Bending Fiber Optic Sensor

Clearly, TFCF is superior to the conventional tapered fiber coupler when serving as fiber bending sensors. In this work, the excitation of the asymmetric supermodes in the TFCF was ...

Fiber bend sensors embedded in robotic fingers, joints, or artificial skins provide crucial data on object shape, grasping force, and limb position, enabling dexterous manipulation and ...

We contribute a method of reliably embedding POFs into a multi-material 3D printed finger with optical bending sensors embedded in each compliant joint (Fig. 1).

The three-lobe shape was conceived to achieve a low-cost optical fiber bend direction and rotation sensor. The bend direction sensing principle is made observing the change in the light field ...

The sensor is fabricated by splicing multimode fiber (MMF) to HAF, creating a hybrid structure capable of vectorial bending through its unique air-hole and multicore-assisted architecture.

We develop and investigate fiber-optic bend sensor, which is formed by a section of double cladding SM630 fiber between standard SMF-28 fibers. The principle of operation of the sensor is ...

In this paper, according to the optical fiber bending sensors discussed, the bending sensors are divided into five main categories: MCF-based, SMF-based, PCF-based, and FBG-based ...

The bend loss principle and influencing factors of the fiber are analyzed, and the bending resistances of different fibers are discussed on the basis of theoretical and experimental comparisons.

By utilizing thermal diffusion technology and fiber end polishing, the coupling of single-mode fiber (SMF) and seven-core fiber (SCF) was achieved. The sensor"s bending sensitivity was ...

We propose and demonstrate a compact and simple vector bending sensor capable of distinguishing any direction and amplitude with high accuracy. The sensor consists of a short ...

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