

Automated Driving with MATLAB

OEM: MathWorks • Duration: 2 Days (16 hrs) • Code: MW-AUTOMATED-DRIVING-WITH-MATLAB

COURSE MODULES & TOPICS

Day 1 of 2

Labeling of Ground Truth Data

- Overview of the Ground Truth Labeler app
- Label regions of interest (ROIs) and scenes
- Automate labeling
- View and export ground truth results

Visualizing Sensor Data

- Create a bird's-eye plot
- Plot sensor coverage areas
- Visualize detections and lanes
- Convert from vehicle to image coordinates
- Annotate video with detections and lane boundaries

Detecting Lanes and Vehicles

- Perform a bird's-eye view transform
- Detect lane features
- Compute lane model
- Validate lane detection with ground truth
- Detect vehicles with pretrained object detectors

Processing Lidar Point Clouds

- Import and visualize point clouds
- Preprocess point clouds
- Segment objects from lidar sensor data
- Build a map from lidar sensor data

Day 2 of 2

Fusing Sensor Detections and Tracking

- Track multiple objects

- Preprocess detections
- Utilize Kalman filters
- Manage multiple tracks
- Track with multi-object tracker

Tracking Extended Objects

- Define sensor configurations
- Track extended objects
- Estimate spatial extent

Generating Driving Scenarios and Modeling Sensors

- Overview of the Driving Scenario Designer app
- Create scenarios with roads, actors, and sensors
- Simulate and visualize scenarios
- Generate detections and export scenarios
- Test algorithms with scenarios