Simulate: Rich and Compelling Scenarios

VR-Forces

VR-Forces is MÄK's complete simulation solution – a powerful and flexible Computer Generated Forces (CGF) platform to fill your synthetic environments with urban, battlefield, maritime, and airspace activity. Whether you need a threat generator for training and mission rehearsal systems, a synthetic environment for experimentation, or an engine to stimulate C4I systems, VR-Forces is powerful enough to get your job done.

Powerful Simulation Engine

VR-Forces comes with simulation models for hundreds of battlefield units and systems. During scenario execution, VR-Forces vehicles and humans interact with the terrain, follow roads, move in convoys, avoid obstacles, communicate over simulated radios, detect and engage enemy forces, and calculate damage. Whether you're modeling at the entity or aggregate level, VR-Forces can stimulate your unit's behavior based on scenario events such as sensor detection, the crossing of tactical phaselines, or area of interest.

Simple Scenario Creation

The VR-Forces CGF provides an intuitive user interface that allows end-users to build scenarios by positioning forces, creating routes and waypoints, and making and assigning tasks or plans with a simple point and click. Lay down the basic outline on a 2D tactical map, then switch to 3D scenario editing mode to accurately position entities within a complex urban environment. Turn on the exaggerated realty mode to gain a big picture understanding of your scenario without losing your 3D view. Bring up a 3D inset view for any entity to see the world from its perspective. VR-Forces includes a wide variety of models to include in your scenario, including combat, sensor/detection, movement, weather, communications, and resource models.

Intuitive Model Editing Tools

Modelers can configure and set up the simulation environment with VR-Forces' intuitive GUI-based entity and parameter editors. The entity editor allows you to edit or extend the set of simulation models available to VR-Forces. Vehicle dynamics, sensor capabilities, and damage models can be configured using the parameter editor or by editing text-based parameter files.

FEATURES

- 2D / 3D INTERFACE FOR SCENARIO AUTHORING & RUN-TIME EDITS
- CORRELATED SIMULATION AND VISUALIZATION
- HLA AND DIS COMPLIANT
- TERRAIN AGILE, INCLUDING STREAMING TERRAIN
- PARAMETERIZED DYNAMICS, SENSORS, AND DAMAGE MODELS
- GUI-BASED MODEL AND PARAMETER EDITORS
- BATCH MODE FOR ANALYSIS
- REAL-TIME AND NON-REAL-TIME OPERATION
- C++ TOOLKIT TO EXTEND OR EMBED IN CUSTOM APPLICATIONS
- SUPPORTS LINUX AND WINDOWS

USE CASES

- TACTICAL/COMMAND STAFF TRAINING
- CONCEPT EXPLORATION AND VALIDATION
- SCENARIO GENERATION AND EXECUTION
- EXPERIMENTATION & VIRTUAL PROTOTYPING
- AIR TRAFFIC MANAGEMENT
- HUMAN BEHAVIOR STUDIES
- UAV AND UAV SENSOR SIMULATION

VT MÄK

A company of VT Systems
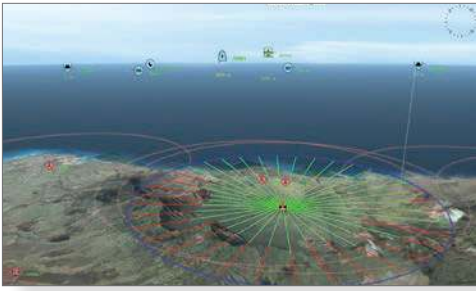
Extending and Customizing VR-Forces

VR-Forces' scriptable tasks enable users with only basic programming skills to quickly develop complex tasks, easily coordinate group behaviors, and script GUI components in minutes.

For those developers who need to extend or customize the VR-Forces CGF or integrate VR-Forces functionality into custom applications, the VR-Forces Toolkit, a full C++ API, is available. Through this API, nearly every aspect of the VR-Forces simulation engine and GUI is customizable – add, replace, or modify the simulation engine's vehicle dynamics, behaviors and tactics, damage models, sensors, countermeasures, and weapons to suit the needs of your simulation. VR-Forces' Remote Control API allows you to control its simulation engine from remote applications.

Distributed Architecture

VR-Forces features a fully distributed architecture. You can divide responsibilities among multiple simulation engines for greater scalability, or run multiple front-end GUIs for collaborative scenario generation or training.

Terrain Agility - MÄK's Ability to Easily Load Your Terrain

VR-Forces is designed to simulate on and visualize terrain data from many different industry standard formats. When your simulation requires quickly generating a scenario in a new location, VR-Forces can read terrain directly from source data such as DTED, ESRI® shapefiles, or can even stream in elevation and imagery over a network, from terrain servers like MÄK's VR-TheWorld Server. VR-Forces can simulate in dense urban environments, including the interiors of multi-story buildings, or simulate scenarios that span the entire globe.

Flexible, Portable, Supported

VR-Forces fits into a wide variety of system architectures, and natively supports the DIS and HLA interoperability protocols. It includes extensive documentation for end-users, modelers, and developers. And it is backed by MÄK's renowned technical support — customers have direct access to VR-Forces' core engineers. You can also be confident that the product will always keep up with industry demand for new features, terrain formats, and interoperability standards.
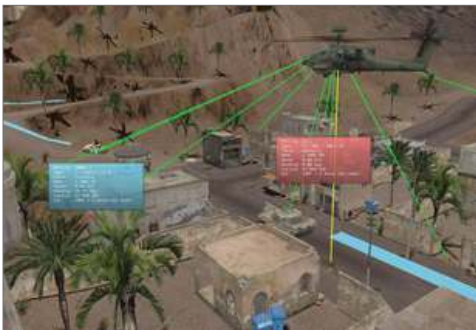
B-HAVE: AI Navigation for VR-Forces

The B-HAVE plug-in for VR-Forces leverages advanced Artificial Intelligence (AI) technology to fill your exercise with more complex and realistic behaviors. B-HAVE uses Pattern of Life to allow users to easily add intelligent clutter to any simulation. Users can quickly create streams of entities that follow predefined patterns based on geography and time; these patterns rapidly fill terrain with entities that can analyze terrain topology, intelligently navigate through complex urban environments, automatically plan and follow paths through 3D building interiors, dynamically avoid collisions with obstacles or other entities, and flee from threats.

B-HAVE visualizes behavior decisions made by simulated entities, including their intended path and obstruction volumes. All of this data is displayed as part of the scene within the VR-Forces GUI. This visual tool is key for anyone designing and debugging complex behaviors and scenarios.

B-HAVE is powered by Autodesk Kynapse, the leading AI technology toolkit for behavior simulation in the video game industry.

Battle Command

Battle Command is an affordable Command Staff Trainer (CST) that allows combat commanders to practice their planning and execution skills within a compelling simulated environment. Its customized user interface is designed specifically to be used for command staff training.

Plan, Fight, and Review the Battle

Battle Command helps commanders develop warfighting skills by allowing them to plan the battle, fight the battle, and review the battle. In the planning phase, trainees produce graphical and text-based products to support their military decision making process. During this process, trainees collaborate on shared graphical overlays and text based plans. When trainees are ready, they run the simulation and fight their plan against other players or a computer-directed enemy. During the exercise, trainees can work together to revise the plan and issue changes to subordinate unit commanders. At the end of the exercise, Battle Command provides charts and tracking information to help determine the success of the battle plan, as well as a full recording of the exercise for after action review.

Augment the Effectiveness of CST

Battle Command is easily reconfigurable for country, language, force structure, doctrine, battlefield, and scenario. Battle Command is used to augment the effectiveness of traditional command and staff training. Training exercises using low-cost trainers like Battle Command serve as an effective preparatory method to maximize live training experience.

Current Uses of Battle Command
• Air Support Operations Center Staff Training
• USMC Expeditionary Warfare education
• Army staff training
• CBRNE training

FEATURES

- CONSTRUCTIVE, SYNTHETIC ENVIRONMENT FOR PRACTICING MILITARY SECURITY & GROUND COMBAT DECISION-MAKING TASKS

- EASY-TO-USE SCENARIO EDITOR, UNIT EDITOR, EVENT EDITORS, AND AAR TOOLS

- MASTER SCENARIO EVENT LIST (MSEL) MANAGER

- TERRAIN TOOL TO LOAD A VARIETY OF TERRAIN FORMATS

- SINGLE-PLAYER AND MULTI-PLAYER MODES

- CAN BE USED AS A "LOW OVERHEAD DRIVER" TO STIMULATE A VARIETY OF COMMAND & CONTROL SYSTEMS

For more information about any of our products, please contact us at info@mak.com. ✳

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