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Applications of Strain Sensors to CG, VR and Rehabilitation Equipment

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We have synthesized spinnable carbon nanotube (CNT) [1] and have developed the CNT strain sensors as components of a textile based, wearable sensing system for real-time motion detection [2]. The aligned CNT layer was formed by stacking CNT webs drawn from a spinnable CNT forest. In the strain sensors, we sandwiched the aligned CNT sheet between elastomer layers. We have applied the CNT strain sensors to the data glove. The data glove detects fine finger motions and collecting electric motion data when worn on the hand. When a finger joint bends, the respective CNT strain sensor elongates, and the resistance increases. The data glove has generated significant outcomes in various fields that require electric expression of human finger motions, such as virtual reality (VR) studies, animation and computer graphics (CG) production, and ergonomics. In the presentation. I will introduce the data glove with the CNT strain sensors and the demonstration of the CG, VR and rehabilitation equipment using the data glove.

[1] Y. Inoue, K. Kakihata, Y. Hirano, T. Horie, A. Ishida, and H. Mimura, Appl. Phys. Lett. 92 (2008) 213113.
[2] K. Suzuki, K. Yataka, Y. Okuyama, S. Sakakibara, K. Sako, H. Mimura and Y. Inoue, ACS sensors (2016) 817.

Topics

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