusion

UroboSim
- is machine understandable through symbolic knowledge

- emulates ongoing robot actions

- represents robot manipulation episodes in first-order time interval logic according to the Flanagan action model