Vision:

*Provide the function and support our customers need to fulfill their research and development goals, while keeping the miniSim an affordable and accessible solution.*

Stats:

- Over 70 simulators at 55 sites
- Over 75 user publications, reports, and theses/dissertations published to date
- Based 20 years of development at the University of Iowa
- Supported by full-time staff members
• Single PC
  • Cost Effective
  • Reliable

• Configurations
  • Desktop
  • Quarter Cab
  • Half-Cab
  • Custom

• Compatible with NADS simulators
  • NADS researchers use the same tools daily
  • On-site development and support staff
Common tools used across all NADS simulator platforms

- Integrated Scenario Authoring Tool (ISAT) for scenario authoring
- Tile Mosaic Tool (TMT) for map assembly
- nDAQtools for data reduction
Display configurations:

- 3 x 24” LCD
- Single LCD (size depends on application)
- 3 x 48” LCD
Hardware configurations:

- Desktop
- Simplified Cab
- Quarter Cab
Wheel and pedal systems:

- ECCI Trackstar 6000
- Fanatec ClubSport V2.5
- SimXperience AccuForce
- Logitech G27
Custom Configurations

Mobile

Clinical

All are single PC!
Custom Simulators and Cabs

Fits 36 inch Doorway
Installation and Training

Onsite Assembly

Projector Installation

User Training
miniSim™ Integration Features

**Network**
- Trigger events in simulation
- Control miniSim AutoDriver
- Log data in miniSim
- Control external devices
- UDP over WiFi, LAN, etc

**User-Defined Subsystem**
- Direct Read/Write to Simulation

**Hardware Subsystem**
- Handoff Control
  - NADS AutoDriver
  - External control
NADS AutoDriver
- 12 basic behaviors (lane change, merge, exit, etc)
- Control via scenario triggers
- Control via your own automation system

NADS Virtual World API
- Provides sensor-like data in real-time
  - Geometry
  - Speed Limits
  - Scenario vehicles and objects

Hardware Subsystem
- Controls Handoff via
  - Scenario trigger
  - External system (UDP)
  - Manual input
ISAT™: Integrated Scenario Authoring Tool

GUI Interface

• No Scripting required
• Sophisticated event triggering

3 Modes

• Edit
• Rehearsal
• Playback
A Tile-Based Approach to Building Road Networks
TMT™: Tile Mosaic Tool

Includes the following:

>250 Tiles
  • Urban
  • Residential
  • Freeway
  • Rural
• Assemble your design
• Export to miniSim
Custom Tile Development

- U.S. and International
  - ✓ AASHTO
  - ✓ EU
- Replica or ‘typical’ environments
- Accurate sign fonts and color
- New and aged roadmarkings
- Many source data formats
- Extensive existing libraries
- Support for non-NADS simulators
Wrong-Way Countermeasures
A Virtual Proving Ground for Automated & Connected Vehicles

Springfield: Anytown, USA

A Virtual Proving Ground for Automated & Connected Vehicles
Built, Tested, and Ready to Go!

Ambient Traffic

Diverse Environment
- 285 square miles
- 230 miles of roadway
- 178 intersections
- 143 traffic signals
- 1362 signs

Supports many applications
- Automation Development
- UI Testing
- Distraction
- Outreach, Education
NADS Springfield Road Network Option
NADS Infotainment System

• Available Skins include Toyota Entune and Tesla 3
• Cross-platform via Node JS and Chrome apps
  o Raspberry Pi 3+
  o Android and iOS
  o Windows
• Data Acquisition
  • Menu and Button Status
  • Touch Position
  • Operator Interface
• Audio Playback (MP3 and Internet Radio)
• Map display
• Scenario Integration
Vehicle infotainment system

- Touchscreen interface to replace (but mimic) OEM Toyota Entune (2015) system. Fully-integrated OEM physical keys (steering wheel buttons, etc).
- Built entirely in HTML/JavaScript (Node JS)
- Beyond being controlled by the driver, also controllable by simulator operators, researchers, and/or programmatic triggers
- GPS positioning/mapping created leveraging overhead map infrastructure
- All interactions (touch + physical) logged and broadcast in real time to researchers
Infotainment System

1. Interaction telemetry is collected in real time. Touch events and positions are recorded and relayed to the onboard infotainment controller.

2. The infotainment controller collates interaction telemetry into a greater system state context, which is broadcast over a cellular link.

3. Remote observers see a live “mirror” of the system state through a standard web browser.

Touch points are expressed visually as fingerprint target icons, which ripple and dissipate as the driver removes their finger.
Infotainment System

Instrument Cluster + Infotainment System

- Approximation of pre-production Tesla OEM system, built to operate with NADS simulators, and instrumented vehicles
- miniSim-compatible
✓ Synchronized
✓ Data Overlay
✓ 4 x Cameras
✓ Full HD
✓ AVI, MPEG4
Eye-Tracking Options

Compatible with:

**Eyetracking Inc.**
- ✓ FOVIO
- ✓ EyeWorks
- ✓ Tobii

**Ergoneers**
- ✓ D-Lab data acquisition
- ✓ Dikalbis and Tobii

**Smart Eye**
- ✓ SmartEye Pro
- ✓ MAPPS
Run your carSIM® and truckSIM® vehicle models on your NADS miniSim™ driving simulator.

NADS has integrated Mechanical Simulation’s VS Solver into the miniSim, providing the capability to run your own chassis, tire, aero, and drivetrain Math models in the miniSim simulation environment.
miniSim™ now supports DI-Guy digital humans from VT MÄK.

DI-Guy creates natural-looking smooth behavior for its more than 2,000 motions and transitions.