



Accelerating Product Design with NVIDIA AI Denoiser

GTC 2019

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3DEXPERIENCE

| **SOLIDWORKS VISUALIZE OVERVIEW**



| **RENDER 10x FASTER INSTANTLY**



| **CUSTOMER SPOTLIGHT**



What is SOLIDWORKS Visualize?

Enables anyone to create professional, photo-quality images, animations, immersive experiences and other 3D content in the fastest and easiest way possible.

Key Benefits of **Photo-quality** Visualization

**Deliver better
products to
the market
faster**

Make **more educated design decisions** early in the process

Reduce costs & number of physical prototypes

Create **marketing content in parallel** with design development

All about saving \$\$\$ and beating your competition to the market

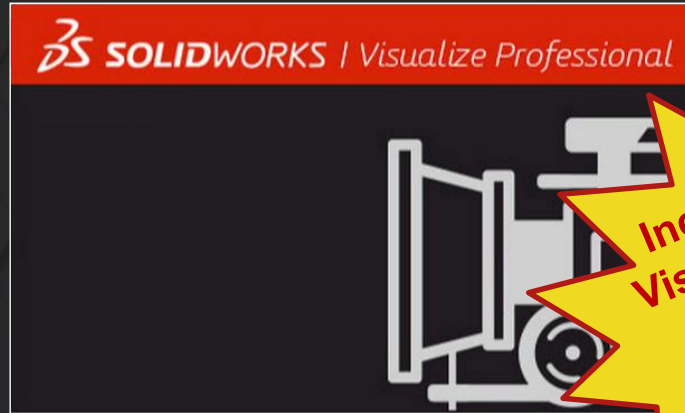
SOLIDWORKS Visualize **Packaging**

A suite of visualization products to accelerate the design process

Standard



Professional



Boost



SOLIDWORKS Visualize Core Features

STANDARD



Photo-quality Still Images

PROFESSIONAL



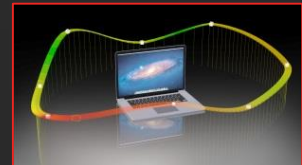
Configurations

Interactive Images



One-click Turntables

Captivating Feature Animations

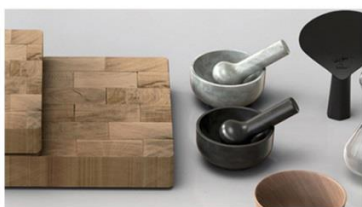
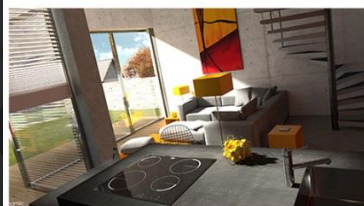


Visualize Boost

360° VR
Images and Animations



Visualize imports **25+** file formats!



SOLIDWORKS Visualize +



Amazing photo-quality
with NVIDIA Iray



Utilizing NVIDIA's
mastery of AI



Create content at
ludicrous speed with
latest GPUs



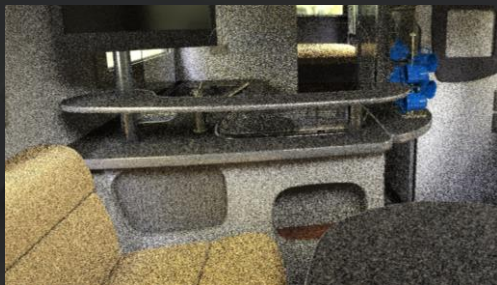
Render 10x Faster – INSTANTLY!

Bottom line – allows you to save loads of \$\$\$ and get your **products to market faster**

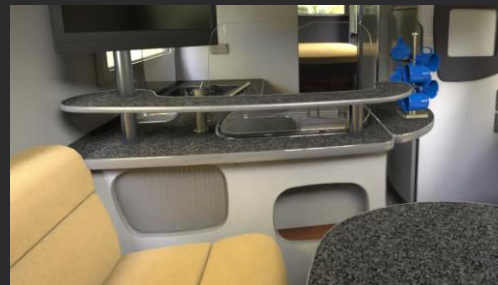
How the **AI Denoiser** Works



Neural net trained



Noise discovered

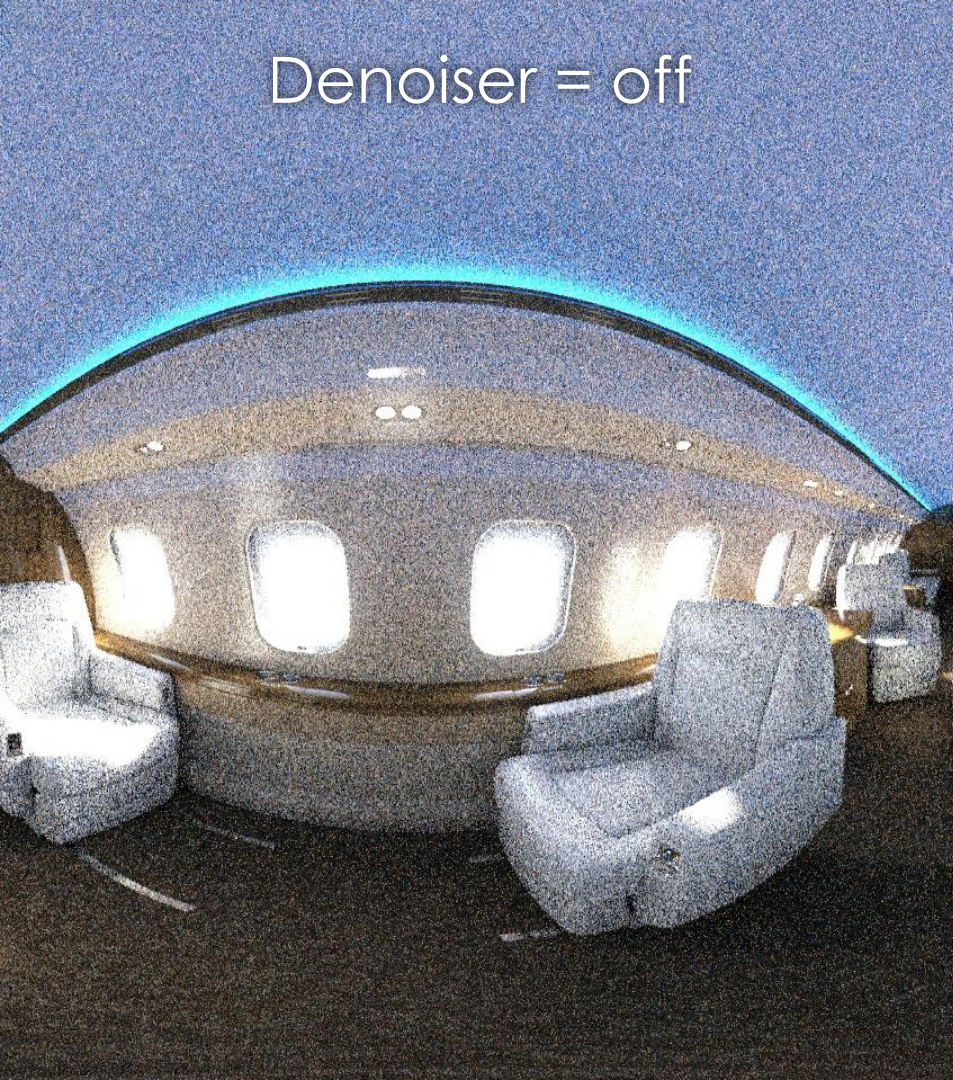


Noise eliminated

Render **~10x Faster** with AI Denoiser!!

Simple checkbox on/off within Visualize

Denoiser = off



Denoiser = **ON**



Denoiser = off



Denoiser = **ON**



Denoiser = off

Denoiser = ON

Available NOW in Visualize 2019

NVIDIA Performance Benchmarks

HD single image @ 1000 passes – Accurate mode



| | mm:ss | <u>WITH DENOISER</u> |
|------------------------------------|-------|----------------------|
| BETA NVIDIA RTX6000+RTcores | 00:58 | 6 seconds |
| NVIDIA RTX6000 | 01:30 | 10 seconds |
| NVIDIA P6000 | 02:30 | 18 seconds |

Real-time Raytracing

RTX6000

1920x1080

Iray Photoreal

Denoiser ON



For more information:

solidworks.com/visualize

blogs.solidworks.com

YouTube Channel to become
a master in no time

Follow **@bhillner**



Jeremy Wilkens | ID Group

Customer spotlight – accelerating product design with AI Denoiser



www.idgroup-inc.com

**WE ARE
A GO-TO
DESIGN
FIRM.**

Thermador

VIZIO



Panasonic

 **AIRBUS**

 **BOEING**

ENCORE



Alcon

 **Abbott**

Johnson & Johnson

e.p.t

jetBlue
AIRWAYS

 **nabi**



Aspen
MEDICAL PRODUCTS INC.

METCAL

Fluidmaster

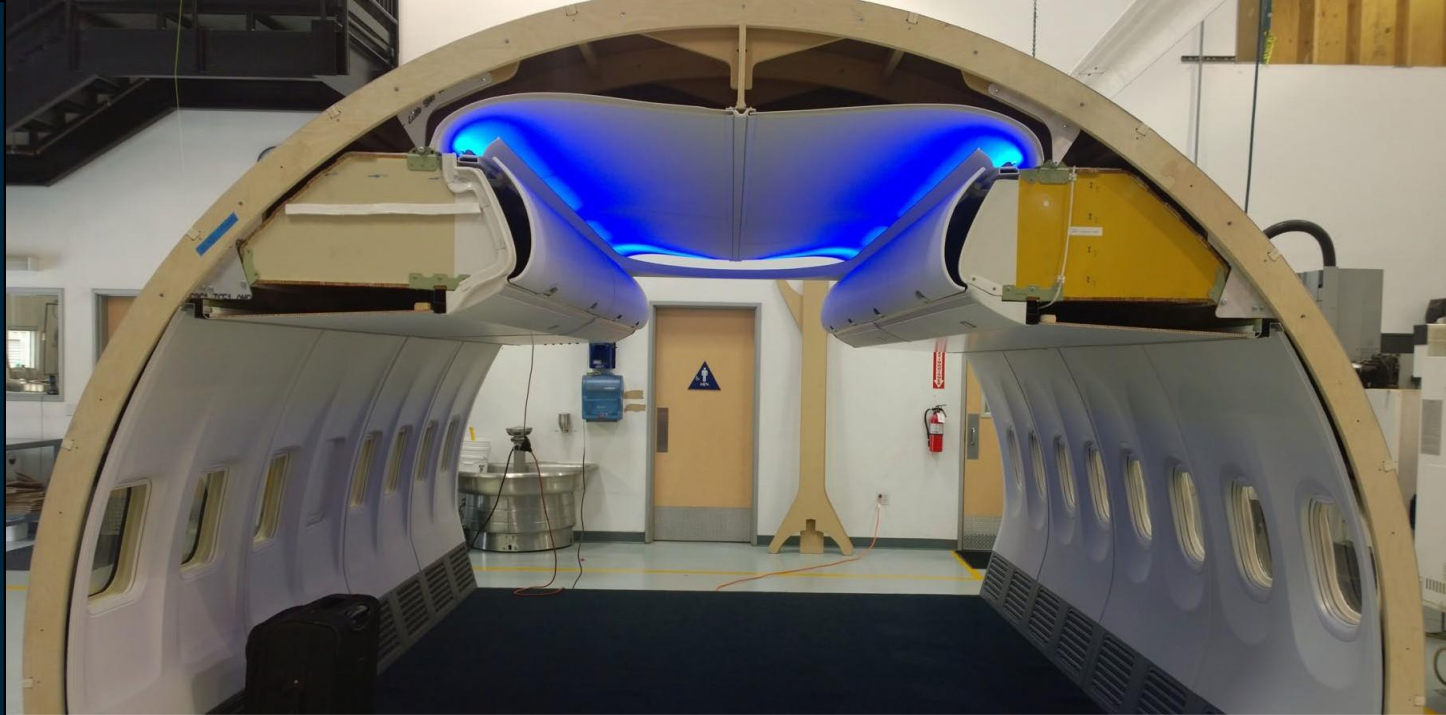
Homelite

 **TAYLOR-DUNN**

**DESIGNING
THE WORLD
WE LIVE IN
FOR OVER
20 YEARS.**



**ANY
PROJECT,
ANY
SCALE.**



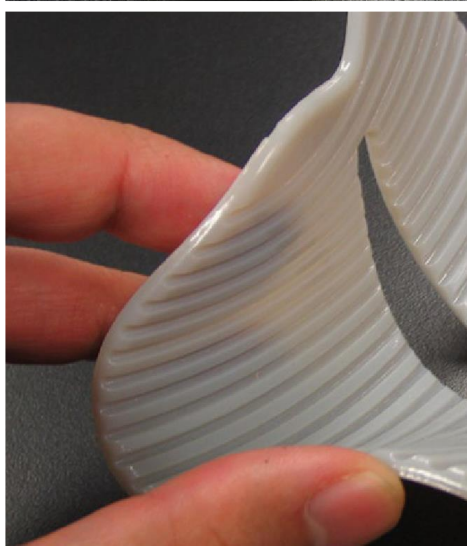
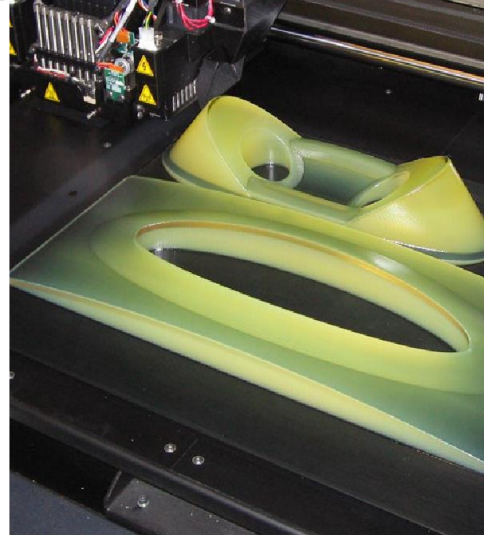
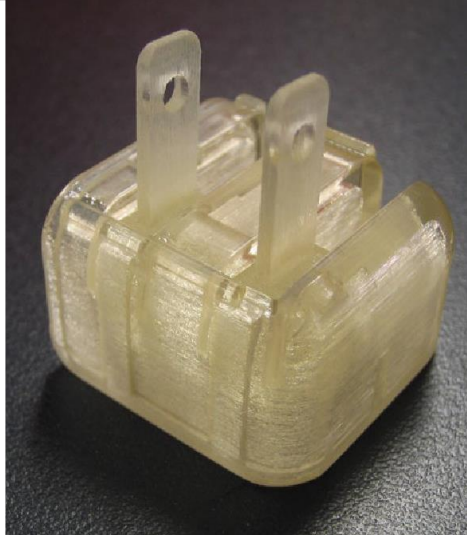
**INDUSTRIAL
DESIGN**

+

**PRODUCT
DEVELOPMENT**



**FULL
SERVICE
IN-HOUSE
PROTOTYPE
SHOP.**







LEFT CORNER



RIGHT CORNER



BOTTOM LEFT - PLAY/PAUSE & STOP BUTTONS



RELATES TO DISTANCE OF USING THE TV ID



CIRCLE LOGO RELATES TO PHONE



THE RIGHT DETAIL ACCENTS







 **ID GROUP**
Innovation Delivered.
CONSUMER ELECTRONICS

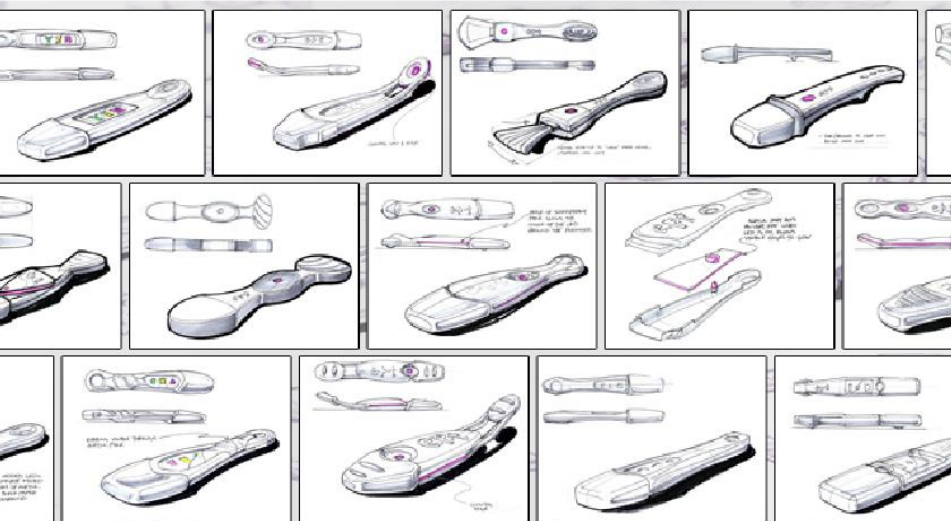






 **ID GROUP**
Innovation Delivered.
CONSUMER TOOLS







eSensor
XT-B

01:35:45

Cartridge

Reporting

Administration

Help

A1: Complete

Cytochrome P450 2C9 / WDR1

ACC_NO_0004444

B1: Empty

C1: Empty

A2: Time remaining: 03:14

Cytochrome P450 2C9 / WDR1

ACC_NO_0004445

B2: Waiting

Cytochrome P450 2C9 / WDR1

ACC_NO_0004446

C2: Waiting

ACC_NO_0004447

A3: Error

Cytochrome P450 2C9 / WDR1

ACC_NO_0004448

B3: Empty

C3: Empty

A4: Waiting

Cytochrome P450 2C9 / WDR1

ACC_NO_0004448

B4: Empty

C4: Empty

A5: Empty

B5: Empty

C5: Empty

A6: Empty

B6: Empty

C6: Empty

A7: Empty

B7: Empty

C7: Empty

A8: Empty

B8: Empty

C8: Empty

Reagent

Batch

Worklist

Clear All

Start

Log Out

Client User: M.Smith
Instrument Status: IDLE

4 ALERTS

eSensor
XT-B

01:35:45

Cartridge

Reporting

Administration

Help

A1: Complete

Cytochrome P450 2C9 / WDR1

ACC_NO_0004444

Done

Details

A2: Error

Cytochrome P450 2C9 / WDR1

ACC_NO_0004448

A3: Waiting

Cytochrome P450 2C9 / WDR1

ACC_NO_0004448

A4: Empty

A5: Empty

A6: Empty

A7: Empty

A8: Empty

A9: Empty

A10: Empty

A11: Empty

A12: Empty

A13: Empty

A14: Empty

A15: Empty

A16: Empty

A17: Empty

A18: Empty

A19: Empty

A20: Empty

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A133: Empty

A134: Empty

A135: Empty

A136: Empty

A137: Empty

A138: Empty

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A176: Empty

A177: Empty

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A179: Empty

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A196: Empty

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A200: Empty

A201: Empty

A202: Empty

A203: Empty

A204: Empty

A205: Empty

A206: Empty

A207: Empty

A208: Empty

A209: Empty

A210: Empty

A211: Empty

A212: Empty

A213: Empty

A214: Empty

A215: Empty

A216: Empty

A217: Empty

A218: Empty

A219: Empty

A220: Empty

A221: Empty

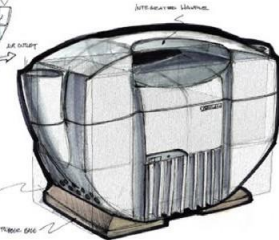
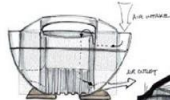
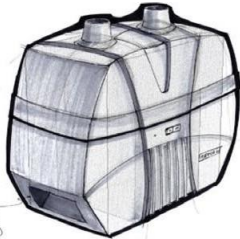
A222: Empty

A223



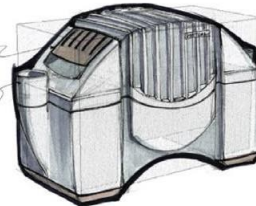
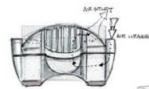
air entry

Like a human
skeleton
(the entry?)



air entry
block

metal box



air entry
block

air entry



KRISS®



















+





NVIDIA Performance Benchmarks

HD single image @ 10,000 passes – Accurate mode



| | minutes | <u>WITH DENOISER</u> |
|------------------------------------|---------|----------------------|
| BETA NVIDIA RTX8000+RTcores | 22 | 2.5 minutes |
| NVIDIA RTX8000 | 33 | 3.5 minutes |
| NVIDIA P6000 | 55 | 6 minutes |

*24-core CPU

NVIDIA Performance Benchmarks

HD 10-second animation @10,000 passes – Accurate mode



WITH DENOISER

BETA NVIDIA RTX8000+RTcores

4.5 days

12 hours

NVIDIA P6000

11 days

30 hours

CPU

110 days*

*24-core CPU



100 passes
Denoiser - ON

100 passes
Denoiser - OFF



1,000 passes
Denoiser - ON

1,000 passes
Denoiser - OFF



1,000 passes
Denoiser - ON

10,000 passes
Denoiser - OFF

1,000 passes
Denoiser - ON



1,000 passes
Denoiser - ON





1,000 passes
Denoiser - ON

1,000 passes
Denoiser - ON





1,000 passes
Denoiser - ON



Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti



Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti



Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti



Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti



Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti



Southwest 737 Entry
19.7 Million Poly's
4000x2250 / 1000 passes



Southwest 737 Entry
19.7 Million Poly's
4000x2250 / 1000 passes



Southwest 737 Entry
19.7 Million Poly's
4000x2250 / 1000 passes



Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti - 20:00





Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti - 15:53





Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti - 21:39



Challenger 605
4.7 M Polygons
4000x2250 / 2000 passes / DN
3x - 1070ti - 25:40



737 - FIRST CLASS SEAT POD
1920x1080 / 2500 passes / DN
3x - 1070ti - 6:30 average time



VR has changed the viz game



SW Visualize Professional
new 360 camera



Oculus GO



Immersive reviews and
happy clients!

Quantum leap for visualization

Creating immersive 360-VR content rather than only still images – in same time!

[click [here](#) to play UNLISTED 360 video on YouTube]



THANK YOU
HAPPY **VISUALIZE-ING!!!**