

Optical fiber based slide tactile sensor for underwater robots(PDF)

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Title: Optical fiber based slide tactile sensor for underwater robots

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摘要: In the underwater environment, many visual sensors don't work, and many sensors which work well for robots working in space or on land can not be used underwater. Therefore, an optical fiber slide tactile sensor was designed based on the inner modulation mechanism of optical fibers. The principles and structure of the sensor are explained in detail. Its static and dynamic characteristics were analyzed theoretically and then simulated. A dynamic characteristic model was built and the simulation made using the GA based neural network. In order to improve sensor response, the recognition model of the sensor was designed based on the 'inverse solution' principle of neural networks, increasing the control precision and the sensitivity of the manipulator.

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