

Programmable Structured Light Module



Overview

A structured light laser that enables on-demand generation of arbitrary optical field patterns and operates seamlessly across diverse lasing regimes constitutes a transformative platform, offering unprecedented flexibility in high-dimensional optical communications, ultrafast. A structured light laser that enables on-demand generation of arbitrary optical field patterns and operates seamlessly across diverse lasing regimes constitutes a transformative platform, offering unprecedented flexibility in high-dimensional optical communications, ultrafast. Structured light projectors typically employ Dammann gratings as DOEs (Diffractive Optical Elements, DOE), and the generated speckles patterns are normally regular with rectangular or symmetrical shapes instead of random pattern. Built for reliability and high optical throughput, DLP technology enables powerful performance across the UV, visible, and NIR spectra. Whether you're. Fiber-based structured light including cylindrical vector beams (CVBs) and orbital angular momentum (OAM) has gained significant interest for its unique properties. As the utilization of these powerful tools continues to spread, the demand for technologies that enable the spatial manipulation of. This ultra-low-cost 3D scanning Reference Design enables faster development of portable 3D scanner and machine vision applications using structured light triangulation technique where DLP® technology is used to project highly flexible patterns on an object. This TI Design uses the DLP Pico 0.



Article Content

Fringe-Based Structured-Light 3D Reconstruction: Principles ...

Structured-light 3D reconstruction is an active measurement technique that extracts spatial geometric information of objects by projecting fringe patterns and analyzing their distortions. It

Programmable structured light using metasurface optics and

In this paper, a novel programmable structured light is implemented by combining a siliconon-insulator (SOI) reflective metasurface and an individually addressable vertical-cavity surface-emitting laser

A programmable fiber laser with full spatiotemporal reconfigurability ...

Figure 1 presents a schematic of the spatiotemporally programmable structured-light fiber laser. The architecture integrates two principal functional modules: a standard erbium-doped fiber

Open-source microscope add-on for structured illumination

Researchers developed an open-hardware structured illumination microscopy add-on. This affordable upgrade provides super-resolution capabilities for normal optical microscopes.

Structured-light 3D scanner

A structured-light 3D scanner is a device used to capture the three-dimensional shape of an object by projecting light patterns, such as grids or stripes, onto its surface. The deformation of these

Structured light | ams OSRAM

Structured light systems from ams OSRAM enable 3D imaging applications to achieve extremely high accuracy. Accurate structured light technology is behind the user face recognition being implemented

Generating free-space structured light with programmable integrated ...

In this study, we demonstrate how a multipurpose programmable integrated photonic processor can generate and control a wide range of higher-order free-space structured light beams, all...

photonics

ciencies. In this study, we demonstrate how a programmable integrated photonic processor can generate and control higher-order free-space structured light beams at the click of a button. Our

Programmable structured surfaces can change the future of wireless ...

News & Views Open access Published: 28 June 2022 Programmable structured surfaces can change the future of wireless communications Lei Xu & Mohsen Rahmani Light: Science &

Generating free-space structured light with programmable integrated ...

Using programmable integrated photonics to generate a higher-order free-space structured light beam promises lossless and reconfigurable control of the spatial distribution of light's

Addressable structured light system using metasurface optics ...

Since the main emphasis of this paper is on presenting the implementation principles of this novel programmable structured light system, the intricacies of complex algorithms may not fall within the

General structured light generation based on a

In this paper, we propose the programmable LP-mode synthesizer as a general approach to generate fiber-based structured light. An LP-mode pool is

UNDP | Procurement Notices

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

Small Form-factor Structured Light Pattern Generator Reference

This ultra-low-cost 3D scanning Reference Design enables faster development of portable 3D scanner and machine vision applications using structured light triangulation technique where DLP®

A programmable fiber laser with full spatiotemporal reconfigurability

Here, we demonstrate a programmable structured light fiber ring laser capable of generating arbitrary structured beams and supporting multiple operational regimes.

Structured Light Laser Modules

Shop high-precision Structured Light Laser Modules for 3D scanning, depth sensing, and measurements. Available in various wavelengths (830nm, 850nm) with random dot projection for

An Ultra-High-Speed LED Array Driver Circuit for Structured ...

In this article, we propose a driver circuit and a pattern display scheme that support high-power LED arrays to refresh structured light patterns at ultra-high rates. We have fabricated a prototype of the

Compact structured light generation based on meta-hologram PCSEL ...

In this study, we experimentally demonstrate reconstruction of a holographic images using a compact integration of a photonic crystal surface-emitting laser and metasurface holograms

Programmable structured light using metasurface optics and

Structured-light based 3D sensing technology has been widely used in machine vision, face recognition, and unmanned driving due to high spatial resolution, miniaturized size, large field of view (FOV), and

(PDF) General structured light generation based on programmable ...

In this work, we propose the concept of programmable linearly-polarized (LP) -mode Synthesizer for general structured light generation, in which an LP-mode Pool supporting

Industrial digital micromirror devices (DMDs) | TI

Our DLP® digital micromirror devices (DMDs) deliver fast, precise and programmable light modulation for a wide range of industrial applications. Built for reliability and high optical throughput, DLP

[2304.08963] Generating free-space structured light with programmable ...

In this study, we demonstrate how a programmable integrated photonic processor can generate and control higher-order free-space structured light beams at the click of a button. Our

Structured Light Module

Structured Light Module: Combination of diffractive and refractive optics for laser pattern generation in very high angles.

STRUCTURED LIGHT

The Structured Light Advantage Structured light allows you to take a scan of the entire target surface and inspect multiple features simultaneously such as fasteners, holes, slots, studs, and surface gap

US20240045100A1

The present disclosure generally relates to the technical field of photoelectric devices, and in particular to a programmable structured light generator, a photoelectric device having same,...

Contact Us

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