

Application of Fiber Optic Sensors in Robotic Arms

This paper proposes the design of a new force and tactile sensing mechanism for a robotic end-effector suitable for deployment in harsh environments with integrated force sensing based on ...

Force sensing in the proposed skin is enabled by a custom-designed triangular beam structure underneath the skin cover. A force applied to the skin cover causes the bending of the beam, which ...

In this pilot study, we aim to provide a detailed record of how a nearly commercial monolithic, multicore, fiber optic shape sensor (FOSS) has the potential to address many of these challenges.

Fiber optic technology continues to find new applications in various fields including medicine, biomechanics, space, oil industry, geophysics, etc. According to researchers from the ...

Here, we introduce optical/electronic artificial skins (oe-skins), advancing robotic sensing from physical perception to chemical sensation. Our design integrates optical fibers into a...

Fiber Bragg grating (FBG)-based sensors are very popular among various fiber optic sensors, but their stiff nature makes it challenging to be used in soft robotics. In this study, a soft ...

In this chapter, we report on the STIFF-FLOP approach in design and implementation of a three-axis force sensor based on fiber optics.

The study of a three-dimensional rotational sensor based on polymer optical fiber and its application in robotics is significant for several reasons, such as improved stability, cost ...

To demonstrate the potential of the distributed sensor architecture in robotics applications, we build a data-driven model independent of actuation feedback to detect contact with objects in the ...

This type of sensor concept is particularly suitable for inclusion in instruments and robotic tools for minimally invasive surgery (MIS). The paper summarizes the design, integration challenges and ...



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