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# Ansys Zemax OpticStudio

## Optical Workflow & Design Software

Get everything you need to simulate, optimize, and tolerance your optical designs. Design high-confidence virtual prototypes that you can thoroughly analyze before manufacturing.

[FREE TRIAL >](#)

## Achieve on-time, on-budget optical design cycles

Discover new ways to turn innovative ideas into products that shape the world. OpticStudio is the standard for optical, illumination, and laser system design in leading companies throughout the optics industry and at universities around the world.


- Analyze, optimize, tolerance
- Global userbase
- Leading industry standard
- Built-in STOP analysis available





## Case Studies



**Introducing CGH to AR devices**


VividQ uses OpticStudio to design revolutionary AR headsets

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JANUARY 2023

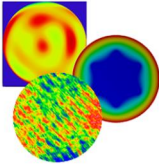
## What's New

Ansys Zemax OpticStudio 2023 R1 add support for Composite Surfaces defining 2D diffraction gratings, and non-sequential tracing of single rays.




**Lumerical 2D RCWA DLL (Premium and Enterprise editions)**

Simulate and optimize complex 2D gratings used in advanced AR and HUD systems by dynamically linking OpticStudio to the Lumerical RCWA solver to calculate diffraction efficiency when Lumerical FDTD is installed on the same PC.



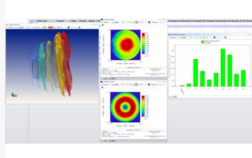
**Composite Surface capability**

Easily create and tolerate complex surface geometries in sequential mode, including directly tolerancing irregularities on sag-based surfaces and stacked composite veneers without requiring workarounds.



**Non-sequential single ray tracing**

Design great AR optical systems through a better understanding of ray behavior in exit pupil expanders and other complex imaging systems. Analyze and visualize single rays in non-sequential mode without affecting your original system.



**Structural, Thermal Analysis & Results (STAR) enhancements (Enterprise edition)**

Get active rigid body motion (RBM) decoupling for more granular control during analysis; improved speed for using the Ray Aiming function with STAR; and closer trimming of voxels to the aperture in STAR System Viewer.

## Quick Specs

Improve your optics workflow to spend more time validating and adding quality to your designs. Automate workflows with our API. With OpticStudio STAR (Enterprise edition only) quickly analyzes the impacts of structural and thermal loads.

Industry-leading optical system design

Intuitive, easy-to-use UI

Phosphor & fluorescence modeling (Premium)

Optimize & tolerance for manufacturability

Lasers & fibers

Dynamic CAD integrations (Premium)

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## Designing to Optimize Manufacturability



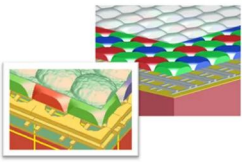
*"OpticStudio makes it easy to use different optimization techniques at different points in the process. Using OpticStudio allowed us to work in the most efficient way possible."*

[VIEW CASE STUDY >](#)

Optics and photonics leader LightPath needed a better way of managing the complexities of its designs for aspheric lenses, which can be very expensive to machine. To ensure their aspheric lens designs were production ready, LightPath used OpticStudio to apply local and global optimization, Hammer Optimization (which helps seek out design solutions outside the local space), and Contrast Optimization to refine the designs for peak optical performance before manufacturing. By reducing the number of costly prototypes, LightPath saved time and money and helped more rapidly generate viable, marketable products. Optimization toolsets in OpticStudio empowered the LightPath teams to focus on quality, performance, and workflow automation while getting to market faster through predictive manufacturability.

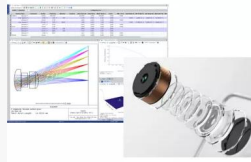
## Easily Use OpticStudio With Other Ansys Products

Realize the Multiphysics potential of an end-to-end optics portfolio by combining Ansys Zemax OpticStudio with [Ansys Lumerical](#) and [Ansys Speos](#). Streamline workflows and communication across photonic, optical, mechanical, and manufacturing engineers.



### Microscale component modeling

Optimize the design of photonic components, circuits, and systems at the chip level with waveguides, sensors, and microlenses



### Imaging the physical world

Apply ray tracing analysis, optimization, and optical and mechanical tolerancing via API-driven automation to refine optical designs



### Simulating human perception

Predict the illumination and optical performance of systems via lighting simulation and integrations into 3D environments



## Optimize your optical designs and workflows

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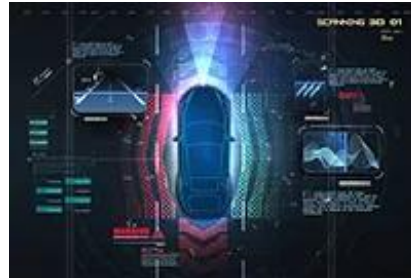
### Applications



#### Autonomous Sensor Development

Comprehensive autonomous vehicle sensor simulation capability that includes lidar, radar, and camera design and development.

[VIEW](#) ▶



#### Autonomous System Validation

Model-based safety and cybersecurity solutions accelerate autonomous system development and certification.

[VIEW](#) ▶



#### Cardiovascular

Rapid and reliable innovation and testing of new cardiovascular medical devices and implants

[VIEW](#) ▶



## Ansys software is accessible

It's vital to Ansys that all users, including those with disabilities, can access our products. As such, we endeavor to follow accessibility requirements based on the US Access Board (Section 508), Web Content Accessibility Guidelines (WCAG), and the current format of the Voluntary Product Accessibility Template (VPAT).

[VIEW VPAT REPORTS](#) ▶

## See What Ansys Can Do For You

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\* = Required Field

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