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### 基于虚拟四目的立体视觉固定飞行昆虫运动参数测量系统

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### Tether Insect Motion Parameters Measurement System Based on Stereo Vision

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摘要

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**摘要** 提出了基于单摄像机的测量高扇翅昆虫飞行运动参数的虚拟四目立体视觉测量系统。文章首先分析了虚拟测量系统原理和立体视觉测量原理,并指出了采用虚拟四目立体视觉测量系统测量昆虫运动参数的必要性,最后给出了基于多平面的虚拟四目立体视觉测量系统的标定方法和实验结果。实验结果表明利用该测量系统可以较好的恢复昆虫双侧翅膀的运动信息,极大的降低了系统成本。

**关键词:** 立体视觉 虚拟传感器 昆虫 三维形貌 运动参数

**Abstract:** A novel virtual sensors measurement system using one high speed camera is proposed for measuring high flapping moving insect. Principales of virtual measuring system and stereo vision are given firstly' then the reason of measuring moving insect with four virtual sensors is analyzed. At last calibration method based on multi planes is researched for multi vision sensor. Results show that the measuring system is feasible for insect moving measurement and better result is got.

**Keywords:** stereo vision virtual sensors insect three-dimensional shape motion parameter

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