

# 可穿戴传感装置在健康信息学中的应用

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## 摘要

人口的老齡化, 慢性疾病的普遍蔓延以及传染性疾病的爆发是当今社会面临的主要挑战。为了满足人们日益增长的医疗需求, 尤其是对于重大疾病早期防治的需求, 作为涉及卫生信息的获得, 传播, 加工, 储存, 检索以及使用的卫生信息学, 已然成为跨领域研究中的一个活跃学科。人们通过可穿戴的传感装置即可获得健康类信息, 这一方法, 则被认为是该学科的基础。人们可以在日常生活中随处获得卫生信息, 因为传感器已经可以完全渗透到人们的服装, 配饰以及日常生活环境中去。它甚至能够直接安装或者以电子纹身的形式安装在人们的皮肤上, 从而实现对人体健康的长期监控。本文主要概述了对普及健康信息起着至关重要作用的四种新兴可穿戴传感技术, 即1) 不易觉察的传感方法; 2) 智能的纺织技术, 3) 弹性灵活、可伸展、可印刷的电子产品; 4) 传感器的融合技术, 进而指出这一领域的未来研究方向。

## Abstract

The aging population, prevalence of chronic diseases, and outbreaks of infectious diseases are some of the major challenges of our present-day society. To address these unmet healthcare needs, especially for the early prediction and treatment of major diseases, health informatics, which deals with the acquisition, transmission, processing, storage, retrieval, and use of health information, has emerged as an active area of interdisciplinary research. In particular, acquisition of health-related information by unobtrusive sensing and wearable technologies is considered as a cornerstone in health informatics. Sensors can be weaved or integrated into clothing, accessories, and the living environment, such that health information can be acquired seamlessly and pervasively in daily living. Sensors can even be designed as stick-on electronic tattoos or directly printed onto human skin to enable long-term health monitoring. This paper aims to provide an overview of four emerging unobtrusive and wearable technologies, which are essential to the realization of pervasive health information acquisition, including: 1) unobtrusive sensing methods; 2) smart textile technology; 3) flexible-stretchable-printable electronics, and 4) sensor fusion, and then to identify some future directions of research.

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## 专家简介

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### 其他相关研究

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[An improved scheme of IPI-based entity identifier generation for securing body sensor networks](#), 《Engineering in Medicine and Biology Society, EMBC, 2011 Annual International Conference of the IEEE》, 2011 年

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