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Tire Vertical Force Estimation based on Smart Tire System

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Abstract：The hardware test system of smart tire was built by using the MEMS accelerometer，and the tire vertical force was predicted by the system. In order to obtain the data of smart tire sensor under various working conditions，and verify the prediction algorithm，the drum bench test and vehicle experiment were carried out respectively. The results showed that，the vertical force prediction algorithm based on smart tire had high accuracy，and could meet the requirements of engineering applications.

Key words：smart tire；vertical force；multi-sensor fusion；prediction algorithm

一种轮胎外观检测方法

由苏州光图智能科技有限公司申请的专利（公开号　CN 108982545A，公开日期　2018-12-11）"一种轮胎外观检测方法"，涉及的轮胎外观检测方法包括以下步骤：(1)对待测轮胎进行拾取和固定；(2)通过照相机对旋转的待测轮胎进行拍摄以获得花纹面图案或侧面图案；(3)获取照相机所拍摄到的花纹面图案和侧面图案，并将其与预设的轮胎比对数据进行对比分析，判断待检测轮胎是否存在缺陷。通过该方法可以实现对轮胎的自动化检测，提高检测效率和检测准确性，克服现有轮胎检测技术中重复操作、界定问题难度大，速度慢，效率低的缺陷。

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