

# Fly Virtual. Feel Real.

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Professional Flight Training Solutions

Use the latest technology to your advantage!

# How do you promote your pilots?

Improve your Helicopter Flight Safety and Training Efficiency



**SAFE**



**AFFORDABLE**



**ECO FRIENDLY**



Demanding pilots can have a genuine flight experience in the virtual world on our training solution, which we offer in an R22 or H125 version.



# VRM HELICOPTER TRAINING SOLUTION

## SEE THE REAL

- ▶ **Pose Recognition**  
Virtual Avatar - real actions
- ▶ **Visual System / Virtual Reality**  
Lightweight premium VR-Headset - real 3D 360° view
- ▶ **Sound System**  
Professional headset - really vibrant

## TOUCH THE REAL

- ▶ **Flight Controls with CLS**  
Simulated forces - real control
- ▶ **Cockpit Layout**  
Full-scale replica and original components - real cockpit work
- ▶ **Control elements**  
Functional reproduction of buttons, switches, levers and touch panels - real haptics



## FEEL THE REAL

- ▶ **Vibration**  
Powerful Vibration - real impression
- ▶ **Motion**  
High-Dynamic full motion system - real performance

## GET THE REAL

- ▶ **Compact Setup**  
Small footprint - really small
- ▶ **Fidelity**  
Modern flight simulation - real experience
- ▶ **Certifiable**  
Log your simulation flight time - real credits

H125



Gerold Biner

CEO Air Zermatt



“Air Zermatt is very proud to be involved into the certification process of the new H125 simulator from VRM Switzerland. A big step towards an affordable and effective helicopter training.”

# ♥ FLY LIKE REAL

**Our numerical simulation software and the virtual reality view allow the pilot to fly the maneuvers like in a real helicopter.**

The motion system, a vibration actuator and the sound system result in a perfect full body immersion. Simulated wind, turbulence and reduced visibility are challenges even for experienced pilots.

#### ▶ Maneuvers and skills learned from scratch

- Hover
- Approaches
- Autorotations
- Slope operation
- Confined area operation
- Instrument flying and radio navigation
- Emergency procedures
- Tail Rotor Transmission Failure

#### ▶ Advanced training maneuvers and competencies

- Advanced training for commercial pilots
- HESLO Training





# FEEL THE REAL

## How important is the real feeling for pilots?

### ► Seat

The seat is an exact replica of the original. It consists of original or full-scale replica seat cushions and 4-point harnesses for rotorcraft. On the H125 model, the seat position is manually adjustable in longitudinal direction. High-quality materials promise comfort and durability.

### ► Flight Controls with Advanced Control Loading System (CLS)

The Flight Controls are the most interactive elements in the simulator and enable the pilot to fly the helicopter accurately. By integrating original parts or true-to-scale replicas of the cyclic, collective and pedals the experience feels very authentic. The CLS gives the pilot force feedback. It provides a flexible framework for the simulation of aircraft control characteristics. The control behavior of the flight controls is calibrated and validated using the flight data package. Precise position sensors are used to transfer the real positions of the controls into VR.

### ► Motion Platform

Motion cueing is achieved by an electrical, highly dynamic 6DoF motion system driven by powerful, state-of-the-art industrial motors and controllers driven by highly dynamic control algorithms. This allows the pilot to feel the slightest movement. The cost-effective system design maximizes availability and minimizes maintenance costs due to its lightweight structure and compact design.

It is developed and produced by VRM and is characterized by real-time system monitoring, high diagnostic coverage and redundant sensor technology.

### ► Vibration Actuator

The vibration system is designed with a resonance body to reproduce the typical frequencies that occur in helicopters. While motion cueing is based on the human perception model for optimum motion perception, the vibration cueing system reproduces the original vibration characteristics.



Video: <https://youtu.be/Q9-e9X4nNcY>



# TOUCH THE REAL

## Who wants to enjoy the perfect sense?

### ▶ Haptics

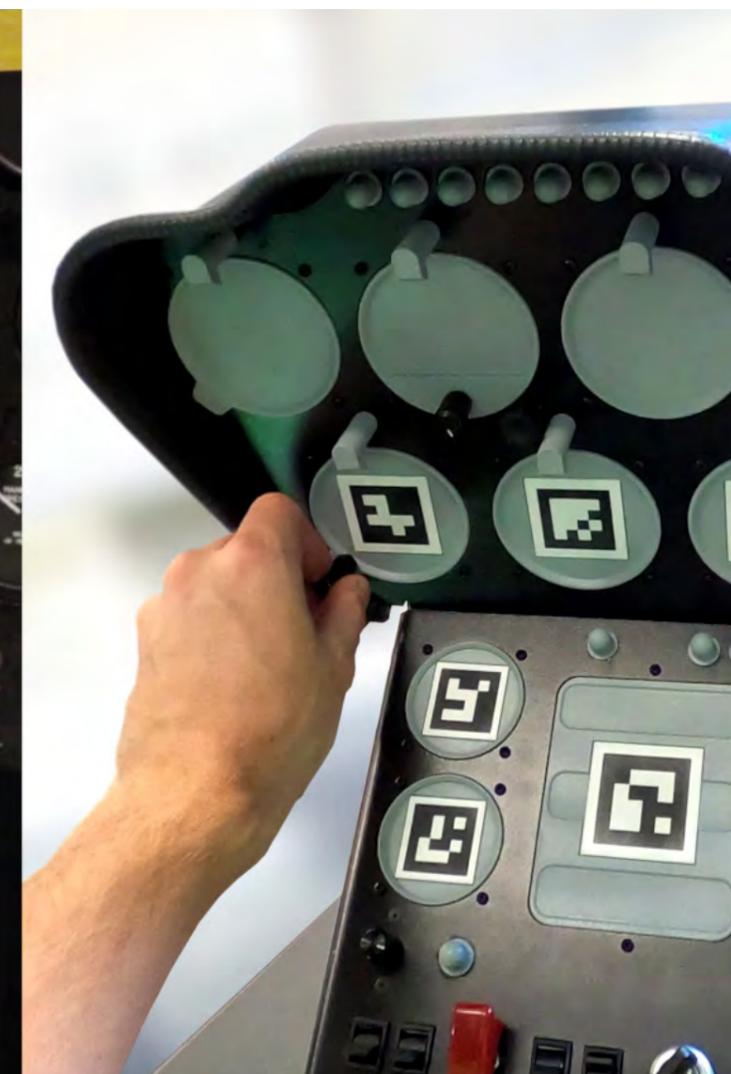
By using original components or exact reproductions, the simulator feels like the real helicopter. The dimensions of the cockpit are exactly the same as the original and all relevant controls are available.

### ▶ Pose Recognition System

The pilot sees his avatar in the virtual world. This allows the pilot to easily find and operate the relevant switches.



Video: <https://youtu.be/qdGFy07YU-0>



Christian Marty

CTO VRM Switzerland



“To ensure that the helicopter feels right, we invest heavily in perfectly designed controls. We are convinced that this has many benefits in terms of training quality.”

# SEE THE REAL

## What could you never see in a simulator before?

### ► Natural 360° 3D view using virtual technology

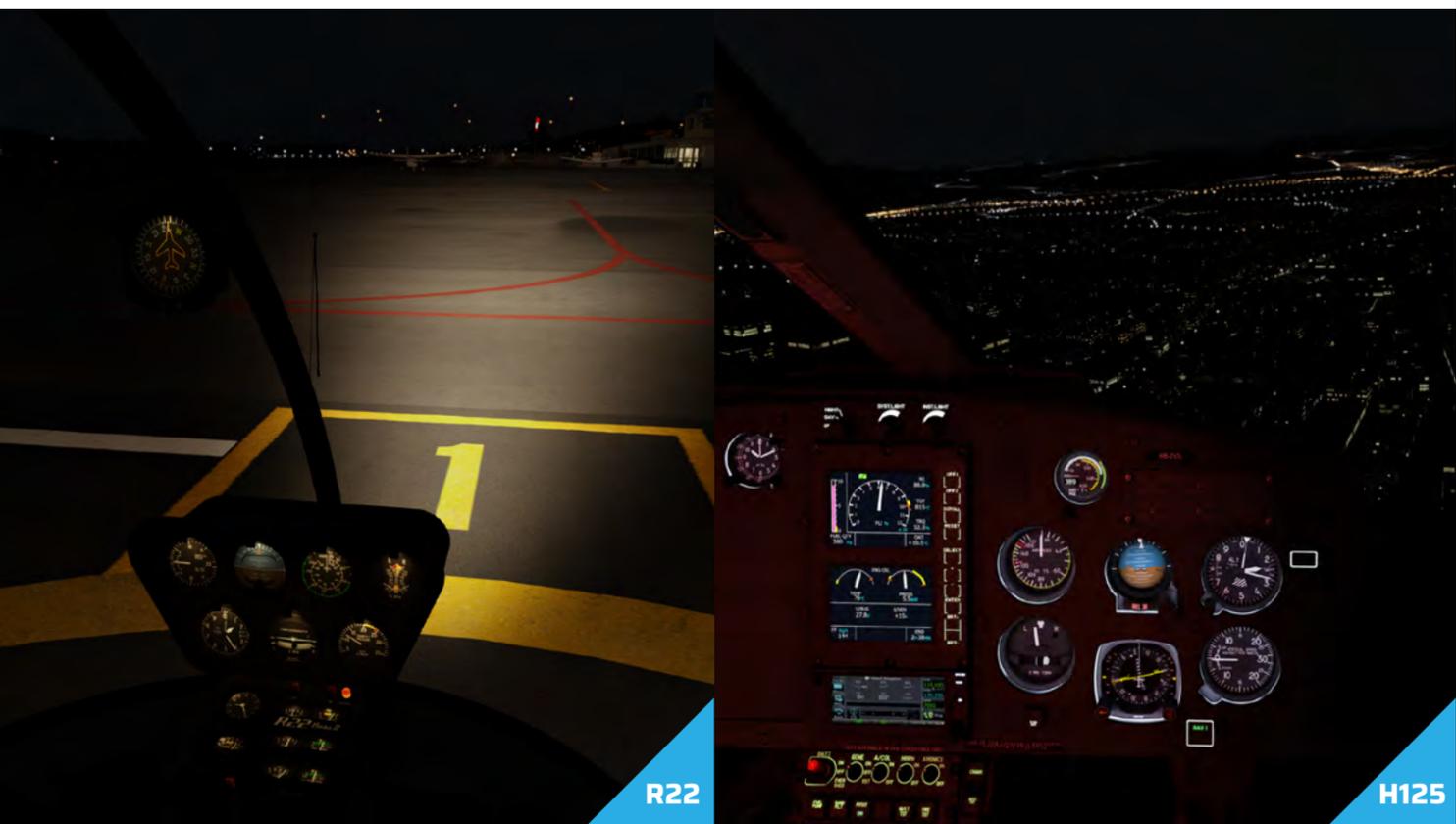
By moving the pilot's head in a natural way, the VR headset continuously recognizes its position and orientation with a tracking system. The respective perspective for the pilot is generated by the software in real-time. This gives the pilot the feeling of being in a real environment and allows him to look where he wants to go. Even flying with vertical reference is possible.

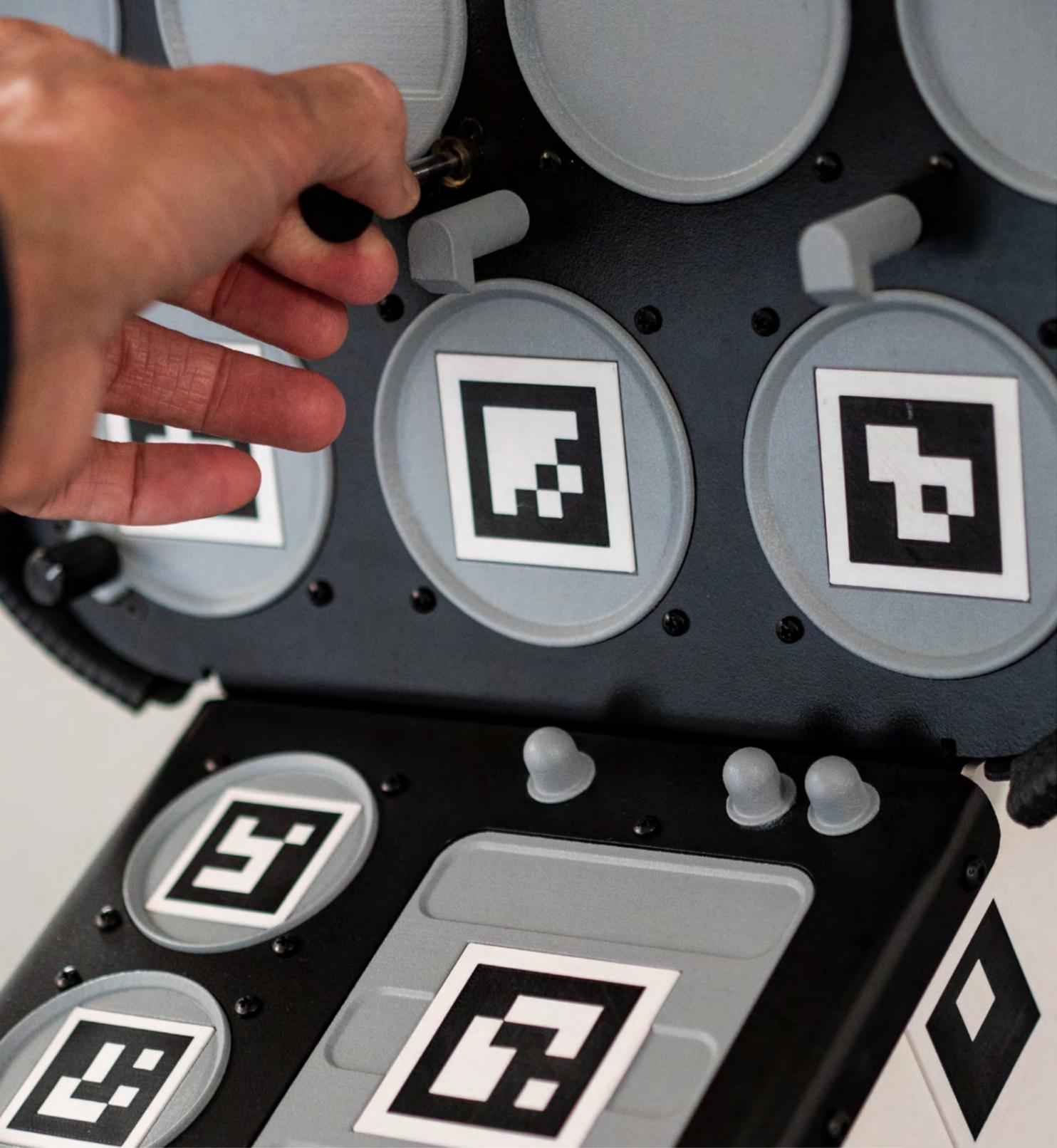
### ► High resolution sceneries

Photorealistic training scenarios enable you to fly maneuvers with great precision.

### ► Human Pose Recognition

Several cameras are mounted in the cockpit at specific positions and angles to ensure that all parts of the pilot's body are visible. Based on the estimated human body posture of the pilot, the flight simulation software renders a realistic avatar with the correct pose in real time.





Christoph Ammann

Product Manager, Airline Captain, Helicopter Pilot

“This system allows specific tasks to be trained with high efficiency at all levels of instruction. The learned skills can be applied in the real helicopter at an extremely high level.”



# HEAR THE REAL

## How does sound perception influence your flight performance?

### ▶ Intercom System

The instructor and the pilot communicate via an intercom system, just like in a real helicopter.

### ▶ Helicopter Related Sound

The most important acoustic references are mapped in the sound system and contribute to a realistic experience.



# ★ TRAIN LIKE REAL OR EVEN BETTER

We consider it important to give the instructor the opportunity to train students according to the latest scientific knowledge.

That is why we are developing an easy-to-use Instructor Operating Station with many helpful tools.

## ▶ Malfunctions and high-risk maneuvers

Malfunctions according to the emergency section of the helicopter manual and other common incidents can be simulated. Maneuvers can be trained where it would be too risky or not possible in reality.

## ▶ Scenarios

To practice pilot competencies, scenarios with difficult weather situations, turbulences and wind can be set up.

## ▶ Flight Assistance

When the assistance is active, the helicopter hovers or flies in a stable forward flight. The instructor even has an interface available to maneuver the helicopter around its 3 axes. He can hand over every single control unit to the student. Before the helicopter gets out of control, the instructor can stabilize the helicopter with just one push of a button.

## ▶ Different Views

Three screens are available to the instructor. With these he can operate the simulator, see the student's view and switch between different views on an analysis display.

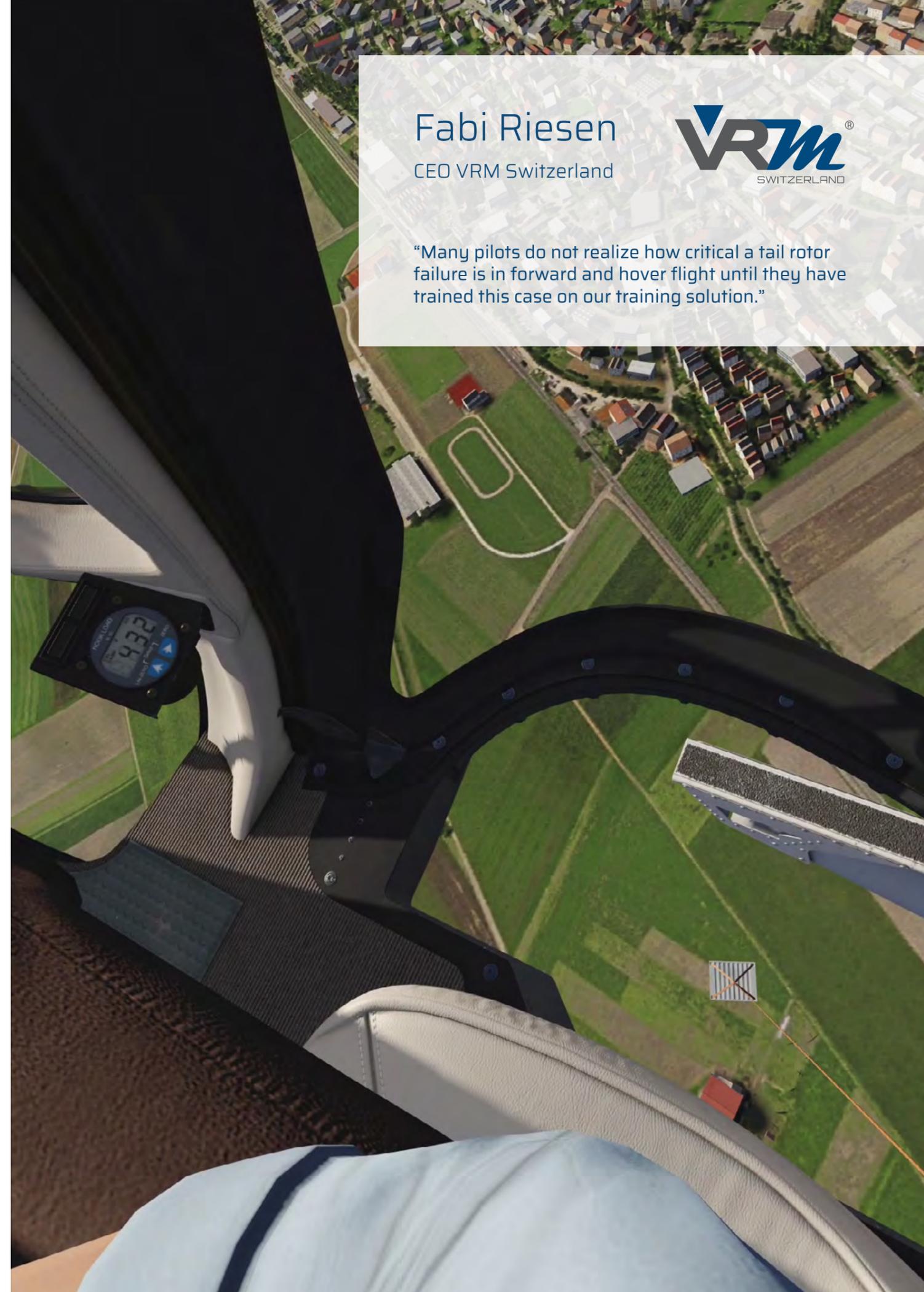


Video: <https://youtu.be/elz1EtEYW38>

Fabi Riesen  
CEO VRM Switzerland



“Many pilots do not realize how critical a tail rotor failure is in forward and hover flight until they have trained this case on our training solution.”



# GET THE REAL

## When do you benefit from the new technology?



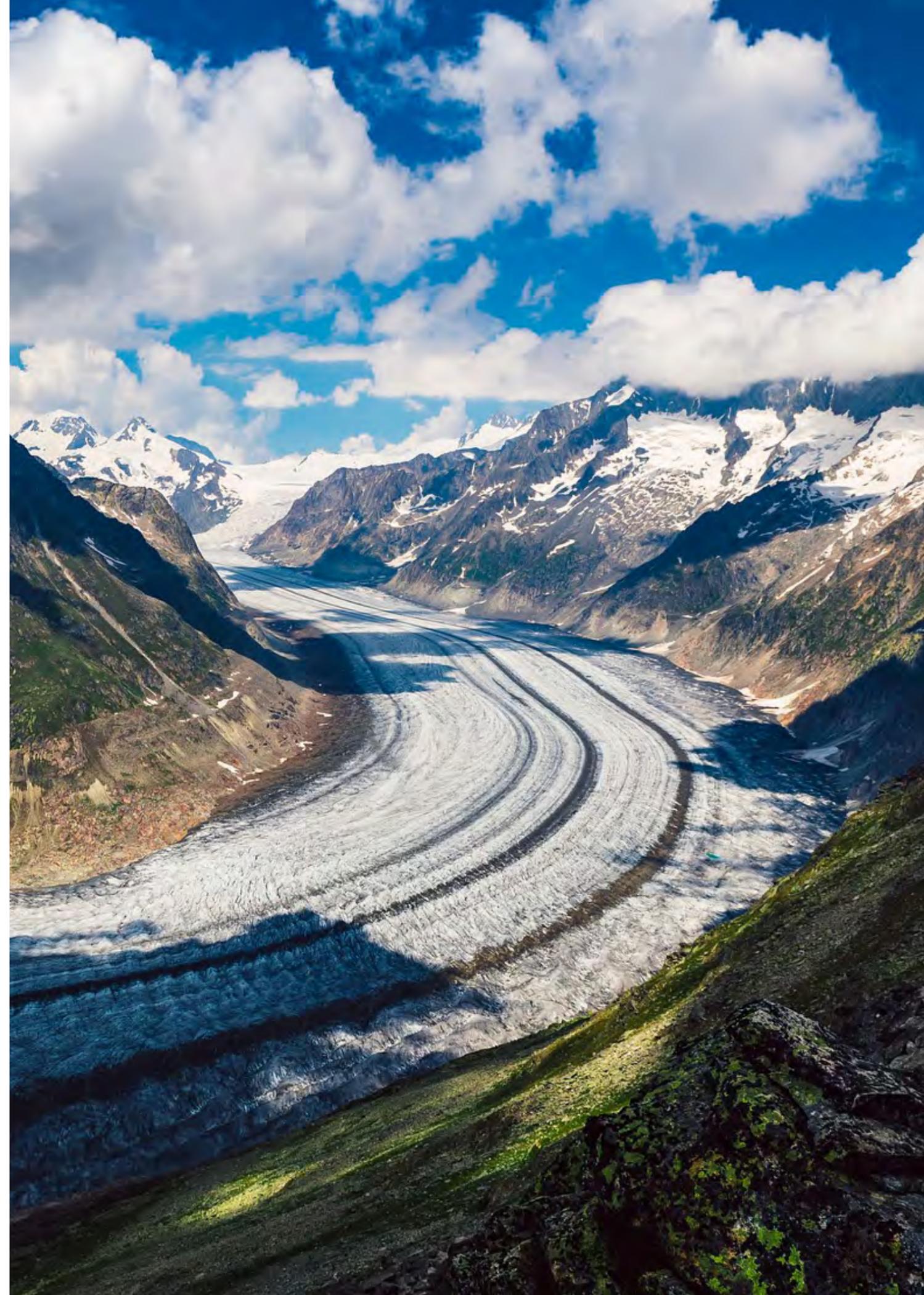
**Safety and learning effect** - Repetitive practice of special flight maneuvers promotes intensive learning and safe control of critical situations. A training success that makes an important contribution to flight safety.



**Environment and surroundings** - No emission of pollutants, greenhouse gases or fine dust, no noise, no traffic pollution. The training takes place on the ground - purely electrically operated.



**Economical and efficient** - Practice lessons are not only cheaper but also more efficient: The focus is on the actual flight exercises. Additional expenses such as the provision of the helicopter or cross-country flights to the training area are eliminated.





VRM Switzerland is a passionate team of 30 innovative engineers, highly specialized developers and dedicated aviation experts. One of the team's strengths is its proximity to flight schools and operators. This enables the development of mature training solutions with optimal benefits. All mechanical constructions and electronic circuits are designed and coordinated in-house.

# MEET THE TEAM



# Fly Virtual Feel Real



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