

Camera Simulator

Fact Sheet

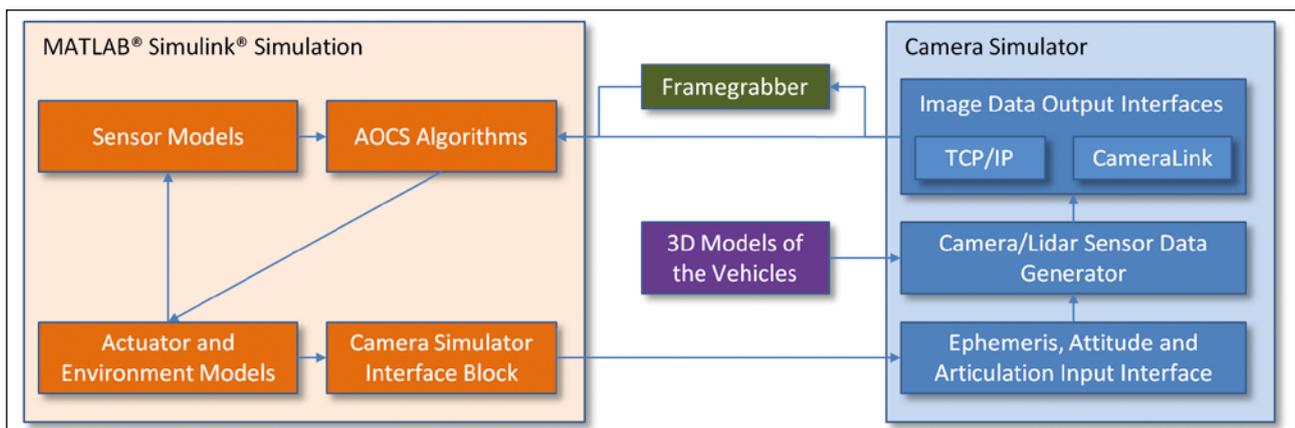


Applications

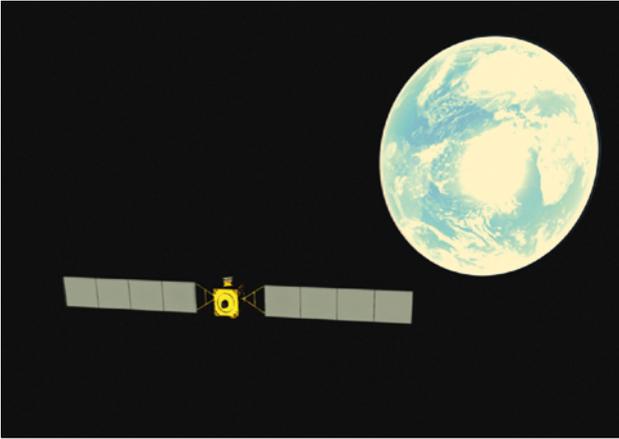
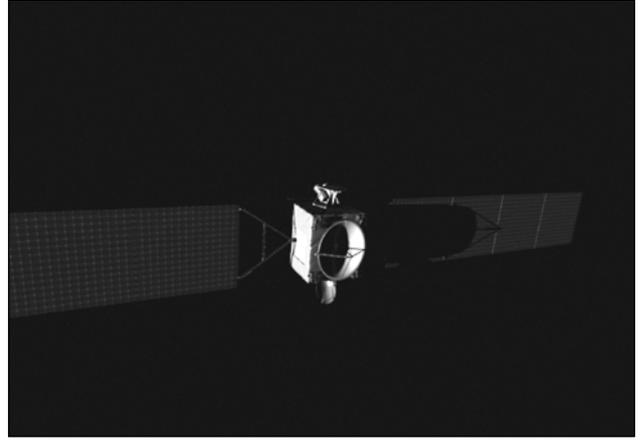
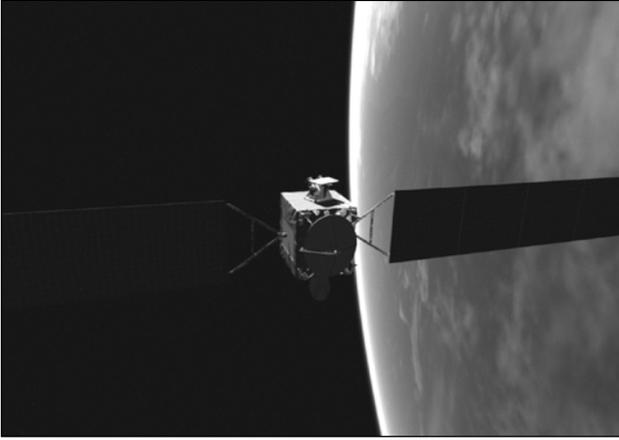
- Generation of photo-realistic images based on 3D graphics
- Generation of raw depth maps for LIDAR sensor modelling
- Simulation of sensor input in early design phases when the mechanical design is not yet fixed and satellite mockup manufacturing would be too expensive or too time-consuming (satellite exists only as CAD model)
- Test and development of image processing algorithms and hardware with realistic input data
- Integration of imaging and LIDAR sensors in closed loop GNC simulations (PIL)
- Fast adaption of scenario or sensor parameters without cost over-runs
- Cheap complement for rendezvous and docking simulators
- Cost and risk mitigation due to early identification of design errors
- Test of many (virtual) cameras or LIDAR configurations in short time without extra costs
- Visual project presentations

Specifications

- Realistic scenario simulation:
 - Surface materials
 - Reflections
 - Shadowing
 - Atmospheric scattering
 - Celestial bodies and star catalogue
 - Light sources
- Simulation of camera effects
 - Depth of field
 - Amplifier noise
 - Defective pixels
- Customizable wavelength spectrum
- User defined scan patterns for LIDAR sensors
- Stereo camera support (side-by-side frames)
- Resolutions up to 2048x2048 pixels
- Request mode for external sensor control
- 1000Base-T Ethernet interface for real-time state vector and sensor data transmission
- Mathworks® Simulink® block for easy interfacing
- Multiple vehicles and articulations (e.g. robotic arm) supported
- Ethernet (SMB, SCP, FTP), and USB3 interfaces for model data upload
- 19" rack mount chassis, 4U, 530mm depth
- High Dynamic Range



Camera Simulator in a Simulink®-based simulation environment



Above: Example images created by the Camera Simulator using different camera parameters and view points

Below: Preview for LIDAR data (on the left the contour of the target, on the right the scan pattern)

