



Popular science summary of the PhD thesis

PhD student	<u>Gwendoline A. E. Anand</u>
Title of the PhD thesis	<u>Light Engines for VAT Photopolymerization</u>
PhD school/Department	<u>DTU Civil and Mechanical Engineering</u>

Science summary

* Please give a short popular summary in Danish or English (approximately half a page) suited for the publication of the title, main content, results and innovations of the PhD thesis, including prospective utilizations hereof. The summary should be written for the general public interested in science and technology:

This PhD thesis explores photo projectors used for 3D printing with light. Photo projectors are essential as they create, shape, and provide the light used to produce 3D objects.

This work presents the complete development and testing of a custom photo projector featuring an innovative design and using a mechanical-electrical component containing millions of controllable micromirrors to shape the light.

The custom photo projector demonstrates a high performance in important specifications, such as its distortion levels, light uniformity or optical power.

Compared with similar commercial systems, the custom photo projector is a cost-effective solution that offers better control over the manufacturing process and enables a new way to fabricate 3D objects: pulsed light exposure.

This work can positively impact research by providing information facilitating the construction of custom photo projectors and demonstrating their added benefits: better control and expansion of the manufacturing possibilities.