
Annex R – CML – REAL-TIME VEHICLE SIMULATION USING VORTEX STUDIO

Note: This Annex appears in its original format.



Real-Time Vehicle Modelling

Presentation to
AVT308



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Company Profile

- **Products:**
 - Real-time simulation software platform
 - Simulation professional services
 - Simulation hardware with motion platform, multi-screens and OEM controls
- **Markets:**
 - Defense vehicles
 - Ports and shipping
 - Construction
 - Offshore and Subsea
 - Robotics



Defense Vehicles

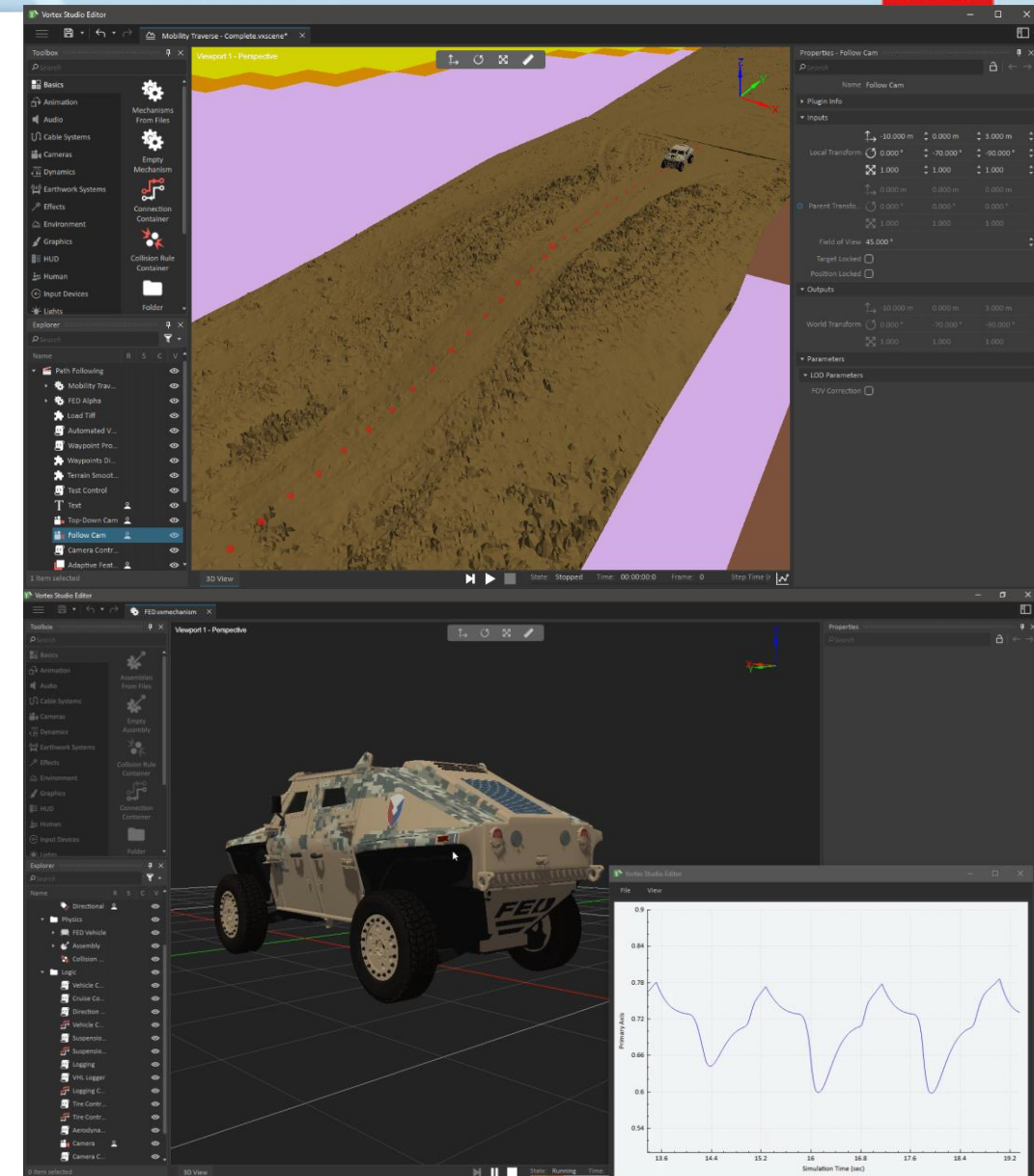
- Tracks or wheels
- Complete powertrain simulation
- Library of vehicle templates
- Hard ground and soft soil models (Bekker/Wong or Cone Index)
- High-fidelity physics and graphical modelling
- Hardware in the loop

Real Time



Fast, Efficient Model Creation

- Interactive creation and debugging of models
- Rapid iteration of changes and test results
- Visualization of kinematic and dynamic properties
- Visualization of environment
- Live data plots



Driver Simulator with Validated Model

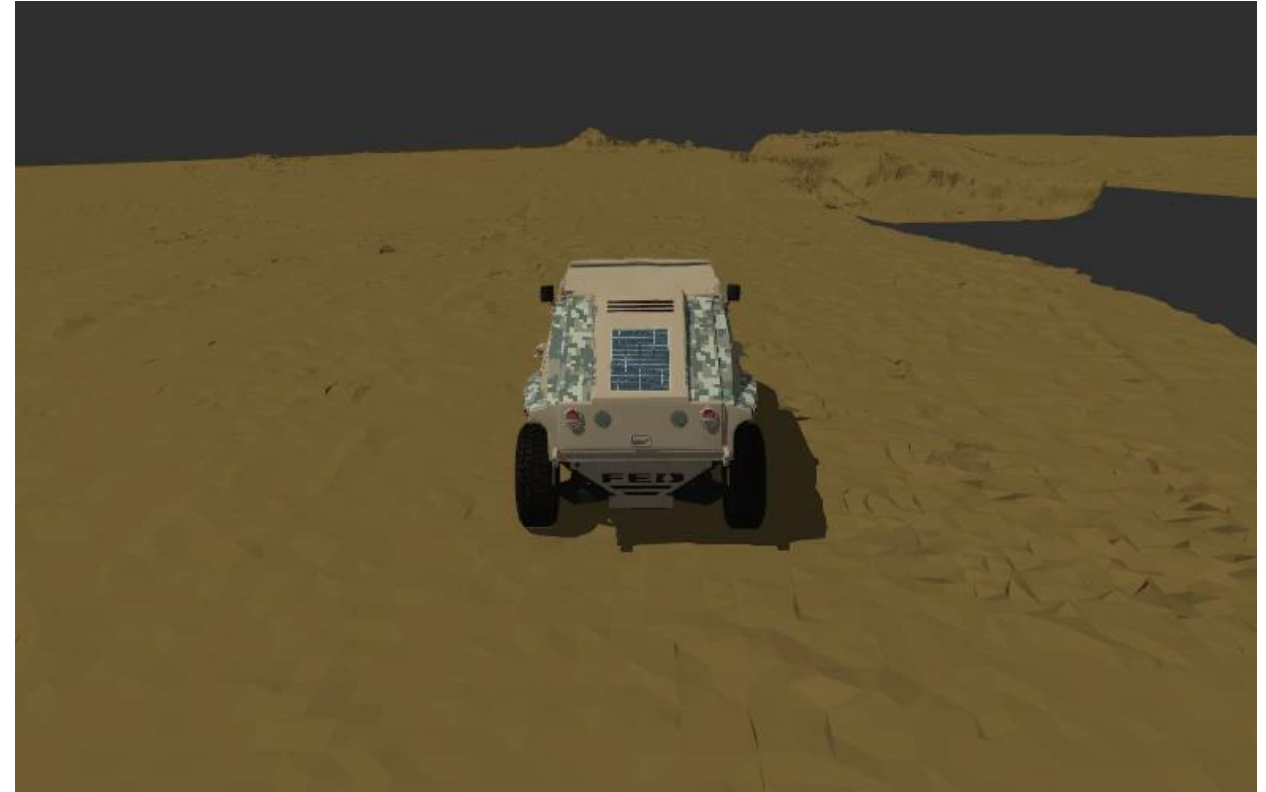
- **Driver Training**

- Vehicle models developed and validated with NG-NRMM
- Same model with same fidelity can be used for driver training



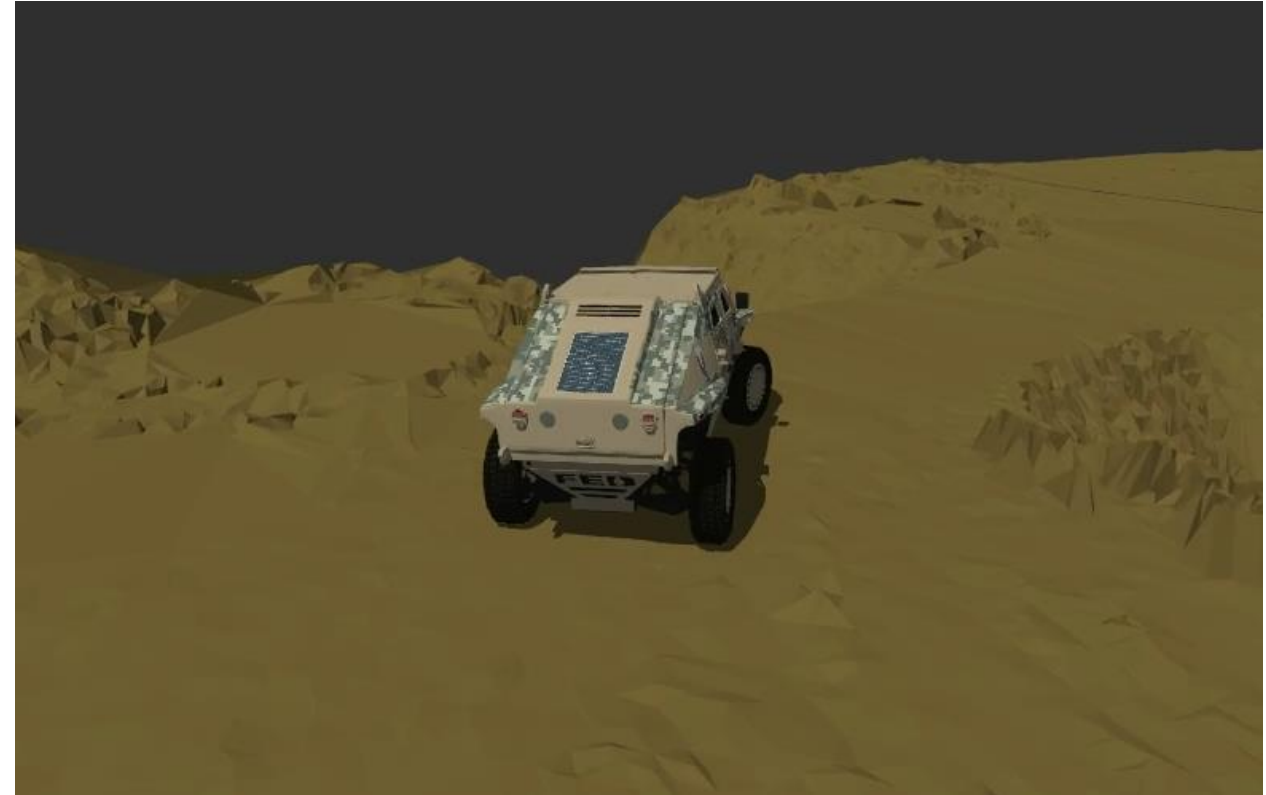
Driver Simulator with Validated Model

- **Replace Driver Model**
 - Driver model does not make same decisions as real driver for path planning and speed optimization
 - AI driver might take risks that a real driver should not
 - Even more-so for NG-NRMM with more sophisticated criteria
 - Real-time simulation could include live driver instead of AI driver model



Driver Simulator with Validated Model

- **Practice on real terrain**
 - Preview and practise on real route in advance of deployment
 - Features and dangers might be visible driving through virtual terrain that are not obvious from maps



Fast Regeneration of Go/NoGo Maps

- **Simulation results produced quickly**
 - Route speed estimates calculated in minutes
 - Go/NoGo map updates in hours, not days

