

## Faculty of Engineering

### Summer Research Program 2022-2023

Project Title: Digital Light Processing based Multi-Material 3D Printing Process

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### Objective

Develop a DLP-based multi-material 3D printing device that can print two materials in the same part.

### Project Details

DLP (DIGITAL LIGHT PROCESSING) device is built based on Digital Micro Mirror which can digitally control the light pattern. In additive manufacturing, we use the controlled digital light pattern to selectively cure the photopolymers to form a 3-dimensional object. In this summer research project, the student will need to design a multi-material DLP printer based on the reference model shown below. The developed printer aims to print materials that can combine ceramics, liquid metal or other functional materials into polymers to achieve functionally graded properties. This can be used to print soft robotics, wearable sensors and devices.

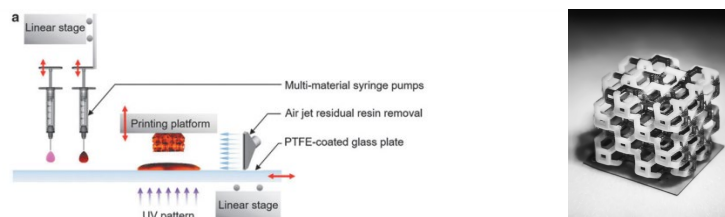


Figure 1 Concept of multi-material DLP printing (Kowsari.et al, 2018,3D Printing and Additive Manufacturing)

### Prerequisites

Students should have CAD skills and be interested in 3d printing.

### Additional Information

The applicant who is interested in this project, please contact [Yunlong.tang1@monash.edu](mailto:Yunlong.tang1@monash.edu) and an interview is required