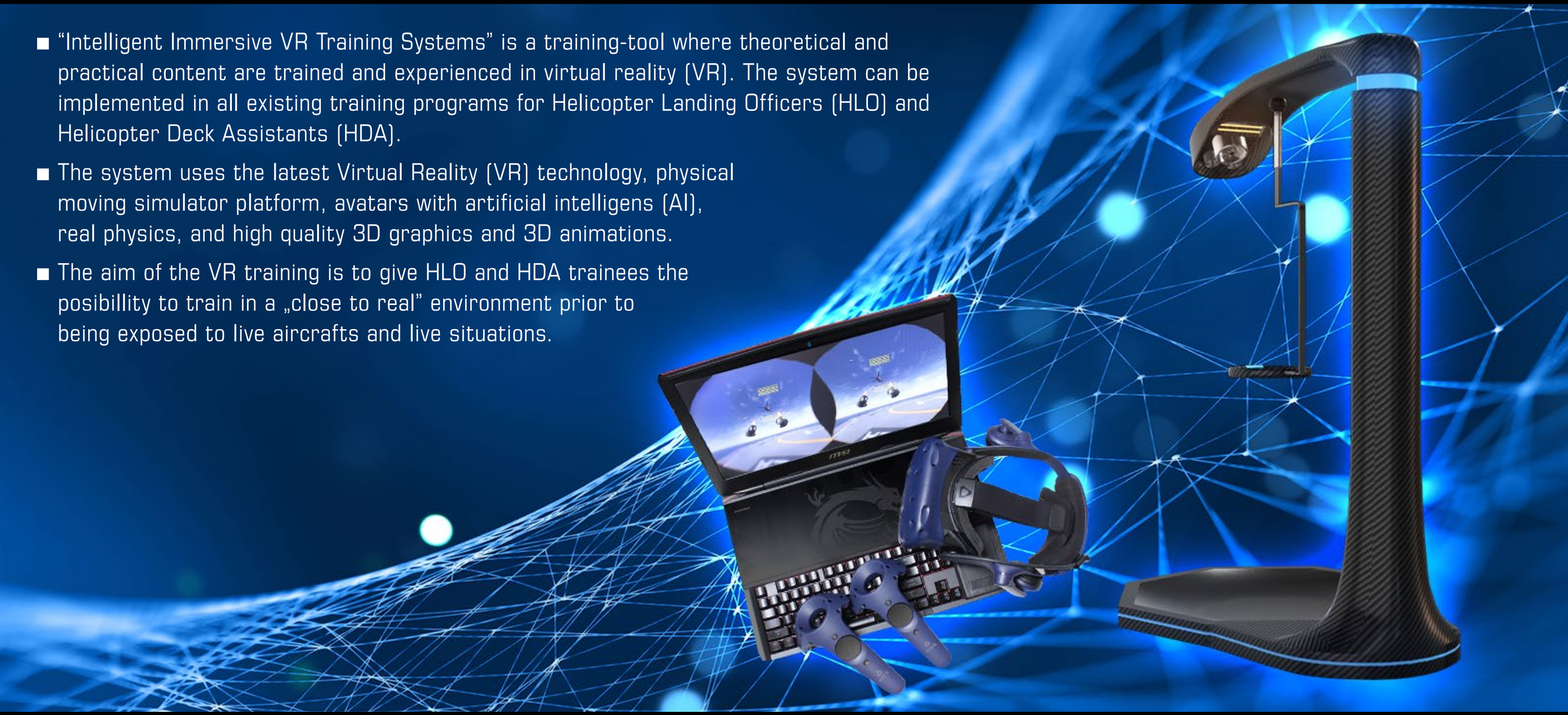
VROFFSHORE
TRAINING SYSTEMS

INTELLIGENT IMMERSIVE VR TRAINING SYSTEMS

TRAINING MODULES FOR HELICOPTER LANDING OFFICERS AND HELICOPTER DECK ASSISTANTS

WHAT IS “INTELLIGENT IMMERSIVE VR TRAINING SYSTEMS”?

- “Intelligent Immersive VR Training Systems” is a training-tool where theoretical and practical content are trained and experienced in virtual reality (VR). The system can be implemented in all existing training programs for Helicopter Landing Officers (HLO) and Helicopter Deck Assistants (HDA).
- The system uses the latest Virtual Reality (VR) technology, physical moving simulator platform, avatars with artificial intelligens (AI), real physics, and high quality 3D graphics and 3D animations.
- The aim of the VR training is to give HLO and HDA trainees the posibillity to train in a „close to real” environment prior to being exposed to live aircrafts and live situations.



WHAT IS UNIQUE WITH “INTELLIGENT IMMERSIVE VR TRAINING SYSTEMS”?

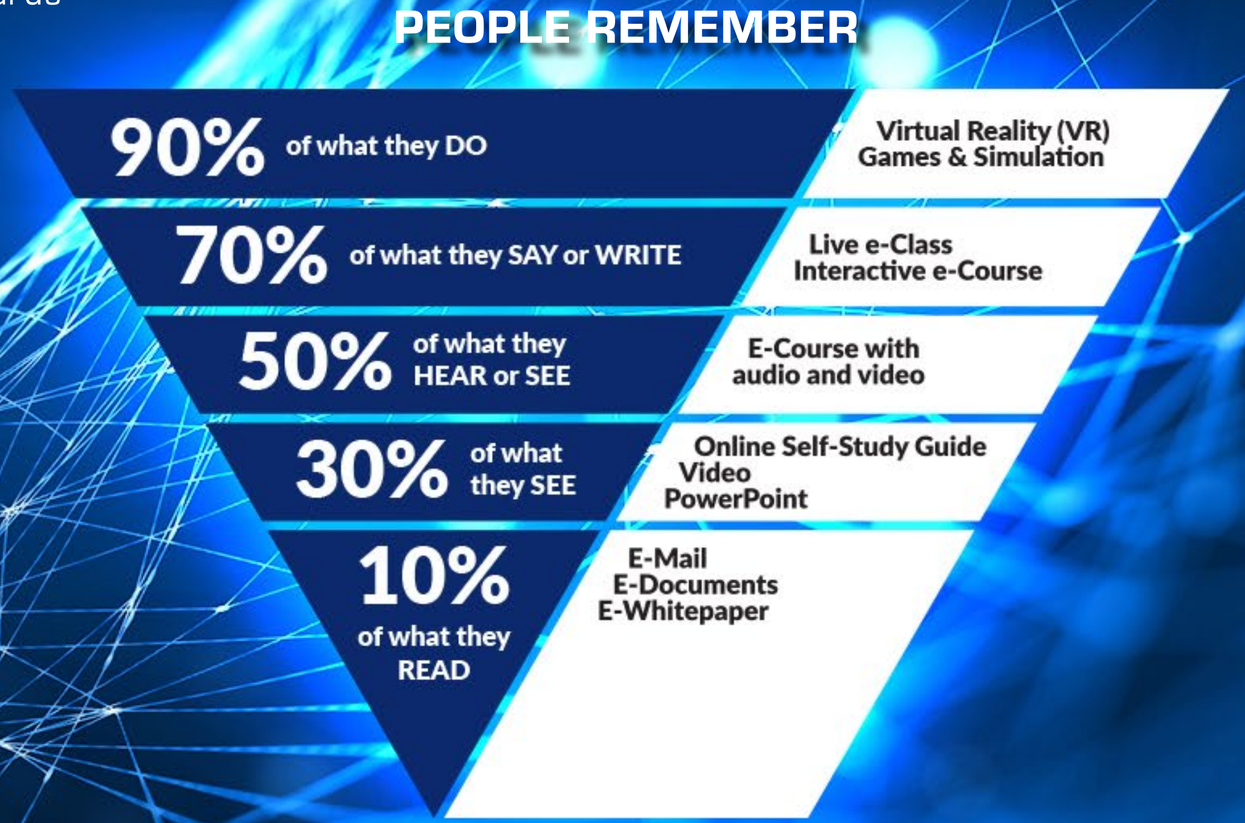
- Simultaneous VR training of multiple students in class room location.
- Exercises in realistic VR environments together with other real crew members or “avatar” crew members influenced by artificial intelligence (AI).
- Training in multiple and harsh weather conditions.
- Training on unexpected and hazardous scenarios without danger to the trainees and the helicopter crew or risk of damage to equipment.
- Efficient and interactive learning process with direct results and realistic consequences of trainee’s performance.
- Mobility of the system, which allows for training in remote locations outside of the established training facilities.

WHAT ARE THE BENEFITS?

Virtual Reality training for personnel working with aircraft and helicopter is a comprehensive and cost-effective training solution.

- it delivers considerable safety benefits for students and instructors
- It allows students' skill levels to be developed to near-operational standards prior to exposure to live aircraft
- It reduces significantly material and equipment cost
- It allows to train scenarios which would never be executed in field training
- It opens for new and exciting online training solutions.
- It's mobility opens for new markets

Studies indicate the suitability of virtual reality environments for training purposes.



WHERE CAN THE VR MODULES BE IMPLEMENTED?

The system consists of 3 training modules providing following VR content to be implemented within the matrix of traditional HLO and HDA courses.

VR MODULE 1. DECK OPERATIONS AND GENERAL KNOWLEDGE

- Helicopter types and its features
- Handling of the helicopter on the ground
- Safety zones and people transfer
- Helicopter refueling routines

VR MODULE 2. SIGNALING AND COMMUNICATION

- Radio communication, hand signaling, maritime and aviation signs and appropriate routines.

VR MODULE 3. EMERGENCY DECK PROCEDURES AND FIREFIGHTING

- Emergency situations on the deck - alerting and breafing of personnel, preparing of equipment, evacuation of personnel and Basic Member Firefighting (2.6a).
- Leader Firefighting (2.8) and Helicopter Firefighting (2.9a, 2.9b) when integrated with a physical simulator platform.

VR MODULE 1 DECK OPERATIONS AND GENERAL KNOWLEDGE

HELICOPTER TYPES AND ITS FEATURES

- Helicopter components
  - rotors range
  - doors and platforms with its movement limits
  - interior type with its configuration and capacity
  - cargo hook
  - helicopter fuel means
  - rescue lift
  - undercarrige components
  - lights and signs
- Physical Data of the helicopter
  - size and weight
  - flight performance incl. wind limits
- Passanger and fright features
- Safety features
- Virtual helicopter showcase (exterior and interior)

SAFETY ZONES AND PEOPLE TRANSFER

- Designated approach areas
  - passenger safe areas
  - transfer ways

CHECKING AND PREPARING THE HELICOPTER DECK

- Deck configuration
  - deck size and surface
  - obstacles above and on helideck
  - illumination of the helideck
  - anti slip net, perimeter net
- Deck equipment
  - wind sock
  - weather instruments
  - operational equipment (rope, chocks, scale, APS)
  - safety net
  - crash box (rescue axe, hacksaw, blades, grab hook, crash knife, crowbar, bolt cutter, fire blanket, gloves, rescue line, ladder etc.)
  - safety notice boards
- Fire fighting equipment
- Foam forming agents
- Dry powder extinguisher, long lance extinguisher, water hoses, ring line system etc.
- Refueling equipment
- Personal equipment

HELICOPTER REFUELING

- Helicopter refueling system (typical)

VR MODULE 2 SIGNALING AND COMMUNICATION

AVIATION AND MARITIME SIGNS AND SIGNALS, AVIATION PHRASES

- Phonetic alphabet and numbers
- Readibility scale
- Standard words and phrases
- Hand signals
- Hazard and handling labels

COMMUNICATION AND APPROPRIATE ROUTINES

- Frequencies
- Helicopter call signs
- Helideck communication
  - radio messages
  - light signals
  - hand signals
- Weather Information
  - wind direction and speed
  - last minute changes
  - visibility and cloud base
- Hand marshalling signals

VR MODULE 3 EMERGENCY DECK PROCEDURES AND FIREFIGHTING

BASIC MEMBER FIREFIGHTING (2.6A)

- Responding to alerts, identifying calamities and defining the location, determining the required equipment and means
- Using a self-contained breathing gas apparatus and breathing gas procedures.
- Using means of communication.
- Securing the place of the accident.
- Executing firefighting

LEADER FIREFIGHTING (2.8)

- Practical training by executing various firefighting and rescue operations.

HELICOPTER FIREFIGHTING (2.9A AND 2.9B)

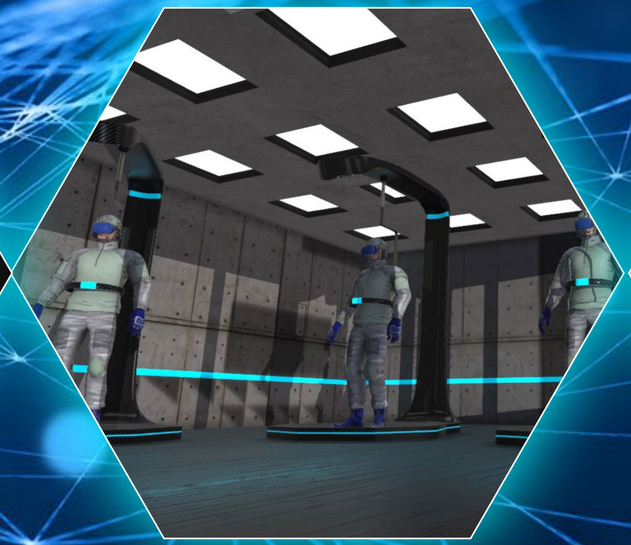
- Practical training for firefighting in the helicopter and rescue operations during a calamity
- Use of a foam monitor, fire hose, and small fire extinguishing equipment
- Rescuing passengers from a helicopter

SIMULATOR PLATFORM SOLUTIONS

In addition to the audiovisual VR software application, the systems immersive simulator platforms giving the trainee a “close to real” experience.

VR AUDIOVISUAL SOFTWARE APPLICATION WITH VR HARDWARE KIT

SMALL SIZED IMMERSIVE SIMULATOR PLATFORM



EDU-PLATFORM

FULL SIZE (HELIDECK) IMMERSIVE SIMULATOR PLATFORM

All systems allow interaction between the trainee and other trainees or avatar crew members controlled by artificial intelligence. The VR systems can be implemented in to all traditional and existing training programs for ground personnel working with helicopter.

SIMULATOR SOLUTIONS

ALTERNATIVE 1

VR audiovisual application software without a mechanical simulator platform. The trainee walks around on the helideck using a VR teleportation" technique. No physical stimulation effects included.

The trainee walks around on the virtual helicopter deck using a VR „teleportation" technique. No physical stimulation effects included.

In addition to interact with real people´s avatars on the virtual helicopter deck, the trainee may interact with non human avatars (crew members and passengers) possessing artificial intelligence.

In this alternative, there are some limitations for special excercises.

VR Hardware KIT:

- VR glasses with two-way audio communication
- Face tracker (showing facal expressions)
- Body trackers (tracking body movements)
- Haptic VR-gloves (haptic feedback)
- Base stations
- Computer

VR Application software:

- Immersive VR Training Systems´ HLO-application

SIMULATOR SOLUTIONS

ALTERNATIVE 2

VR Hardware Kit and HLO Application software with a small sized mechanical simulator platform for one single trainee. The trainee walks around on the helideck using a VR treadmill. All physical stimulation effects are included.

The trainee may interact with other trainees or avatars possessing artificial intelligence (helideck crew members, helicopter passengers and the helicopter crew).

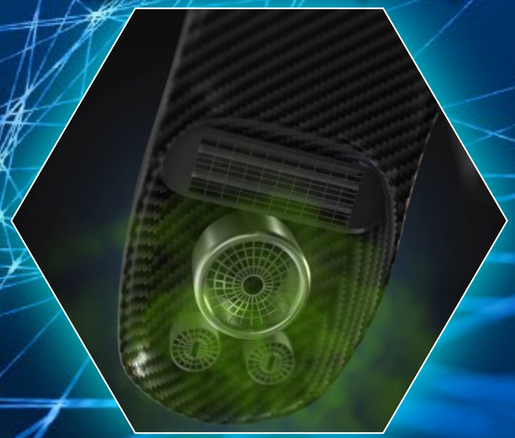
VR HARDWARE KIT

TREADMILL

AIRFLOW
from the helicopter

HEAT
(burning objects)

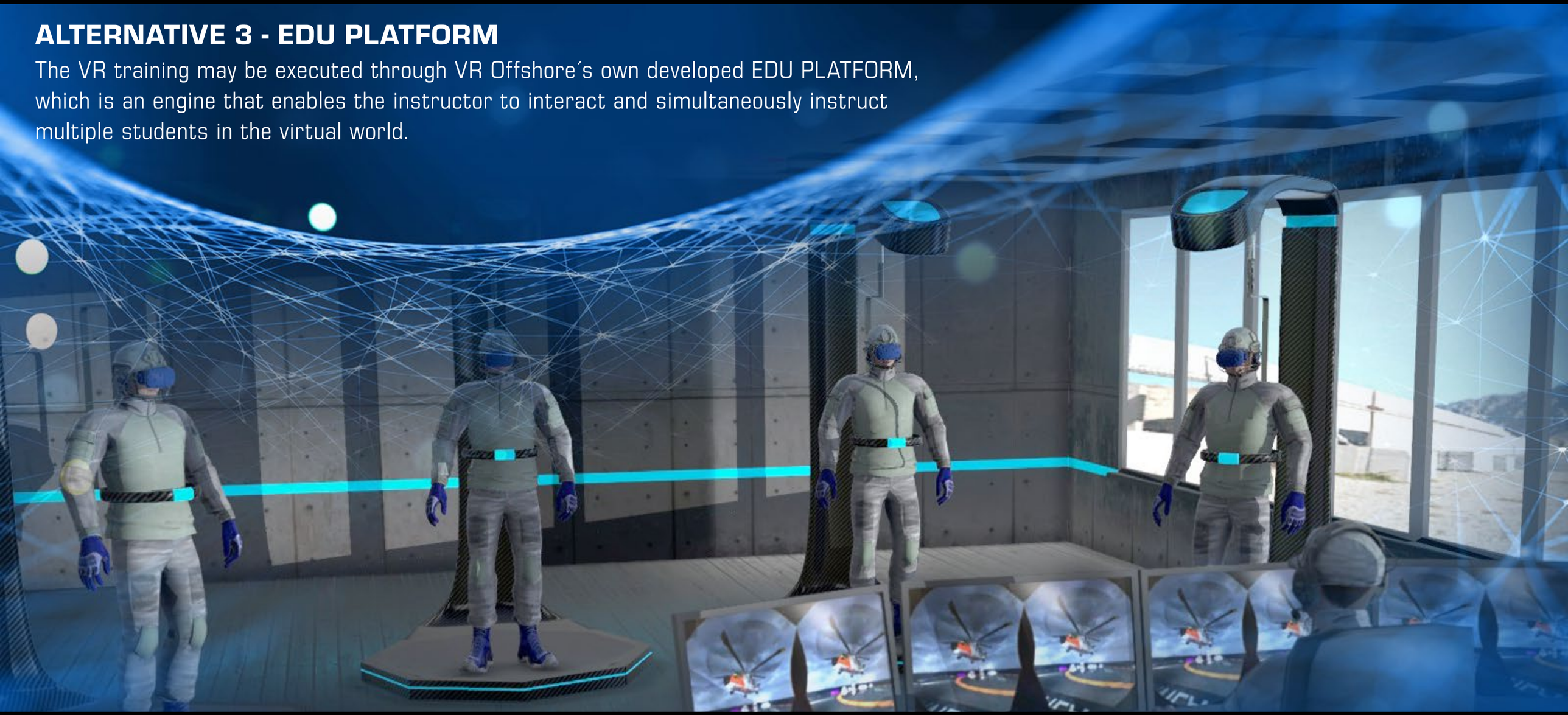
SMELL
(gasses and liquids)



SIMULATOR SOLUTIONS

ALTERNATIVE 3 - EDU PLATFORM

The VR training may be executed through VR Offshore´s own developed EDU PLATFORM, which is an engine that enables the instructor to interact and simultaneously instruct multiple students in the virtual world.

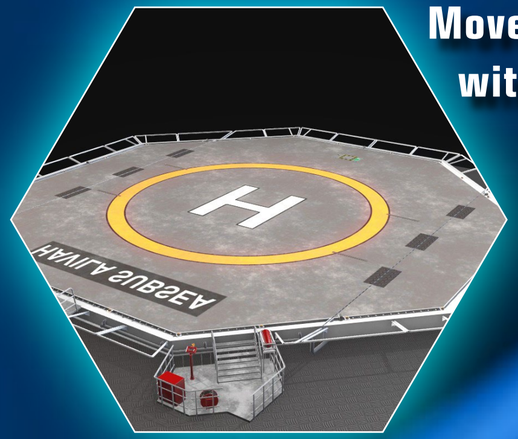


SIMULATOR SOLUTIONS

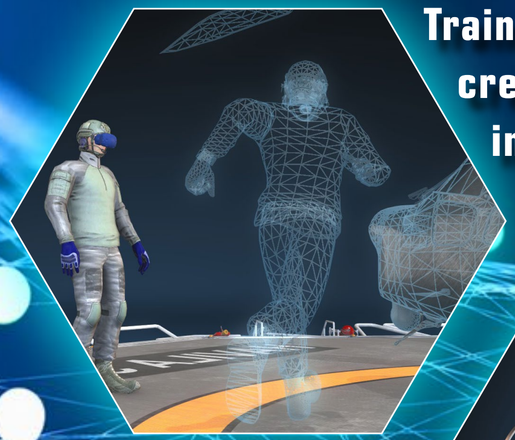
ALTERNATIVE 4

HLO Application Software and VR Hardware Kit's with a full size (helideck) immersive simulator platform for multiple crew members working together on the helideck. All physical stimulation effects are included.

The HLO/HDA trainees may physically work together as a team, while interacting with other people in the form of intelligent avatars (helicopter passengers and the helicopter crew).



Movements of the helideck synchronized with the size of the waves (when on a ship)



Trainees may interact with real crew members or with avatars influenced by artificial intelligence (AI)

Full size helideck with all physical stimulation effects included.

Robotic "arm" merging physical parts of the helicopter with the virtual helicopter

ABOUT US

VR Offshore is a technology-driven innovative company providing quality content to digital multimedia platforms. The company is Norwegian based, with production facilities in Norway and Poland

VR Offshore's development and production team has many years of experience from 3D and 2D animated film production, including cinema
and television. During the last few years our team gained a rich experience on multimedia and virtual reality projects.

Co-operation:

- Norwegian Ministry of Education's ICT Department for an unique Edu-Platform - a coherent education system for learning in virtual environments.
- Military University of Technology in Warsaw – research program for implementation of Virtual Environments in simulators.

CONTACT INFORMATION

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