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 80 simulators at 63 sites
- Over 100 user publications, reports, and dissertations published to date
- Over 20 years of development at the University of Iowa
- Supported by team of 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
  - NADS 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

3 x 48” LCD
Hardware configurations:

- Desktop
- Simplified Cab
- Quarter Cab
Supported wheel and pedal systems:

- ECCI
- Trackstar 6000
- Fanatec Wheel Base
- CSL Elite Pedals
- Loadcell Brake
- miniSim Steering and Pedal Loaders
  (half- and quarter-cabs)
Half-Cab Simulators: Projectors and Curved Screens
Half-Cab Simulators:

Projectors and Flat Screens

All are single PC!
Custom Configurations:

Mobile
Clinical Trials
Training
Ophthalmology Research

All are single PC!
minisim™

Custom Simulators and Cabs

Fits 36 inch Doorway
Simulator Engineering

minisim™

Testing

Development

Control Loaders

Design

Instrumentation and Integration
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
• 8 behaviors (lane change, merge, exit, etc)
• Control via scenario
• Control via external systems

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

Hardware Subsystem
• Controls Handoff via
  o Scenario trigger
  o External system (UDP)
  o 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 road markings
- Many source data formats
- Extensive existing libraries
- Support for non-NADS simulators
Wrong-Way Countermeasures
Ergoneers
✓ D-Lab data acquisition
✓ Dikalbis and Tobii

Smart Eye
✓ SmartEye Pro
✓ MAPPS

Eyetracking Inc.
✓ FOVIO
✓ EyeWorks
✓ Tobii
**NADS Infotainment System**

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

Infotainment System

Tesla Model 3
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 Springfield Road Network Option
Video Capture Option: NADS VidCap™

- Synchronized
- Data Overlay
- 4 x Cameras
- Full HD
- AVI, MPEG4
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.
miniSim Team

Andrew Veit, MS, PE
Director, miniSim
andrew-veit@uiowa.edu
(319)335-4361

Product Management, Application Engineering, System Design, Displays

Shawn Allen, BFA
Technical Lead, Visualization and Graphics
shawn-allen@uiowa.edu
(319)335-4598

Virtual Environments, TMT, Tile Library, ISAT

Oscar Hernandez Murcia PhD, MSc
Software Developer/Engineer
oscar-hernandezmurcia@uiowa.edu
(319)335-0298

miniSim, Automation, Dynamics, Hardware Interface

Dylan Stewart, BS
Software Developer/Engineer
dylan-stewart@uiowa.edu
(319)335-4797

miniSim, Hardware Interface Installer Configuration

Chris Schwarz, PhD
Director, Engineering and Modeling Research
chris-schwarz@uiowa.edu
(319)335-4642

Intelligent Vehicle Systems, ADAS Models, Simulation, Dynamics

Joe Meidlinger
Program Coordinator, miniSim
joseph-meidlinger@uiowa.edu
(319)335-4302

Production, Support Admin, System Checkout, Training Videos, Shipping

Nolan Carroll, BS
Mechanical Engineer
nolan-carroll@uiowa.edu

Design, Engineering, Assembly

Dawn Marshall, MS
Research Manager
dawn-marshall@uiowa.edu
(319)335-4774

Vehicle Interface Evaluation, Standard Testing Protocols, Safer-Sim UTC

Additional Resources

David Heitbrink, MS
Software Engineer
david-heitbrink@uiowa.edu
(319)335-4795

ISAT, Behaviors, Rendering, Audio, Logical Road Interfaces

Chris Schwarz, PhD
Director, Engineering and Modeling Research
chris-schwarz@uiowa.edu
(319)335-4642

Intelligent Vehicle Systems, ADAS Models, Simulation, Dynamics

Dawn Marshall, MS
Research Manager
dawn-marshall@uiowa.edu
(319)335-4774

Vehicle Interface Evaluation, Standard Testing Protocols, Safer-Sim UTC