Interior Design Workflow with Ansys SPEOS

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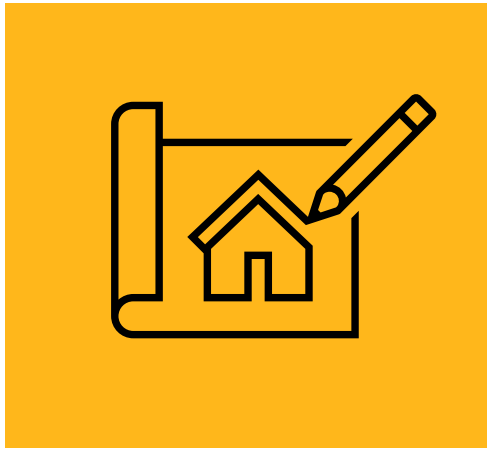
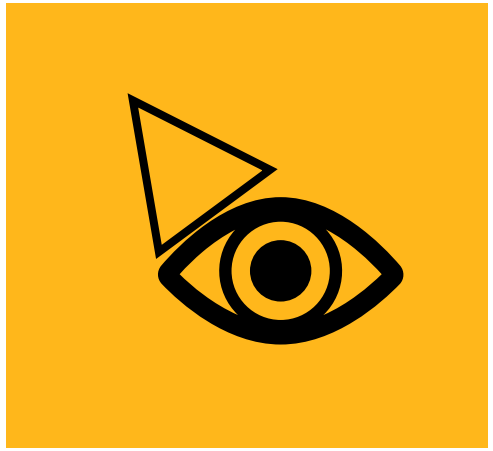
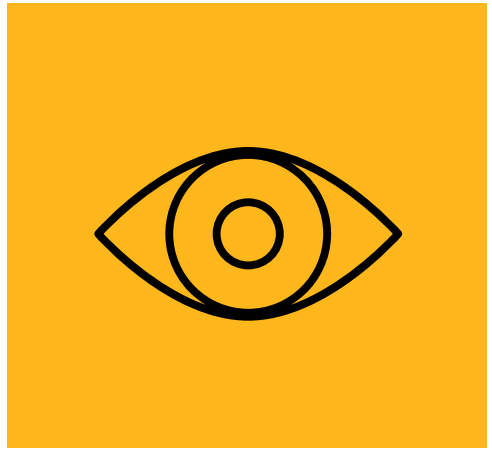
Ansys SPEOS Workflow



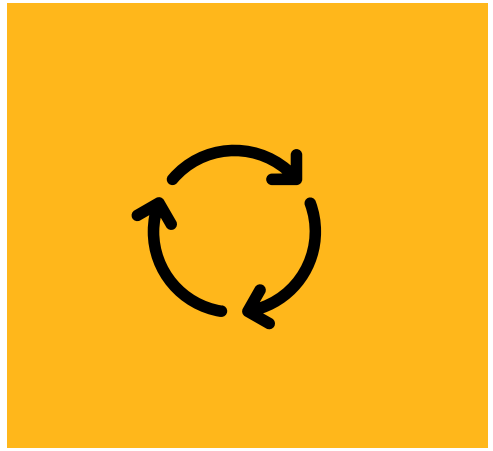
Import & Design



Photometric Validation



Visual Ergonomics Validation



Optimization & Automation Task

1- Import & Design

Supports major 3D file formats

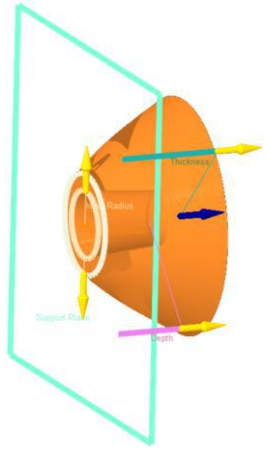
File format	Import from	Export to
CAD	CATIA V5-6 3DEXPERIENCE SOLIDWORKS NX CREO Rhino ...	CATIA V5-6 IGS STEP Rhino ...
OBJ	OBJ STL JT	OBJ STL JT
STEP	IGS STEP	IGS STEP

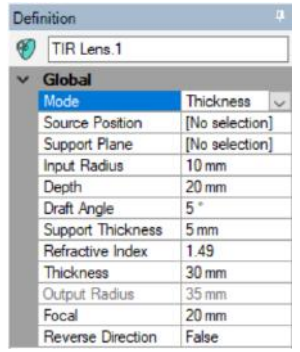
Create Geometry

Direct Modeler

SPEOS Optical Part Design module

Recording function



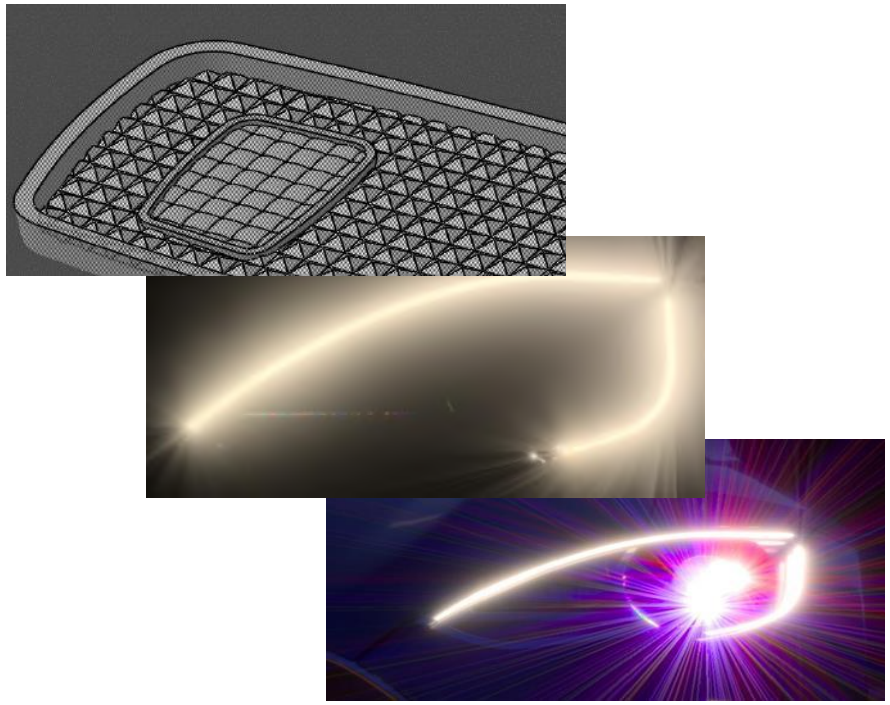


Optical part design | Dedicated geometrical modeling

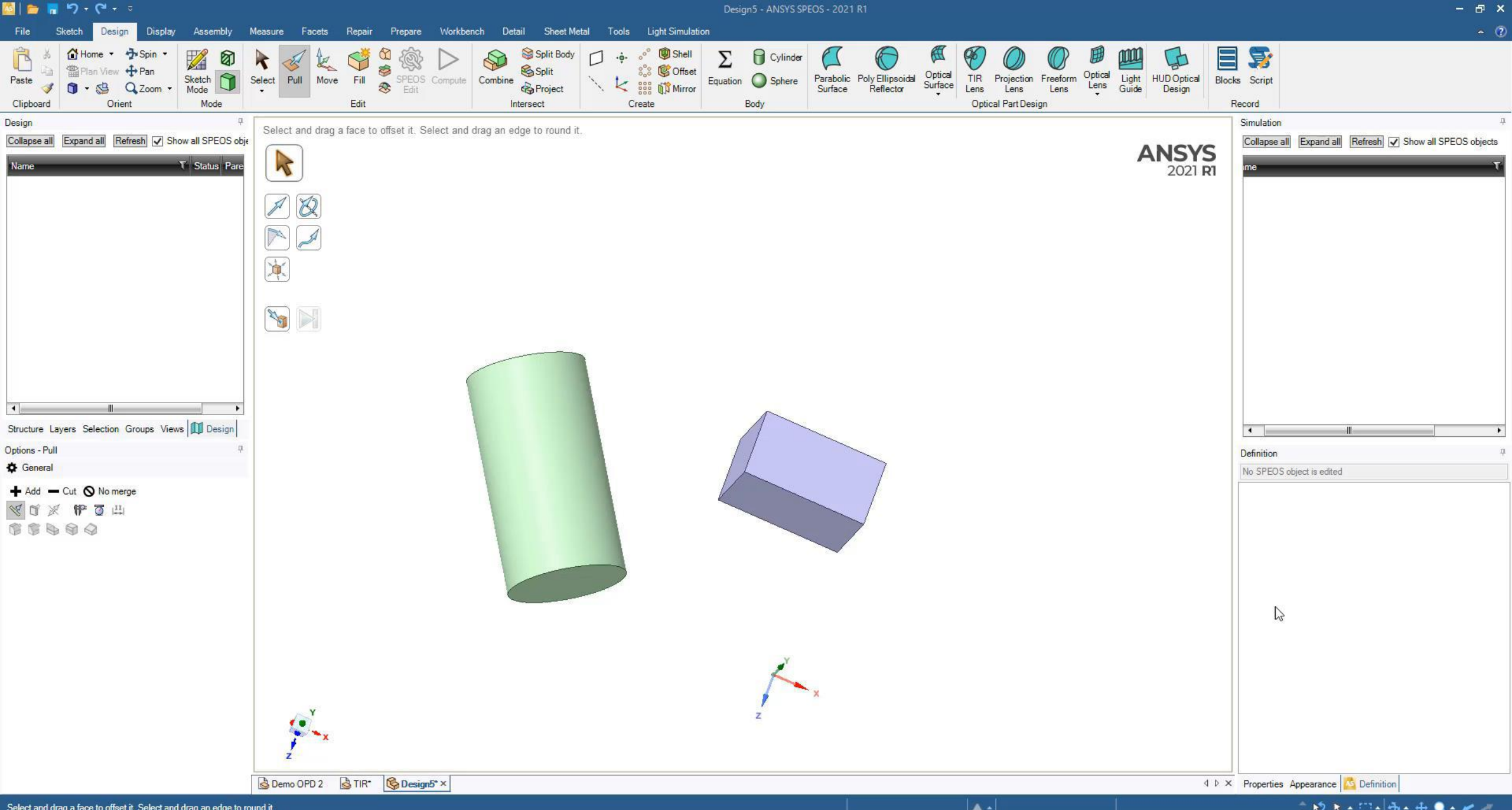
Generate automatically the geometry reaching the targeted specifications – light guides, optical lenses and surfaces, or freeform and honeycomb lenses

Discover easy optical design for **non-experts**

Facilitate **communication** between development teams, and between customer and supplier



Optical Part Design

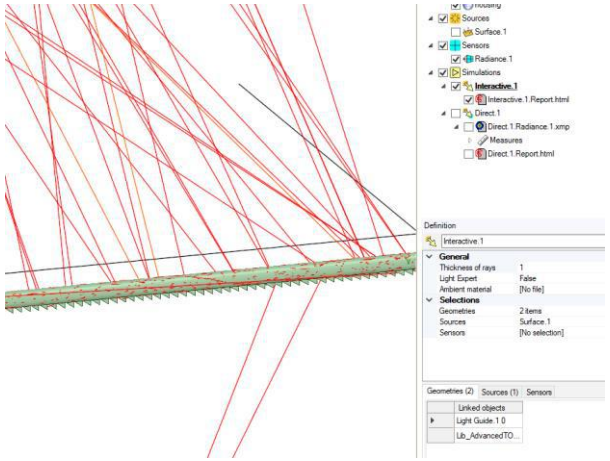


2- Photometric validation

Interactive simulation & Live Preview

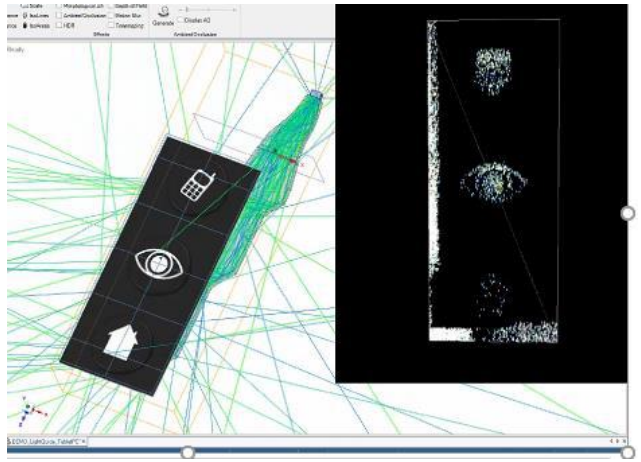
Interactive Simulation

Quick preview of rays



Live Preview

Progressive simulation in real time



DEMO_LightGuide_TabletPC_2020R2 - ANSYS SPEOS - 2020 R2

File Sketch Design Display Assembly Measure Facets Repair Prepare Workbench Detail Sheet Metal Tools Light Simulation

Material UV mapping — Optical Properties
Interactive Surface Ray-file Luminaire Thermic Ambient Display — Sources
Irradiance 3D Irradiance Intensity Radiance Human Eye VR System 3D Energy Density — Sensors
Direct Inverse Interactive Live Trace System — Simulations
Compute Preview OPTIS HPC Compute SPEOS Edit SPEOS Core Editors Viewers Input Folder Output Folder — Tools
Light Box 3D Texture — Components

Groups
Create NS | Create Parameter
View groups in: Root Part

Name	Type
Driving Dimensions	
phone	Ruler dimension
Radius 1	Ruler dimension
Named Selections	
All Geometry	

Structure Layers Selection Groups Views Design

Options

pre-view_2 (edited object)

ANSYS 2020 R2

Simulation
Collapse all | Expand all | Refresh | Show all SPEOS objects

- Intensity
- view_1
- view_2
- 3D Irradiance.1
- Simulations
  - direct
  - Direct + LXP
  - pre-view_2
  - Ray Tracing
    - Ray Tracing.Report.html
- Materials
  - PMMA
  - cover
  - whitte_plastic
  - cover_surface
  - keys

Definition
pre-view_2

General	
Ray file	None
Light Expert	False
Ambient material	[No file]
Selections	
Geometries	24 items
Sources	LED
Sensors	view_1
Stop Conditions	
On number of rays limit	True
Number of rays	1e+7

Geometries (24) Sources (1) Sensors (1)

Sensor
view_1

DEMO_LightGuide_TabletPC_2020R2*

Properties Appearance Definition

pre-view2 (edited object) — 1 Direct Object

3- Visual Ergonomics Validation

Simulate the perception of light, colors and materials thanks to SPEOS Human Vision

Perception of **colors and materials** for harmony, texture **light** uniformity & brightness

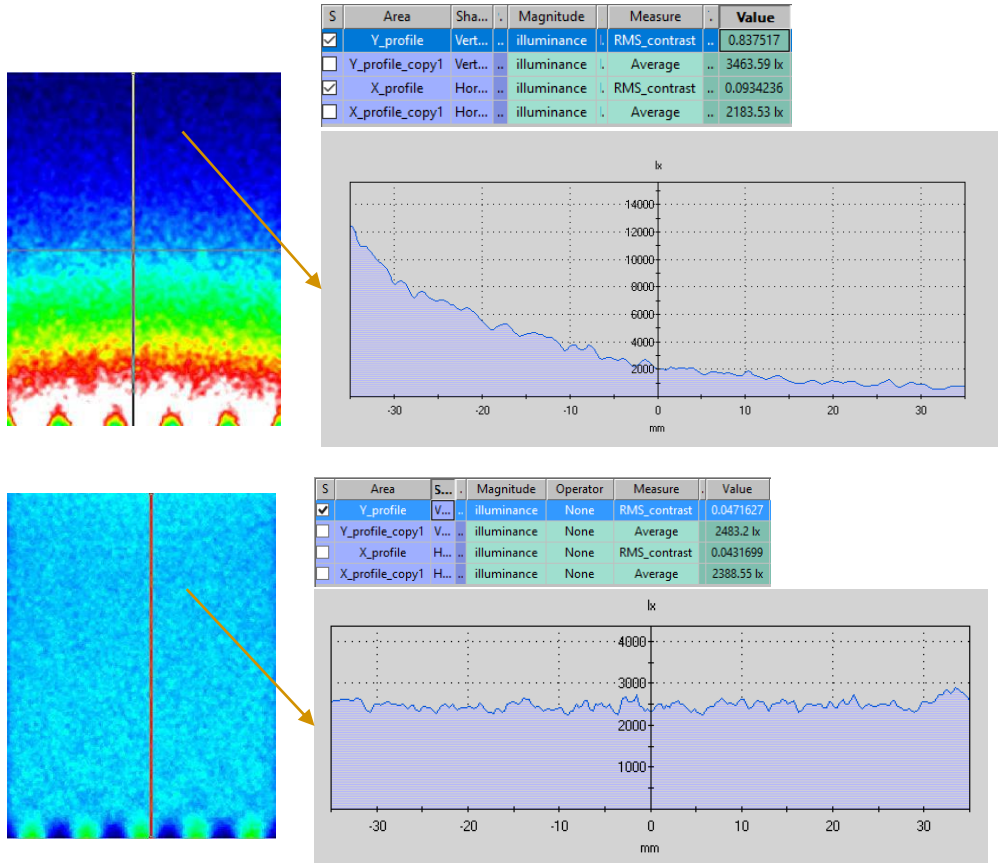
Ensure **visibility** and **legibility** considering glare effects, time adaptation

Ensure **safety**, improve **visual comfort** and reach **perceived quality** targets

4- Optimization & Automation Task

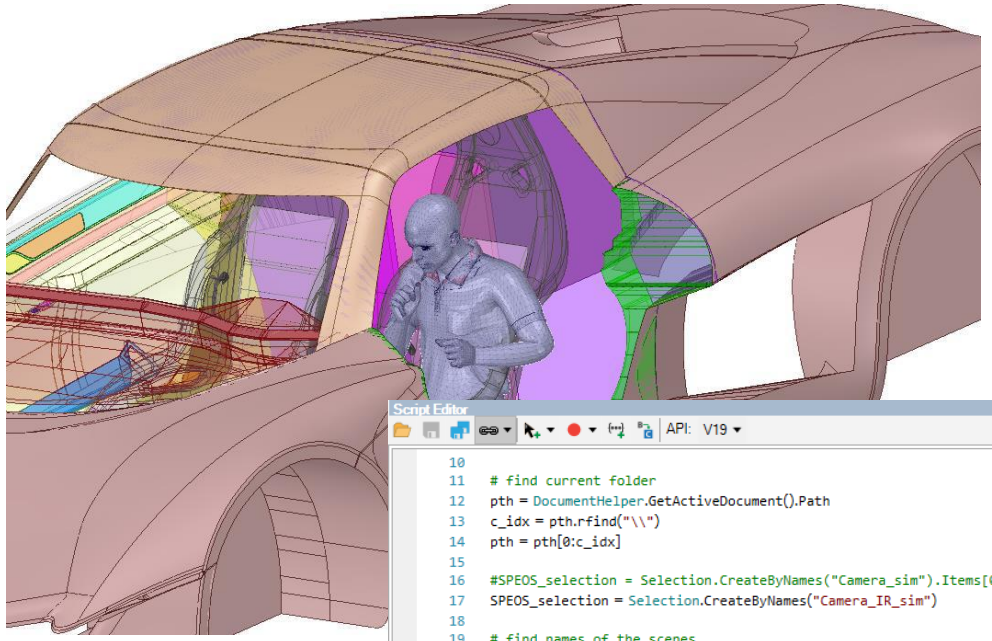
Improve your design with powerful Ansys Optimization Tool

- Optical and mechanical **parameters**
- Achieve optical **target**
- Access to Industry leading Design Optimizer



4- Optimization & Automation Task

Example: Sleepy Driver detection



Script Editor

API: V19

```
# find current folder
pth = DocumentHelper.GetActiveDocument().Path
c_idx = pth.rfind("\\")
pth = pth[0:c_idx]

#SPEOS_selection = Selection.CreateByNames("Camera_sim").Items[0]
SPEOS_selection = Selection.CreateByNames("Camera_IR_sim")

# find names of the scenes
assembly = GetRootPart()
manikin = assembly.Components[0]
#scenes = manikin.Components # list
scenes = Honking.Components # list
indexes = []
for scene in scenes:
#scene = manikin.Components[0]
   name = scene.GetName()
   indexes.append(int(name.Split('_')[1]))

# sort the list of names and find new indexes
```

Group: Loop sim

Thank you!

And feel free to contact me

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