

# True-to-life Autonomous Vehicle Driving Simulator

Virtual testing solutions that replicate the complexity  
and scale of real-world roads & traffic.

—MORAI—

—MORAI—



Test-driving  
autonomous vehicle  
in the real world  
can lead to accidents.

**MORAI** offers  
the best-in-class  
autonomous vehicle  
simulation platform  
to make the roads safer.

morai.ai

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## Platform Features

### Realistic Vehicle & Sensor Models

Highly configurable vehicle dynamics and various sensor models including cameras, lidars, GPS, and IMU for accurate simulation of your vehicle behavior.

### Digital Twin Maps Created from HD Map Data

A digital twin of your region of interest built from HD map data that bridges the gap between real-world and simulation test environments.

### Realistic Surrounding Vehicle Behavior

Surrounding vehicles automatically navigate around the map  
- powered by their own AI algorithms.

### Synthetic Dataset Generation

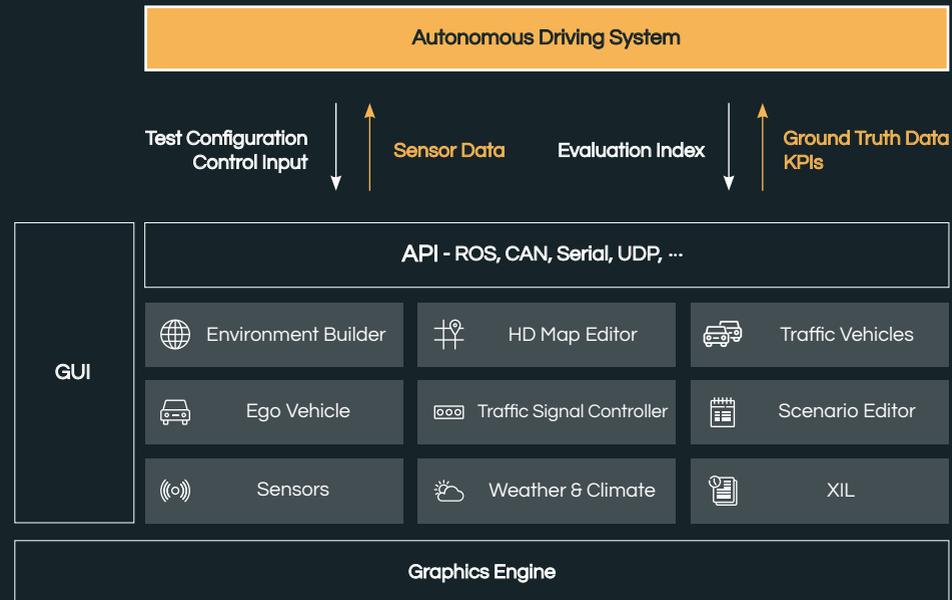
Automatic annotation functionality along with weather and lighting control features allow users to create their own datasets.

### Seamless Integration

Support for a wide range of data communication protocols and operating systems ensures easy integration with your AV stack.

# INTRODUCING MORAI SIM

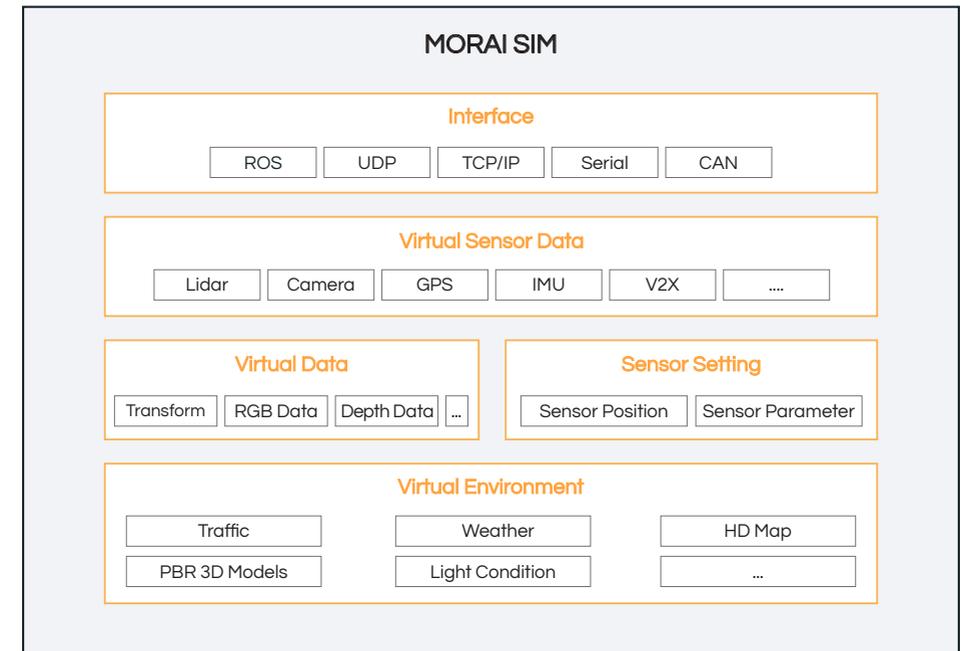
## MORAI Simulation Architecture



MORAI SIM can handle any autonomous driving use case. With a complete feature set that can be tailored to connect to most AV software stacks, MORAI SIM can be used to design and execute scenario-based tests, generate replicas of real life city streets using tailor-made environment building tools, populate scenes with easy to use AI traffic agents, and accelerate the system development process - from project inception to final testing and deployment.

# Sensors

## MORAI Virtual Sensors

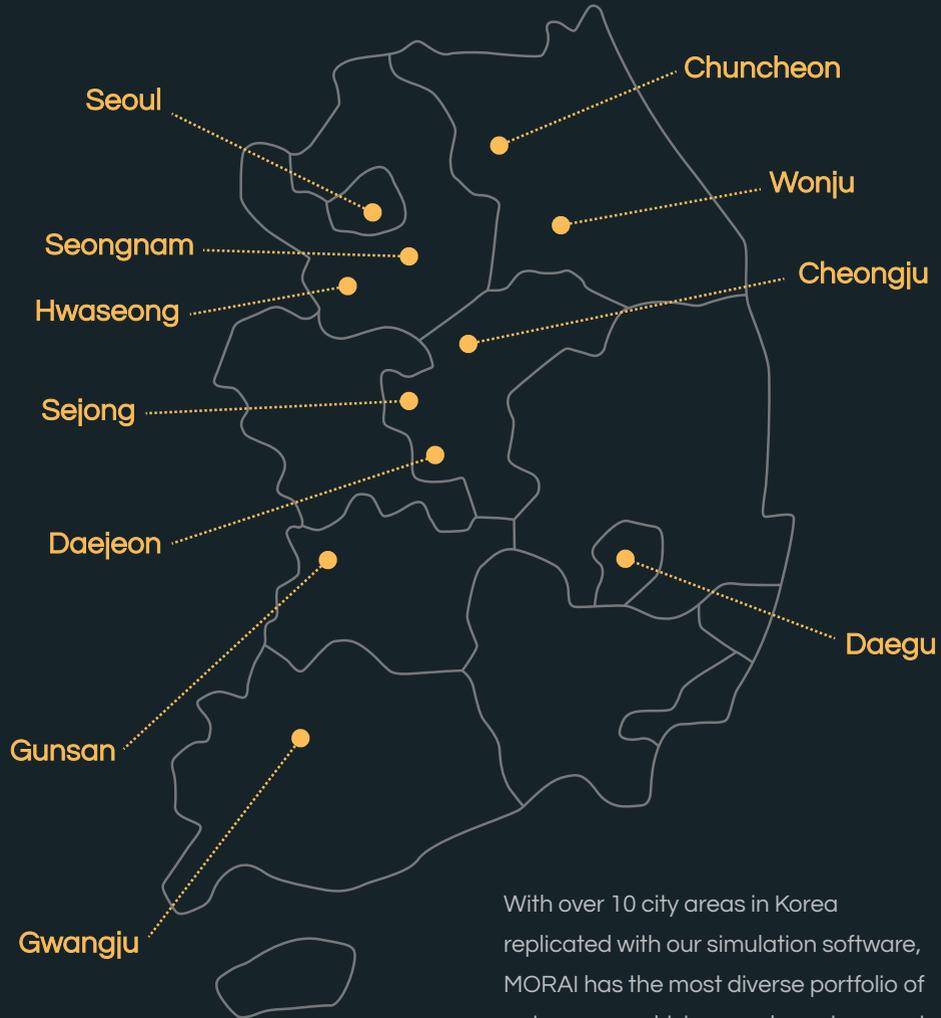


MORAI Simulation platform offers sensor models that are designed to reproduce and transmit data formats identical to their real world counterparts.

Each sensor model can be set to user preferences - for example, camera focal length, lidar model, GPS track error, and many other parameters are all adjustable.

# Environments

## MORAI Digital Twin Portfolio



With over 10 city areas in Korea replicated with our simulation software, MORAI has the most diverse portfolio of autonomous driving-ready environments in Korea.

## Environments of Cities in Korea



## Levels of Detail





# Use Cases

## Example Use Cases

### Case 1

#### Software-in-the-Loop (SIL) Testing

Test the safety of your autonomous vehicle systems in a controlled environment. Create any variety of scenarios, from highway cut-ins to busy city intersections, all populated with AI-powered surrounding vehicles and smart actors. Ensure the system is tested against edge cases and accelerate overall system development.



### Case 2

#### Perception Algorithm Development

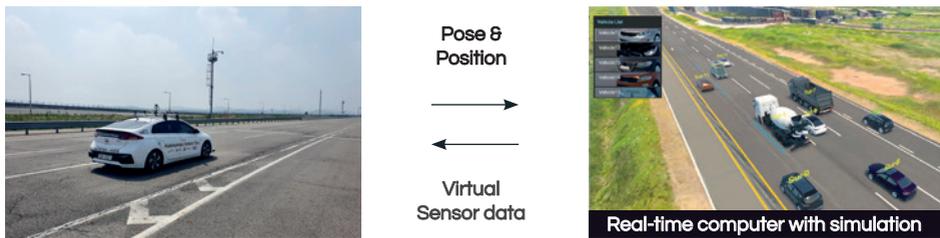
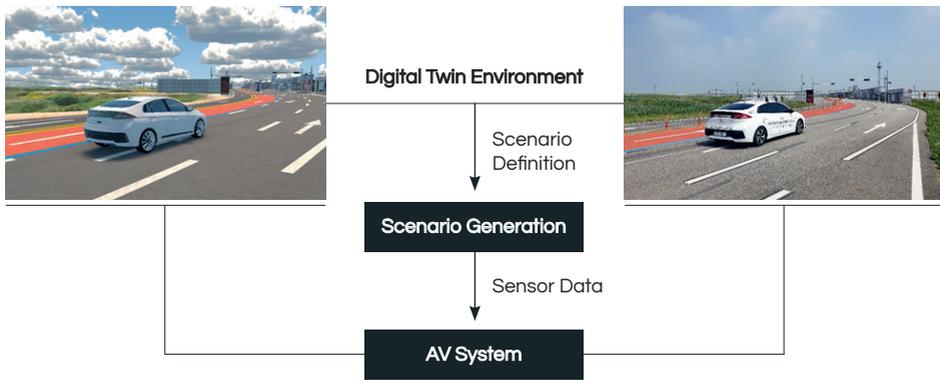
Create scenes with MORAI's simulation by placing a wide range of pre-annotated objects in different weather and lighting conditions. The simulation will automatically drive through the photo-real environment to create synthetic datasets and allow users to cost-effectively add new data to their real-world datasets.

# Use Cases

## Vehicle-in-the-Loop

### Case 3

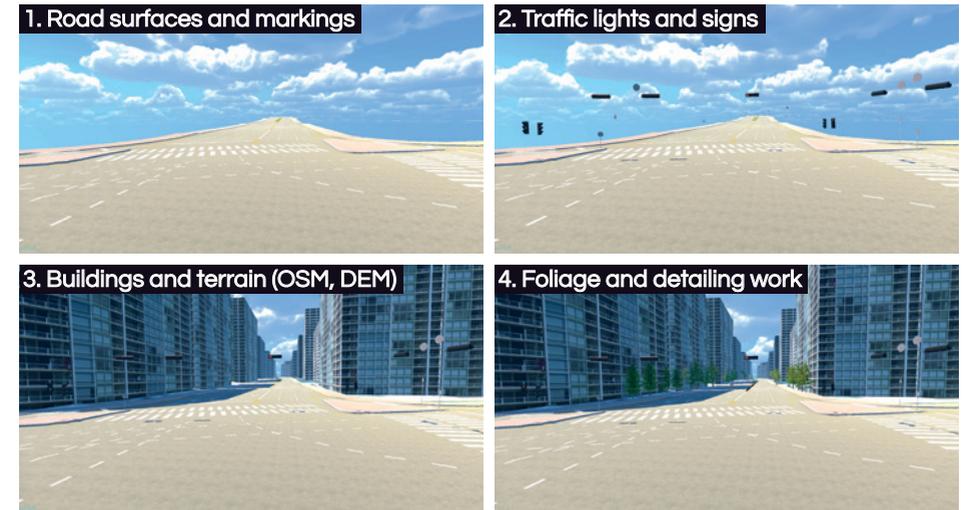
Provides the best of both worlds  
 - the accuracy of VIL systems with the flexibility and safety of simulation.



Virtual testing does not have to be a software only process. Test even the most complex scenarios with production or deployment-ready configurations by connecting MORAI's simulator to real vehicle systems. Mixed reality can provide that final layer of validation you need.

## Environment Generation

### Case 4



Every region of the world has its own unique signs, traffic light designs, and road marking rules. Even within the same region, small towns have very different layouts from the big cities - tall office buildings can occlude sensors in ways houses in towns will not.

To feed all of this different information to the autonomous vehicle, we build immersive 3D environments of each region we operate in. This is made possible with MORAI's automated environment generation pipeline. Using data provided by our mapping partners, we create roads, signs, and buildings - all virtually.

Our Investors



Our Clients & Partners



Validate your autonomous vehicles  
with MORAI simulation today

Contact Us

contact@morai.ai  
www.morai.ai

