

计量测试

三维测量中空间编码技术的研究

李红岩,达飞鹏,金亚

东南大学自动控制系, 南京210096

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摘要 针对三维测量中的关键技术——空间编码技术,介绍了空间编码技术对测量的精度、速度和可靠性方面所起的重要作用。阐述了基于三角法结构光投影的测量原理。对空间编码技术在三维测量中的功能进行了研究,介绍了编码原理,总结了编码方案所应满足的条件。列举了当前典型的几种编码方案和一种新的条纹边界编码方案,并对它们进行了分析和比较,指出了它们各自的优缺点和发展趋势。在此研究基础上对空间编码技术作了进一步的总结,指出该领域未来的发展方向将是彩色编码与已有编码的结合。

关键词 [三维测量](#) [光栅投影](#) [空间编码技术](#) [彩色编码](#)

分类号

Study on spatial encoding technique in 3D measurement

LI Hong-yan,DA Fei-peng,JIN Ya

Department of Automatic Control, Southeast University, Nanjing 210096,China

Abstract The spatial encoding technique is one of the key techniques in 3 D measurement. The spatial encoding method,which plays an important role in resolution, speed and reliability in measurement,is introduced. The measurement principle of structured light method based on a triangular algorithm is described. The influence and functions of spatial encoding technique are studied, the principle of encoding is introduced and the condition which should be satisfied by the encoding scheme are summarized. Several typical encoding methods investigated in recent years and the stripe boundary encoding proposed by this laboratory are analyzed and compared. Their advantages, drawbacks and development trend are introduced. The proposed color encoding methods, their unique advantages and common drawbacks are introduced. Finally, based on the study, the spatial encoding technique is reviewed and its prospect is pointed out.

Key words [3D measurement](#) [grating projection](#) [spatial encoding technique](#) [color code](#)

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通讯作者 达飞鹏 dafp@seu.edu.cn

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