



*NURC - Partnering for Maritime Innovation*



# THE OPEN SEA PLATFORM

Visualization, Simulation & Modeling

Dr. Michel Leonard



# *A Journey in “Open Sea”*





## *The mission*

The NURC Open-Sea Platform is a distributed Real Time PC-based platform that enables the NURC to rapidly build Maritime 3D simulations or serious games both above and underwater.

The Open Sea Platform puts the power to develop, visualize, train and practice complex scenarios into the hands of the people who do the work, are the experts, and have a stake in the outcome by drastically driving down the cost, time and skills required.



## *Current Applications*



- Virtual Rapid Prototyping Tool
- Visualization of Concepts
- Preparation of Conops/Exercises/Sea Trials
- Serious Games and Training
- Debriefing Tool (with recorded data)
- Innovation Coaching Tool





# *Techniques*

PC or Laptop Windows  
with Game-oriented Graphic Card

+

Full Real-time Generation  
of the scenario

+

External data stimuli

+

Human stimuli

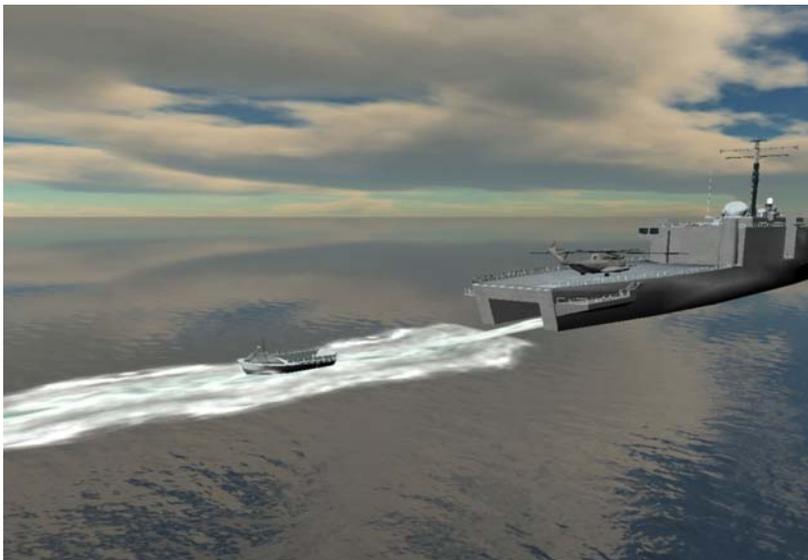
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Artificial Intelligence





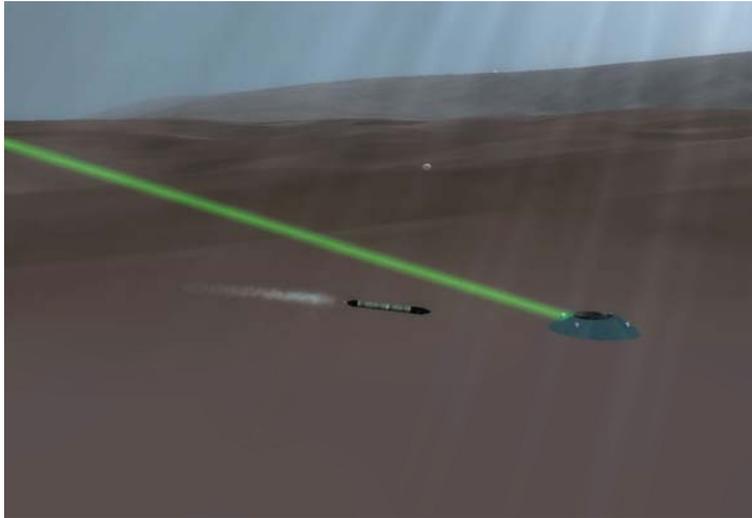
## *Architectures*



- Standalone
- Distributed
  
- Augmented Reality
- Augmented Virtual Reality
  
- Independent AI
- Independent Simulators
  
- Supervisor mode
- Assistant mode

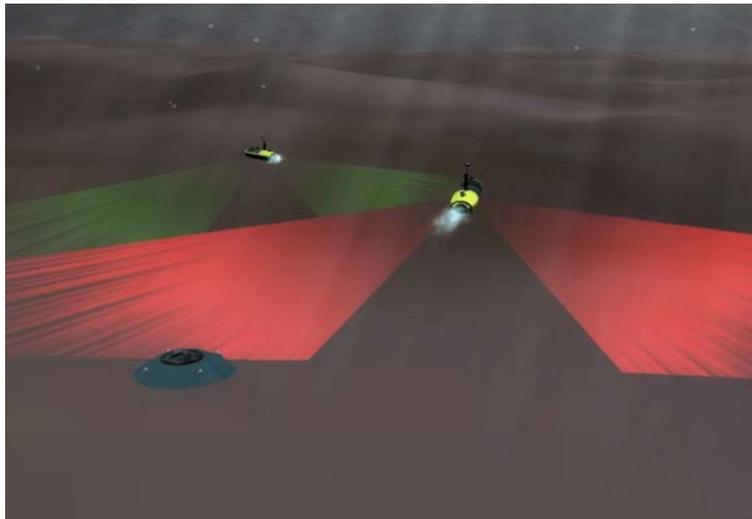


# Conception Time



Order of magnitude:

- Static model : 2 hours
- Dynamic model: 5 hours
- Scenario : day to weeks
- Serious games: weeks to months





# *Virtual Harbour*

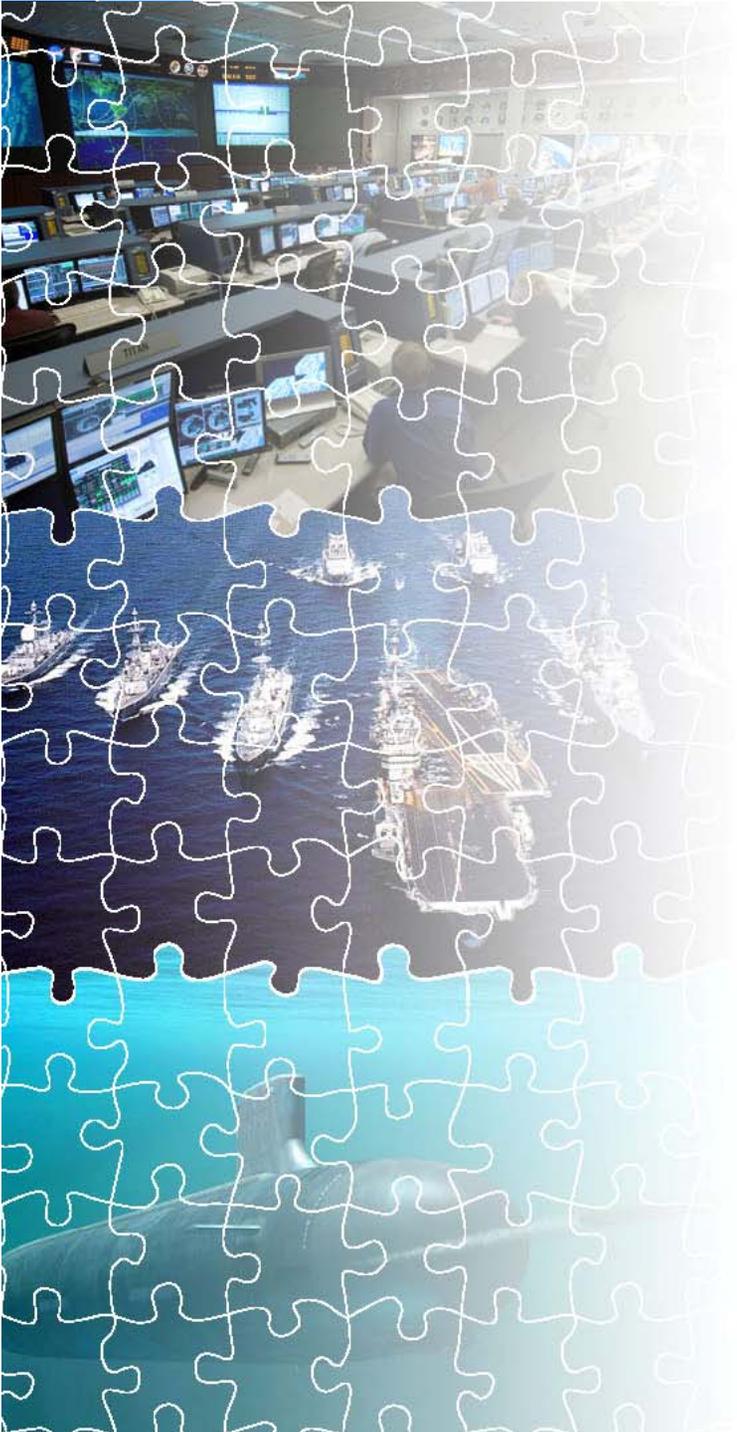
*[Belcoast 09]*

- Explore, innovate, validate by designing “a la carte” scenarios for the protection of specific harbour using latest and future harbour protection technologies (e.g. pop-up nets).
- Reduce development costs, time, and risk of future harbour protection infrastructure.
- Assistance in the definition and validation of concepts of operations in collaboration with various authorities.

# *Virtual Harbour*



- Real-Time Graphic above and underwater
- Harbour Full 3D representation
- Real-Time ships (AIS data)
- Real-time ship simulators
  - Attacker's ship console
  - Police' ship console
- AI Controlled Master Board:
  - Harbour Security
  - AUV, UAV, USV, etc.
- Real-time instructor inputs
- Virtual Reality





***SEE YOU IN BELCOAST 09 !***

