

Designing 3D Scenes and Scenarios with RoadRunner

OEM: MathWorks • Duration: 2 Days (16 hrs) • Code: MW-DESIGNING-3D-SCENES-WITH-ROADRUNNER

COURSE MODULES & TOPICS

Day 1 of 2

Working with the User Interface

- Navigating the RoadRunner interface and layout
- Maneuvering inside a RoadRunner scene using camera controls
- Selecting and moving objects in a scene
- Measuring distance between scene elements

Roads

- Creating, chopping, and joining road segments
- Modifying road shape and vertical and cross-section profile
- Changing road superelevation and speed limits
- Creating on-ramps, off-ramps, and road splits

Lanes

- Adding driving lanes, curbs, sidewalks, and parking spaces
- Customizing lane properties, such as width and travel direction
- Adding, editing, and customizing lane markings
- Saving road styles with customized lanes for reuse

Junctions

- Creating and customizing junctions
- Defining a set of maneuvers in a junction, such as permitted turns
- Signalizing a junction by inserting traffic lights
- Adding crosswalks for pedestrians

Terrains and Props

- Creating a surface of a specific material, such as grass, asphalt, or sand
- Adding props, such as traffic signs, buildings, and trees
- Adding groups of props along a road or within a surface, such as a group of trees
- Customizing text and symbols on traffic signs
- Importing custom props made in other object-modeling tools

Geo-Specific Scene Design

- Importing aerial imagery as a reference for creating roads and surfaces
- Incorporating elevation data to add height information
- Working with point cloud data
- Using vector data, such as OpenStreetMap®

Day 2 of 2

Working with OpenDRIVE Data

- Exporting the scene to OpenDRIVE file format
- Importing OpenDRIVE data
- Mapping OpenDRIVE data to RoadRunner assets
- Exporting to other file formats, such as .fbx, for use with external simulators

Building a Scene from SD and HD Maps

- Creating a road network from selected roads or regions of SD maps
- Creating a road network from selected roads, routes, or regions of HD maps
- Troubleshooting import and build issues
- Configuring assets to use for rendering scene elements, such as signs

Designing and Simulating Scenarios

- Adding vehicles and other actors to a scene
- Defining and editing trajectories
- Using scenario logic to define action sequences and interactions between actors
- Simulating and validating scenarios in RoadRunner
- Exporting to the OpenSCENARIO standard

Creating Scenario Variations

- Creating variations in RoadRunner
- Adding anchors to a scenario and defining relative constraints
- Relocating a scenario to a different scene
- Interacting programmatically with RoadRunner
- Changing scenario variables programmatically with MATLAB
- Exporting programmatically to the OpenSCENARIO standard