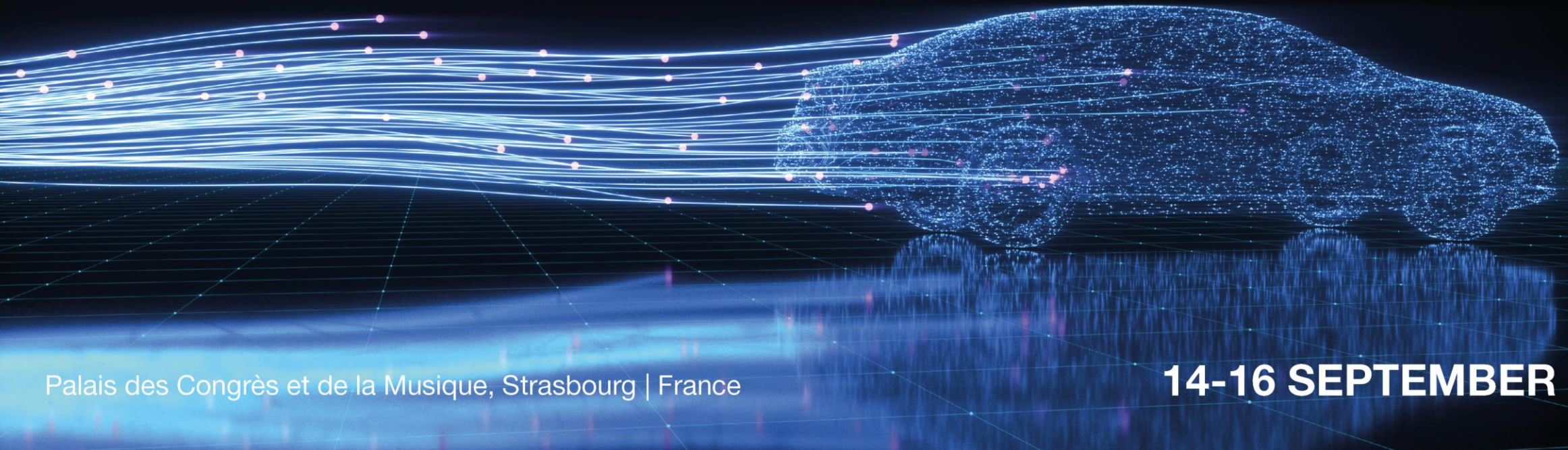




DSC 2022 EUROPE VR

Driving simulator system integration

Dennis Marcus



Palais des Congrès et de la Musique, Strasbourg | France

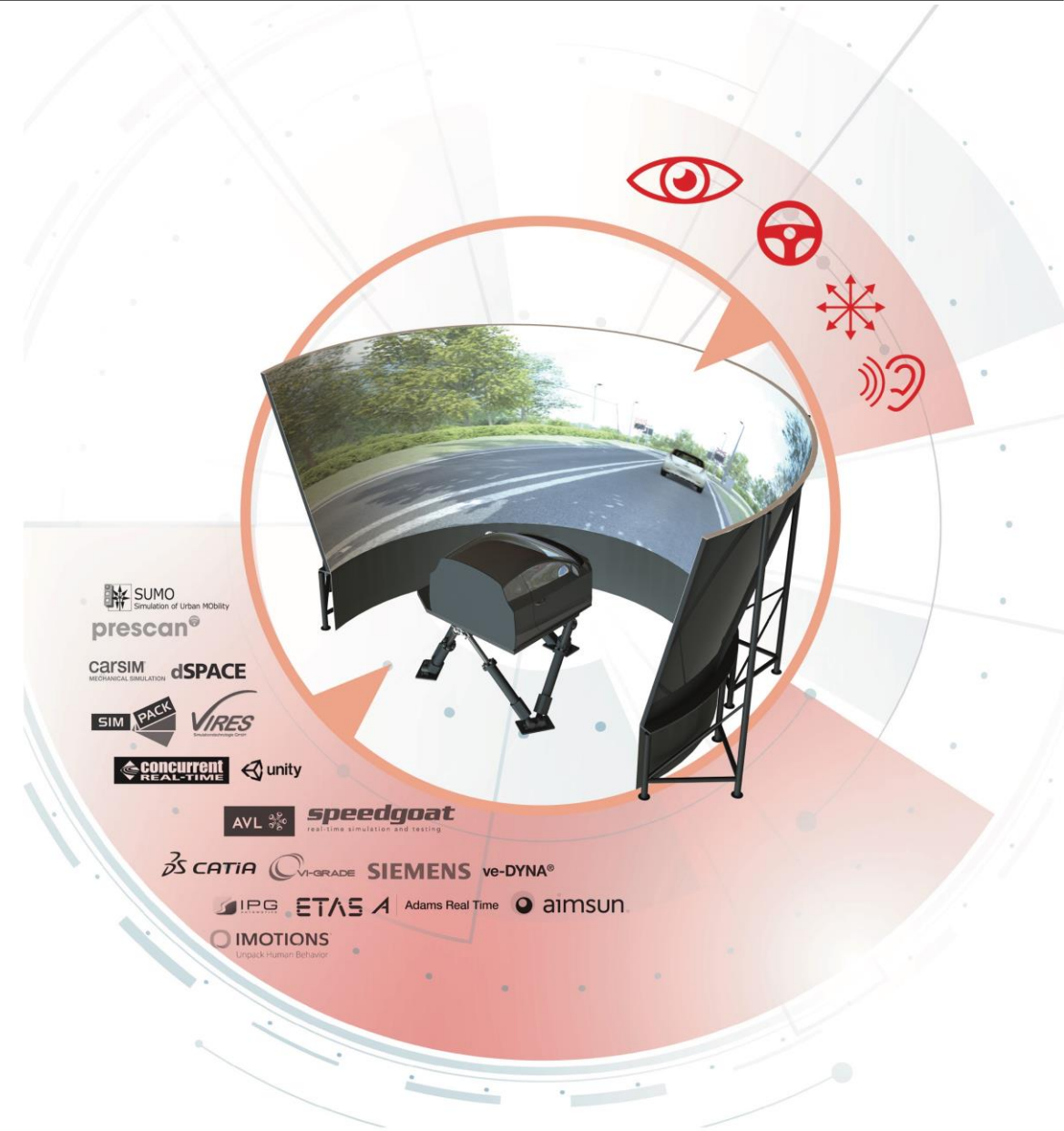
14-16 SEPTEMBER 2022

DIL Simulation

- Drive a virtual car in virtual world
- Provide feedback to the driver
- ➔ Realistic driving behaviour and **relevant feedback**

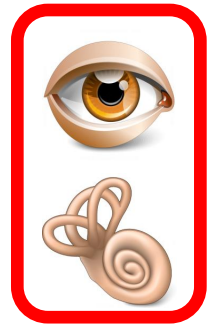
Why?

- Build better cars
- Research on drivers and passengers



Cruden facilitates

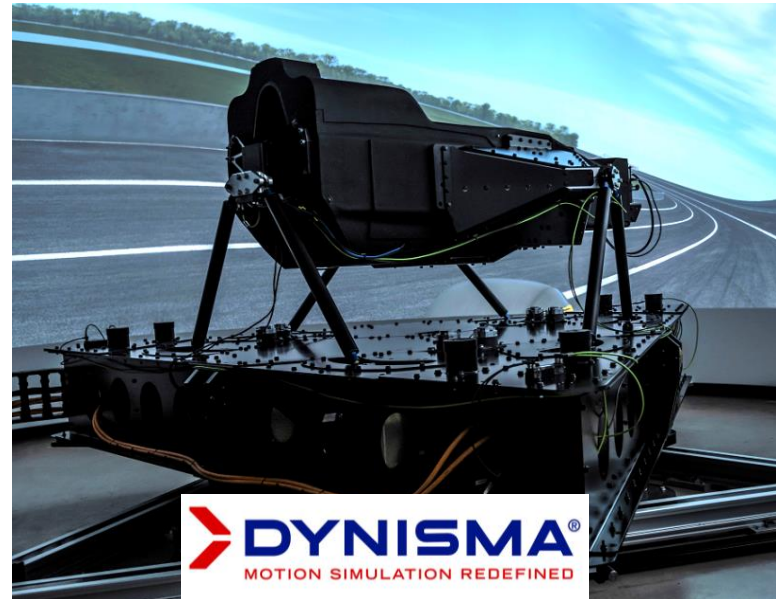
- Virtual world - Simulations software
- Integration of **your** engineering tools – SDK
- Feedback channels to the driver
- Ensure natural driving behaviour and relevant driver feedback for **your research**



Motion



- Most intriguing component of driving simulator,
- Most challenging feedback channel to get right



Not always the most important for realistic behaviour and relevant feedback

Cruden's view on motion



Motion for immersion

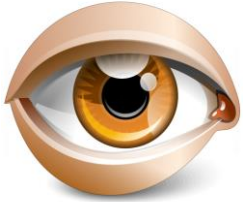
- Human factors research on HMI
- ADAS and AD controllers

Motion for evaluation and validation

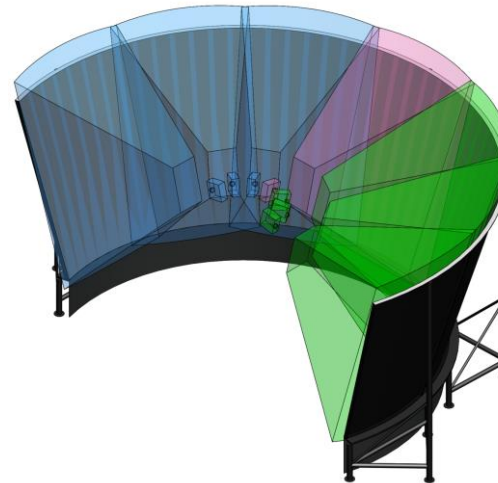
- Vehicle dynamics
- Quickest lap time around circuit



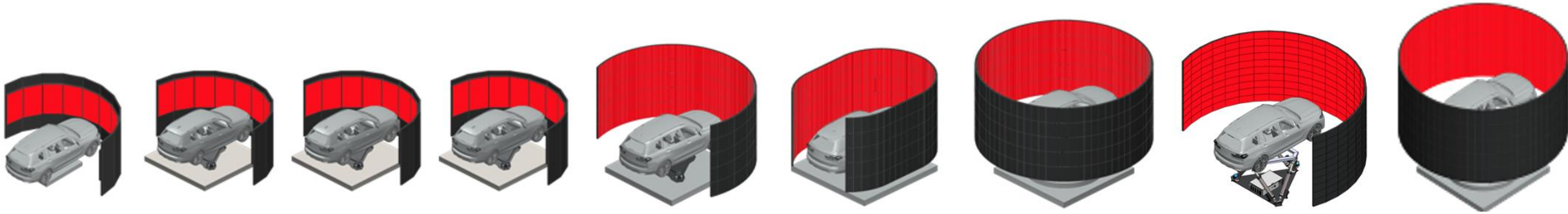
Visual



- Situational awareness and perception of speed
- Unlike motion, visuals can be close to perfection



BMW Simulation centre

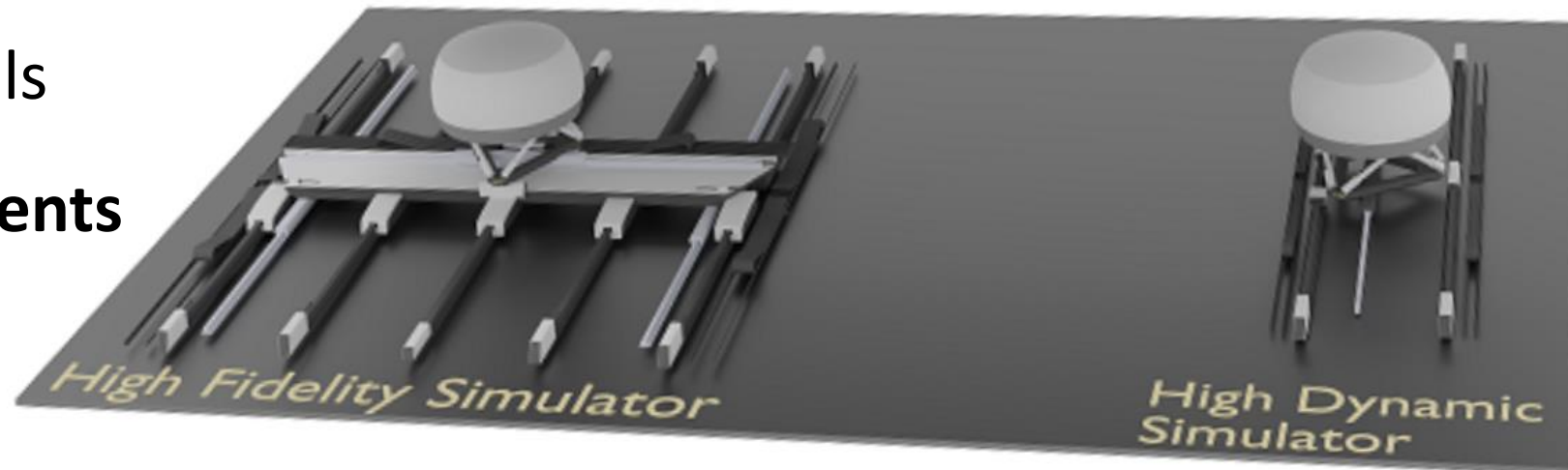


HMI, ADAS and AD experiments

- Nine **Cruden** simulators
- Static, 3-DOF, 6-DOF and 7-DOF
- Innovative LED-wall visuals

Vehicle dynamics experiments

- Two **VHT** simulators
- 360-degree projection



Cruden added value

- We know what to buy, where to buy and how to integrate
- Highest level of immersion for any budget
- Eye for detail; small things can have big impact on immersion
- Independent company

MOOG

E2M
MTS SYSTEMS CORPORATION

VHT VAN HALTEREN
TECHNOLOGIES

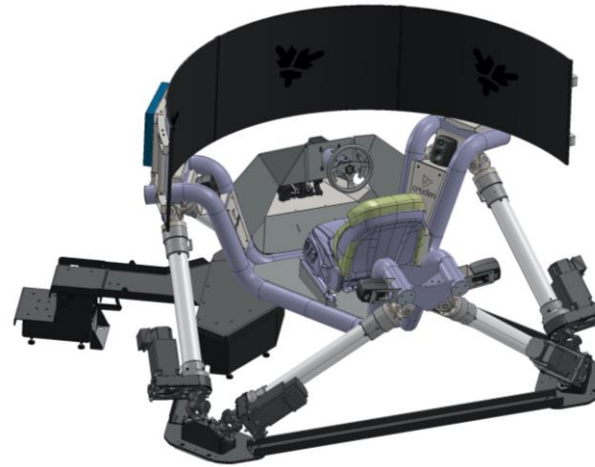
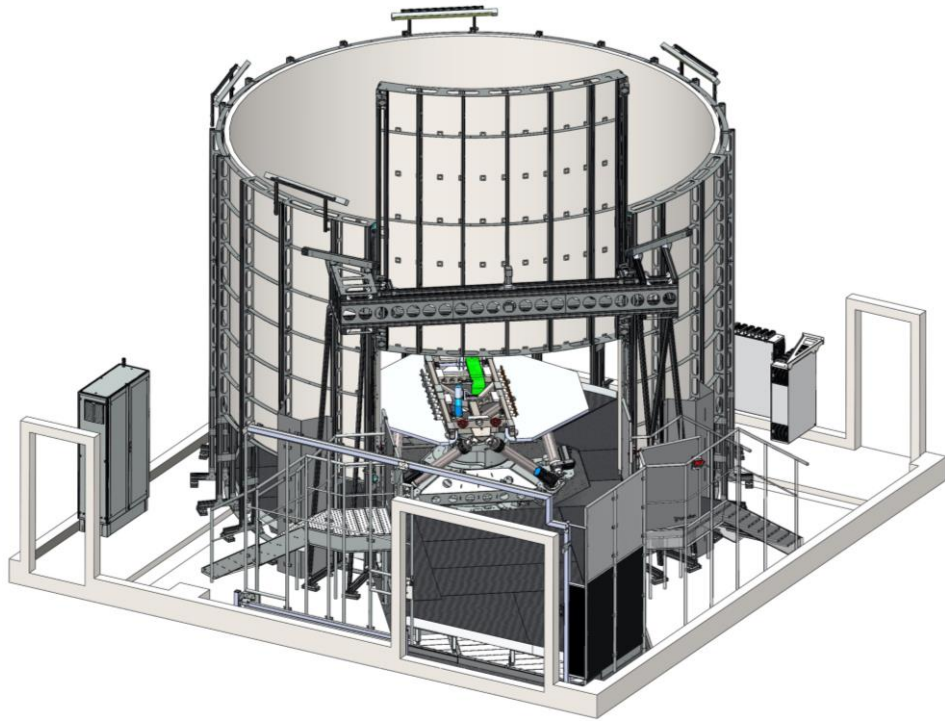
norxe
projecting new standards

BARCO

KRAFT
WERK
LIVING TECHNOLOGIES

ICT

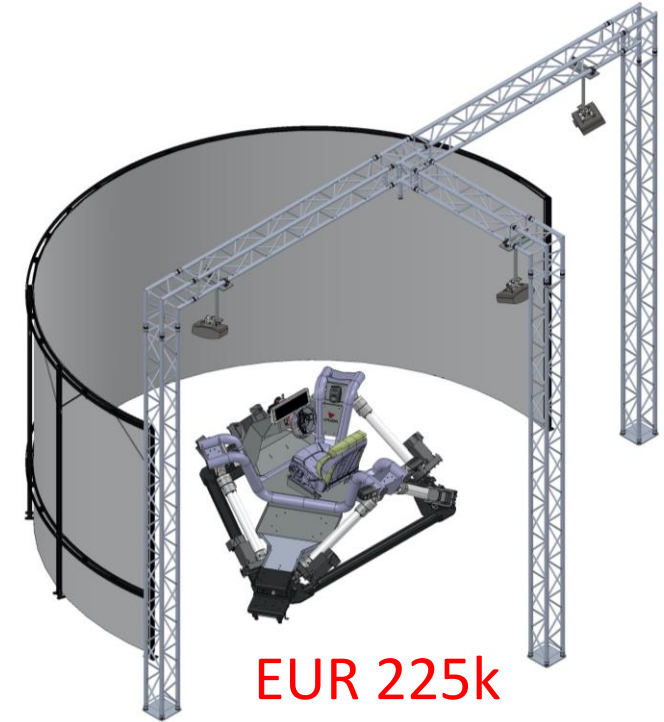
Simulators to suit wide range of budgets



EUR 225k

UWE
Bristol

University
of the
West of
England



EUR 225k

Technical
University
of Munich

TUM

What can we do for you?

- **Upgrade your existing simulator**
 - Hardware and software
 - Tool integrations
- **Configure and implement a new simulator**
 - Using standard Cruden simulator building blocks
- **Design and develop bespoke simulators**
 - OEM's
 - High-end motorsport

Let's talk about your your simulator!

Daniel Project manager - **academic simulators**

Liam Project engineer – **engineering tool integrations**

Nico Computer Scientist – **visualization and SDKs**

Edwin CTO – **vehicle dynamics and tire models**



DSC 2022 EUROPE VR



cruden

THANK YOU



Palais des Congrès et de la Musique, Strasbourg | France

14-16 SEPTEMBER 2022