

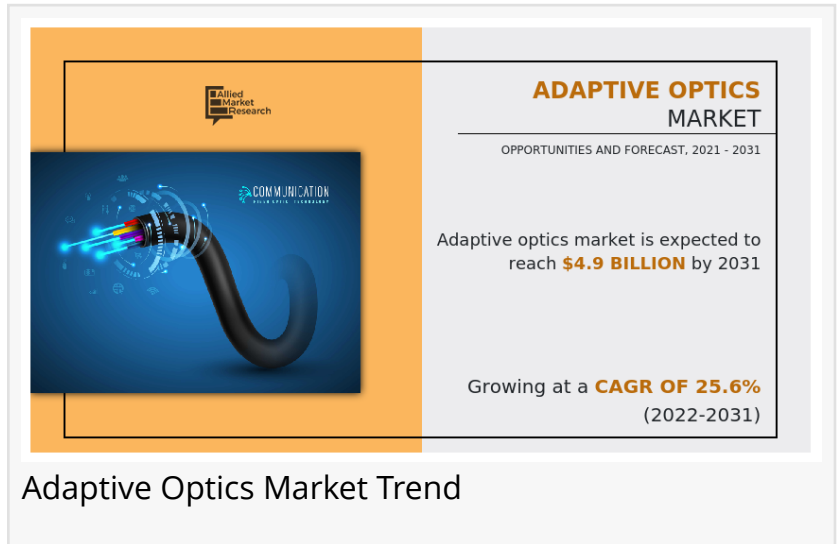
The Adaptive Optics Market's Journey to \$4.9 Billion by 2031—A Comprehensive Exploration by Allied Market Research

Adaptive optics (AO) is a branch of optics and photonics integrated with optical systems for beam propagation, communications, and microscopy.

OREGAON, PORTLAND, UNITED STATES , January 19, 2024

/EINPresswire.com/ -- Allied Market Research recently published a report, titled, "[Adaptive Optics Market](#) by Component (Wavefront Sensor, Wavefront Modulator, Control System), by Industry Vertical (Astronomy,

Biomedical, Military & Defense, Industrial & Manufacturing, Others), by Application (Ophthalmology, Microscopy, Laser Application, Others): Global Opportunity Analysis and Industry Forecast, 2021-2031." As per the report, the global adaptive optics industry was estimated at \$494.5 million in 2021, and is set to reach \$4.9 billion by 2031, growing at a CAGR of 25.6% from 2022 to 2031. The report offers a detailed analysis of changing market trends, top segments, key investment pockets, value chains, regional landscapes, and competitive scenarios.



Adaptive Optics Market Trend

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The factors such as adoption in the field of astronomy, growth in prevalence of retinal degeneration diseases, and rise in demand for high-resolution microscopy in various biomedical [research operations supplement the growth of the adaptive optics market](#). However, high initial cost of adaptive systems and complex design & optimization of space optical solutions are the factors expected to hamper the growth of the adaptive optics market. In addition, increase in demand for photonics enabled products to enhance system efficiency to aid growth and rise in R&D investments in advanced optics technology create market opportunities for the key players operating in the adaptive optics market.

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Surge in cases of retinal degenerative disorders and growing demand for adaptive optics in astronomical activities boost the growth of the global adaptive optics market. Moreover, increase in demand for high-resolution microscopy in various biomedical research operations aids the growth of the global market. However, huge initial costs of adaptive systems and complex design along with optimization of space optical solutions are a few factors that can hinder the growth of the global market. Nevertheless, escalating demand for photonics-based products and a rise in research and development activities in advanced optics technology are predicted to generate new growth avenues for the global market.

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Based on the type, the wavefront sensor segment contributed to the highest market share in 2021, accounting for nearly two-fifths of the global adaptive optics market share. However, the wavefront modulator segment is predicted to contribute majorly toward an overall market share in 2031, contributing more than one-third of the global market share. Furthermore, this segment is also likely to register the highest CAGR of nearly 27.0 % during the forecast timeline. The growth of the wavefront modulator segment over the forecast period can be attributed to the wide application of wavefront modulators in optical information processing systems. The report also includes other segments such as the control system.

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On basis of the industry vertical, the military & defense segment contributed to the highest market share in 2021, accounting for more than one-third of the global adaptive optics market share. Reportedly, this segment is predicted to contribute majorly toward an overall market share in 2031. The segmental growth over the forecast timeline can be attributed to the extensive application of adaptive optics in the military & defense sector as the adaptive optics to improve the performance of laser-based weapon systems. The report also analyzes other segments such as astronomy, biomedical, industrial & manufacturing, and others segments.

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In terms of the application, the microscopy segment contributed to the highest market share in 2021, accounting for nearly one-third of the global adaptive optics market share. Reportedly, this segment is predicted to contribute majorly toward an overall market share in 2031. The expansion of this segment over the forecast timeline is owing to large-scale use of adaptive optics in high-resolution microscopy. The report also includes other segments such as

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<https://www.alliedmarketresearch.com/military-and-aerospace-fiber-optics-market> - Military and Aerospace Fiber Optics Market Size, Share, Competitive Landscape and Trend Analysis Report by Mode (Single-Mode, Multi-Mode, Application), by Radar Systems (Flight Management Systems, In-flight Entertainment Systems, Communication Systems, Electronic Warfare, Cabin Interiors, Avionics, Others) and by End User (Commercial, Military, Space, Others): Global Opportunity Analysis and Industry Forecast, 2023-2032

<https://www.alliedmarketresearch.com/military-electro-optics-infrared-systems-market-A14498> - Military Electro-Optics/Infrared (EO/IR) Systems Market Size, Share, Competitive Landscape and Trend Analysis Report by System (Laser, Targeting, Imaging), by Technology (Uncooled, Cooled), by Imaging Technology (Scanning, Starring, Hyperspectral, Multispectral), by Application (Military Intelligence, Surveillance, Reconnaissance) and by Platform (Airborne, Land-Based, Naval): Global Opportunity Analysis and Industry Forecast, 2023-2032

<https://www.alliedmarketresearch.com/tactical-optics-market-A14510> - Tactical Optics Market Size, Share, Competitive Landscape and Trend Analysis Report by Product (Weapon Scopes Sights Handheld Sighting Devices, Handheld Sighting Devices, Cameras Displays), by Platform (Ground, Naval, Airborne), by Application (ISR, Target Acquisition Identification, Border Coastal Patrol, Search Rescue), by End User (Manned Platform, Weapon Mounted, Soldier, Unmanned Platform), by Range (Short Range, Medium Range, Long Range) and by Region (North America, Europe, Asia-Pacific, LAMEA): Global Opportunity Analysis and Industry Forecast, 2023-2032

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