DSC 2018 EUROPE VR

Driving Simulation & Virtual Reality Conference & Exhibition

cruden

The Driving Simulators as a tool for engineering and research

Dennis Marcus

d.marcus@cruden.com

Mobile: +31 655 367 426

Palais des congrès - Antibes September 5, 2018

Cruden - Amsterdam - The Netherlands

Cruden:

- Engineers with a passion for cars and automotive engineering
- We build driving simulators to help engineers develop better cars

Why simulators

- When driving a car people want to ***feel*** safe and in control. Most of the time they want to feel ***comfortable*** and sometimes they want to feel ***excited***.
- In modern cars, the user experience is the ***competitive differentiator*** which means it is necessary to involve ‘target customers’ in the design process and ***experience*** a new design in a simulator.

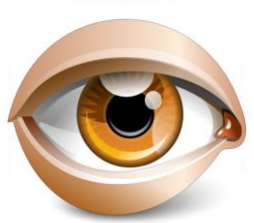
Our focus is on the engineers

cruden

carSIM MECHANICAL SIMULATION
dSPACE
ve-DYNA®
SIM PACK
VIRES Simulationstechnologie GmbH
VI-GRADE
concurrent REAL-TIME
speedgoat real-time simulation and testing
CATIA
IPG AUTOMOTIVE
Adams Real Time
ETAS
SUMO Simulation of Urban MObility
AVL

Vehicle model
Sensor simulation
Traffic simulation
HIL test bench

cruden



Cruden simulators are designed to connect engineering tools to human drivers

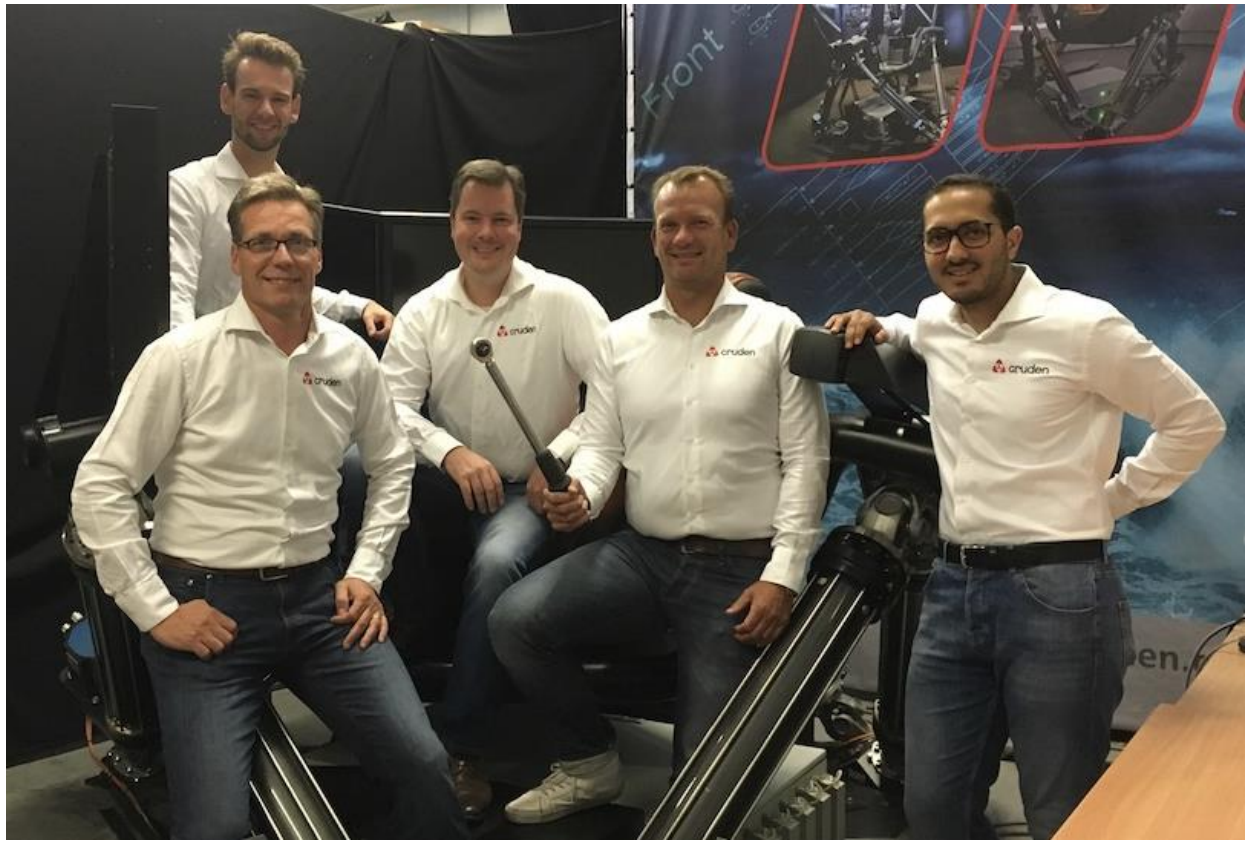
The driver feedback channels

- The eyes are the most important human sensors for situational awareness. This makes the visual system the most important feedback system of a simulator. At Cruden, we specialize in integrating state of the art projection systems with the lowest possible latency.
- The steering is what connects the driver to the road. So, it is very important to get the haptic feedback on the steering right.
- Where the other feedback channels can provide very realistic inputs, it is impossible to replicate the motion of a real car in a simulator. Motion therefore, requires a different approach.
  - The importance of motion is best explained by the broken escalator syndrome. If you walk towards an escalator and you realize it is not moving, the first step will still feel weird. Your brain is programmed to expect motion. The same goes for a driving simulator.
  - The moment you hit the brake, the brain expects to receive inputs from the vestibular system to confirm the deceleration. It is more important to trigger the vestibular system at the right time than to replicate the ”real” deceleration.
- When connecting the human driver to the simulator, our focus is again on the engineers and not on impressing the driver. In our simulators, people drive like they drive in a real car. A prerequisite for relevant feedback on new designs.

Cruden simulator range

Price range: EUR 200k - EUR 1,5M

Lets talk!



Please contact us if you want to find out if and how a driving simulator can help you develop better cars.

Jelle

Martijn

Edwin

Dennis

Omar