

3. 所需仪器设备

硬件: 个人笔记本电脑, CPU i5 (2.2Ghz), GPU GTX 825M, 内存 4G

软件: MATLAB2018A, Autodesk 3ds MAX 2016 English

4. 主要参考文献

a) 数字摩尔 3D 测量原理

- i. Gorthi, S. S. and P. Rastogi (2010). "Fringe projection techniques: whither we are?" Optics and lasers in engineering **48**(ARTICLE): 133-140.
- ii. Meadows, D., et al. (1970). "Generation of surface contours by moiré patterns." Applied Optics **9**(4): 942-947.
- iii. Mohammadi, F. (2017). "3D optical metrology by digital moiré: Pixel-wise calibration refinement, grid removal, and temporal phase unwrapping."
- iv. Talebi, R., et al. (2013). 3-D reconstruction of objects using digital fringe projection: survey and experimental study. Proceedings of World Academy of Science, Engineering and Technology, World Academy of Science, Engineering and Technology (WASET).
- v. Zhou, C., et al. (2018). "Dynamic 3D shape measurement based on the phase-shifting moiré algorithm." arXiv preprint arXiv:1807.01399.

b) 滤波消除噪声

- i. Coifman, R. R. and D. L. Donoho (1995). Translation-invariant de-noising. Wavelets and statistics, Springer: 125-150.
- ii. Mohammadi, F. and J. Kofman (2016). "Improved grid-noise removal in single-frame digital moiré 3D shape measurement." Optics and lasers in engineering **86**: 143-155.
- iii. Münch, B., et al. (2009). "Stripe and ring artifact removal with combined wavelet—Fourier filtering." Optics express **17**(10): 8567-8591.
- iv. Xie, J., et al. (2012). Image denoising and inpainting with deep neural networks. Advances in neural information processing systems.

c) 相位展开

- i. Mohammadi, F. and J. Kofman (2019). "Multi-Wavelength Digital-Phase-Shifting Moiré Based on Moiré Wavelength." Applied Sciences **9**(9): 1917.

**指导教师评语:** (建议填写内容: 对学生提出的方案给出评语, 明确是否同意开题, 提出学生完成上述任务的建议、注意事项等)

开题报告符合毕业设计任务要求。进行了初步的文献调研, 并给出具有一定可行性的设计方案。应保证有足够的时间投入。通过毕业论文工作培养自己自主学习和分析、解决问题的能力。同意开题。

指导教师签名: 

2019年3月5日