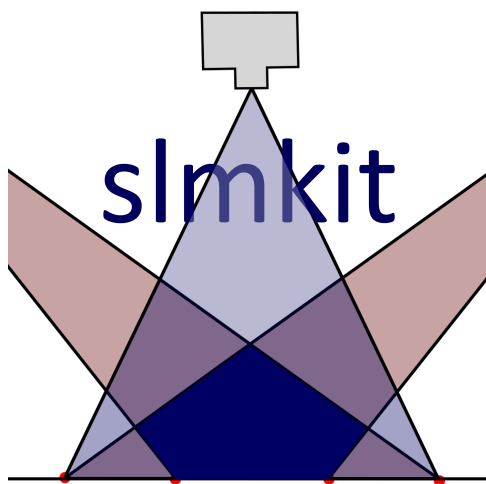


SLMKIT (The Structured Light Metrology Toolkit)

The Structured Light Metrology (SLM) Toolkit, or 'SLMkit', includes tools for simulating and optimizing the performance of structured light scanners (such as the GOM ATOS Q).



Category
Software

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Background

Structured light metrology systems can provide a precise digital reconstruction of real-world objects through projected light patterns and a camera system. To make these 3D scanning systems more efficient, there is a method to automate a robust search for optimal exposure time with minimal human intervention and judgment.

Description

The Structured Light Metrology (SLM) Toolkit, or 'SLMkit', includes tools for simulating and optimizing the performance of structured light scanners (such as the GOM ATOS Q). Other tools include calculating the transformation matrix between a scanner's coordinate system and the part's coordination system, simulating a scan of the part under ideal circumstances (including through a window), and calculating a quality metric to evaluate a scan in comparison to the simulation.

Advantages

Reduced manufacturing costs due to automating some of the manual tasks of 3D scanning a part using structured light technology.

Potential Applications

- 3D scanning/imaging
- Manufacturing simulation

References

1. Nishant Ojal, Alex Caviness, Alexander Blum, Brian Au, Adam W. Jaycox, Brian Giera(2024) , <https://www.sciencedirect.com/science/article/pii/S0263224123013805>, <https://doi.org/10.1016/j.measurement.2023.113816>, 224, 113816