

Development of a 3D printer using scanning projection stereolithography – Supplementary information

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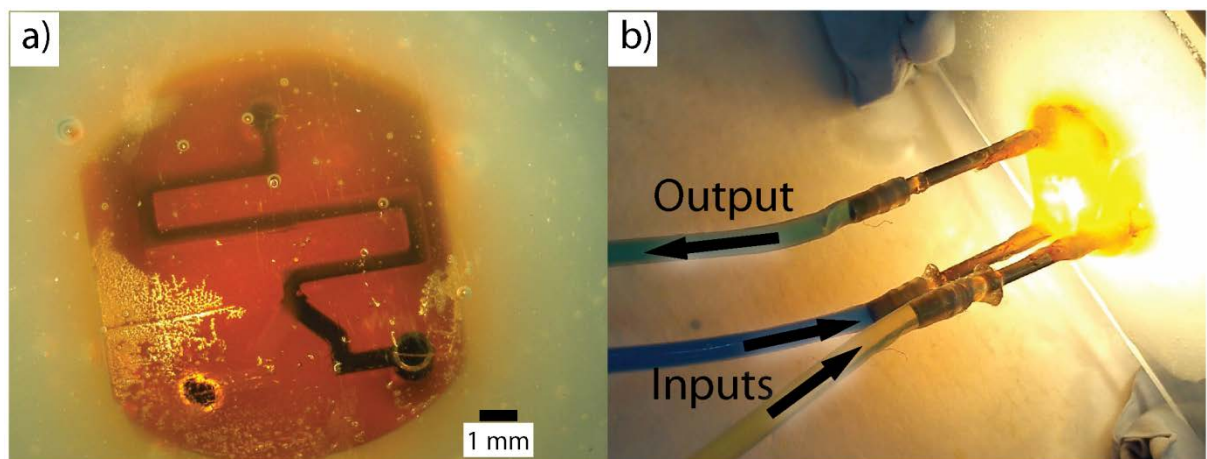
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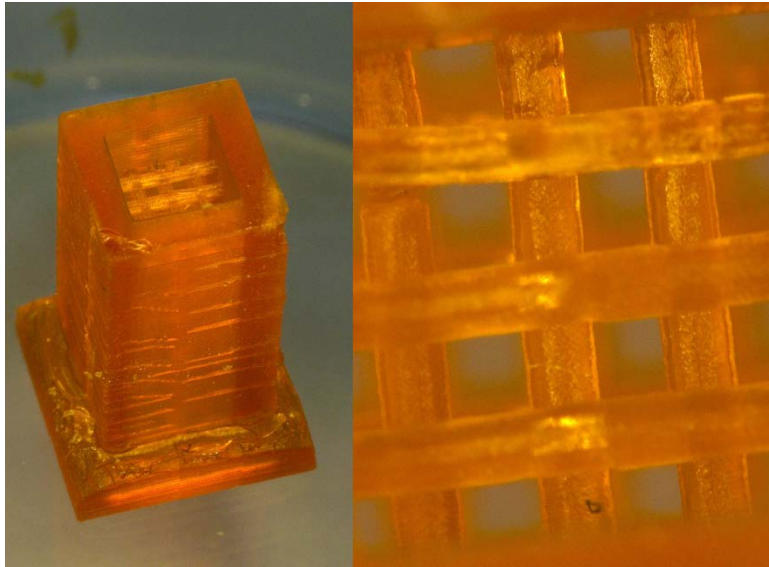
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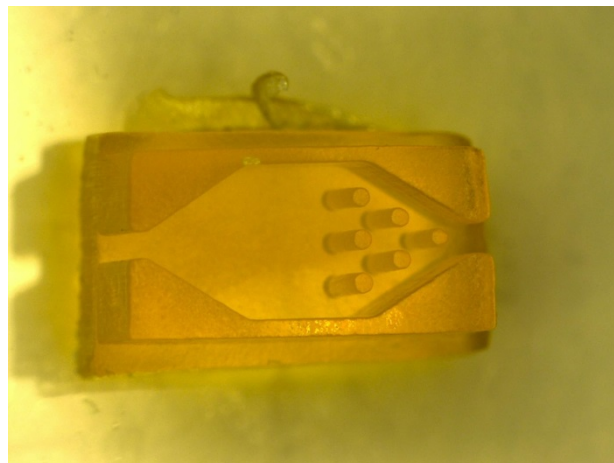
Additional Prints



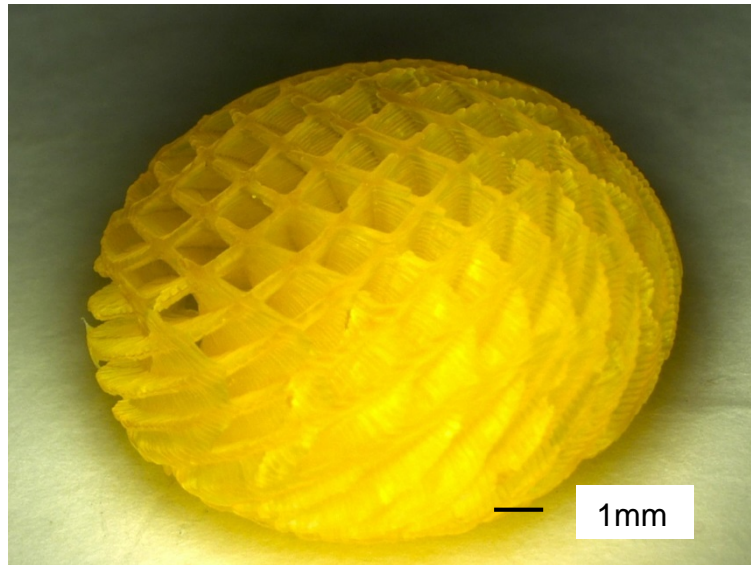
Supplementary Figure S1: Flow mixing millifluidic device, channels have a 400 μ m cross-section. 2 Aqueous dyes are used.



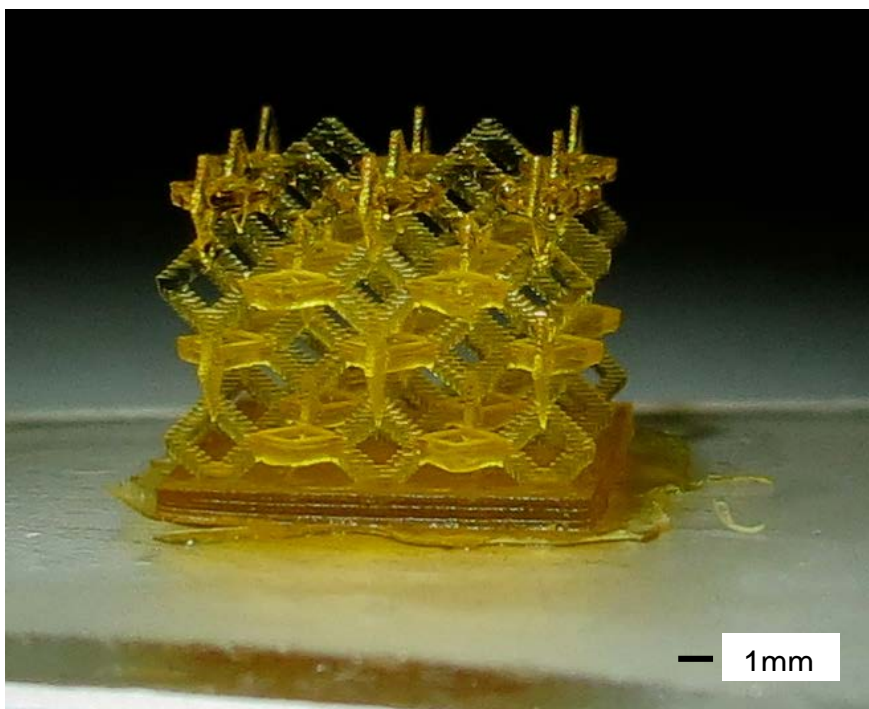
Supplementart Figure S2: A scaffold structure featuring 200 μ m struts in a 1cm tall unit.



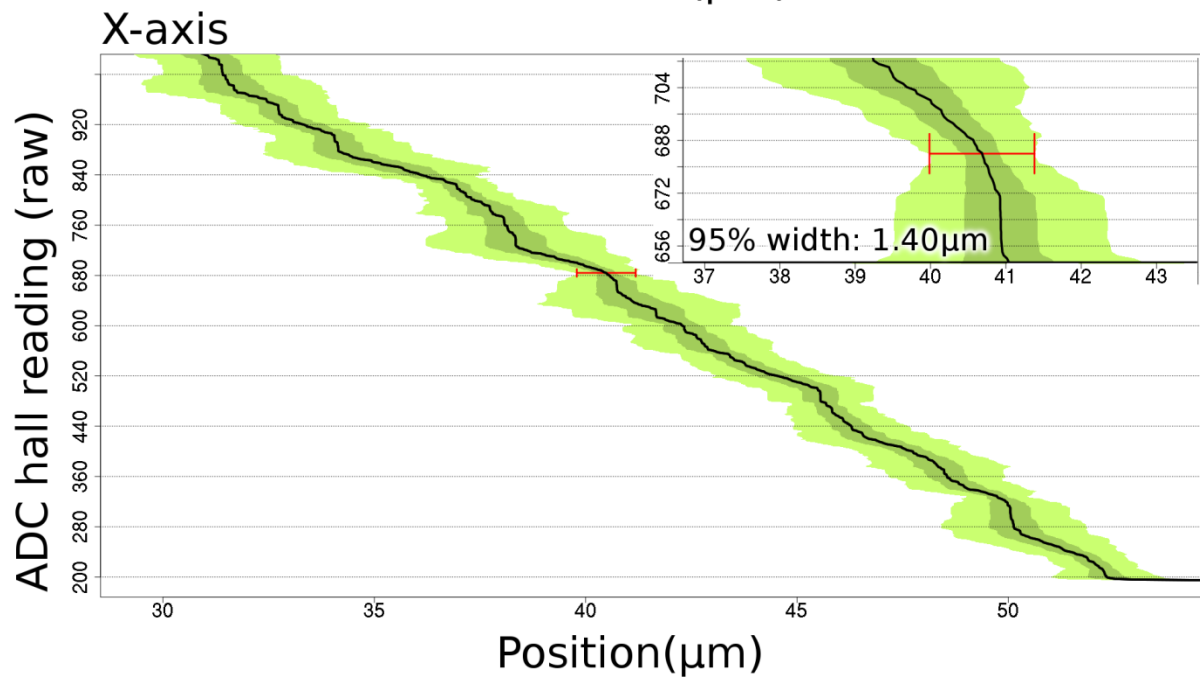
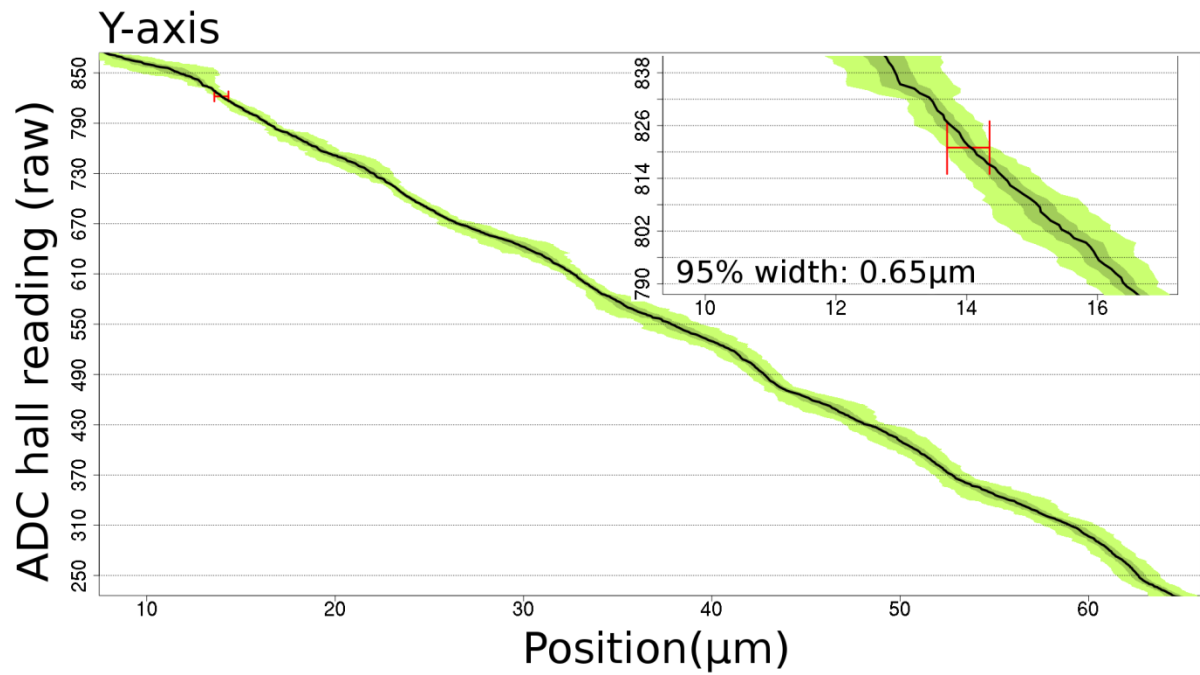
Supplementary Figure S3: "Bagatelle" structure



Supplementary Figure S4: Sphere with twisting internal structure

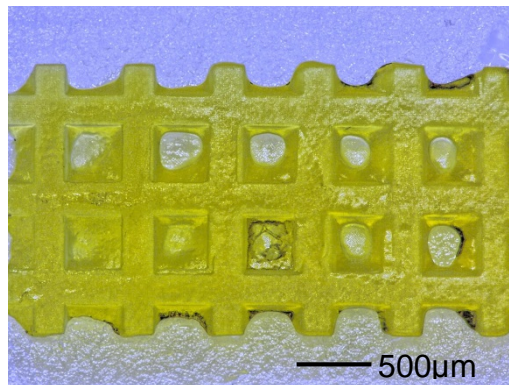


Supplementary Figure S5: A photograph of an intricate lattice structure.



Supplementary Figure S6: Variation in the Hall sensor reading, at and around the home position for Y-axis (top) and X-axis (bottom). The variation in the reading give a positioning error of $1\mu\text{m}$.

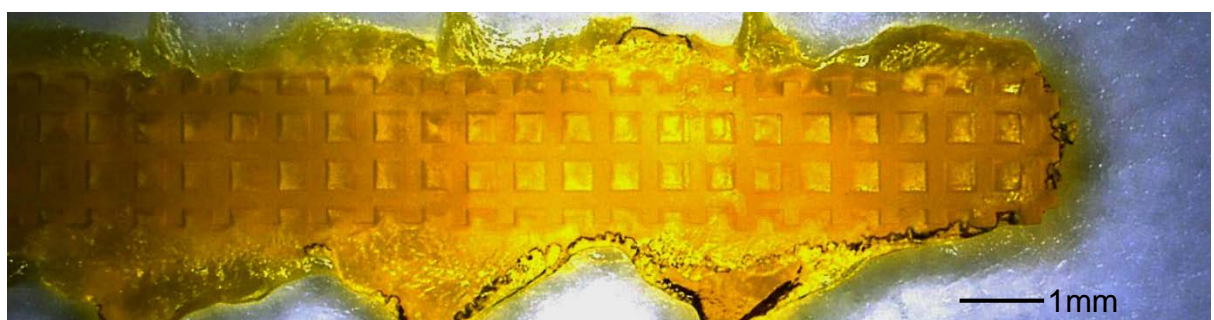
Calibration



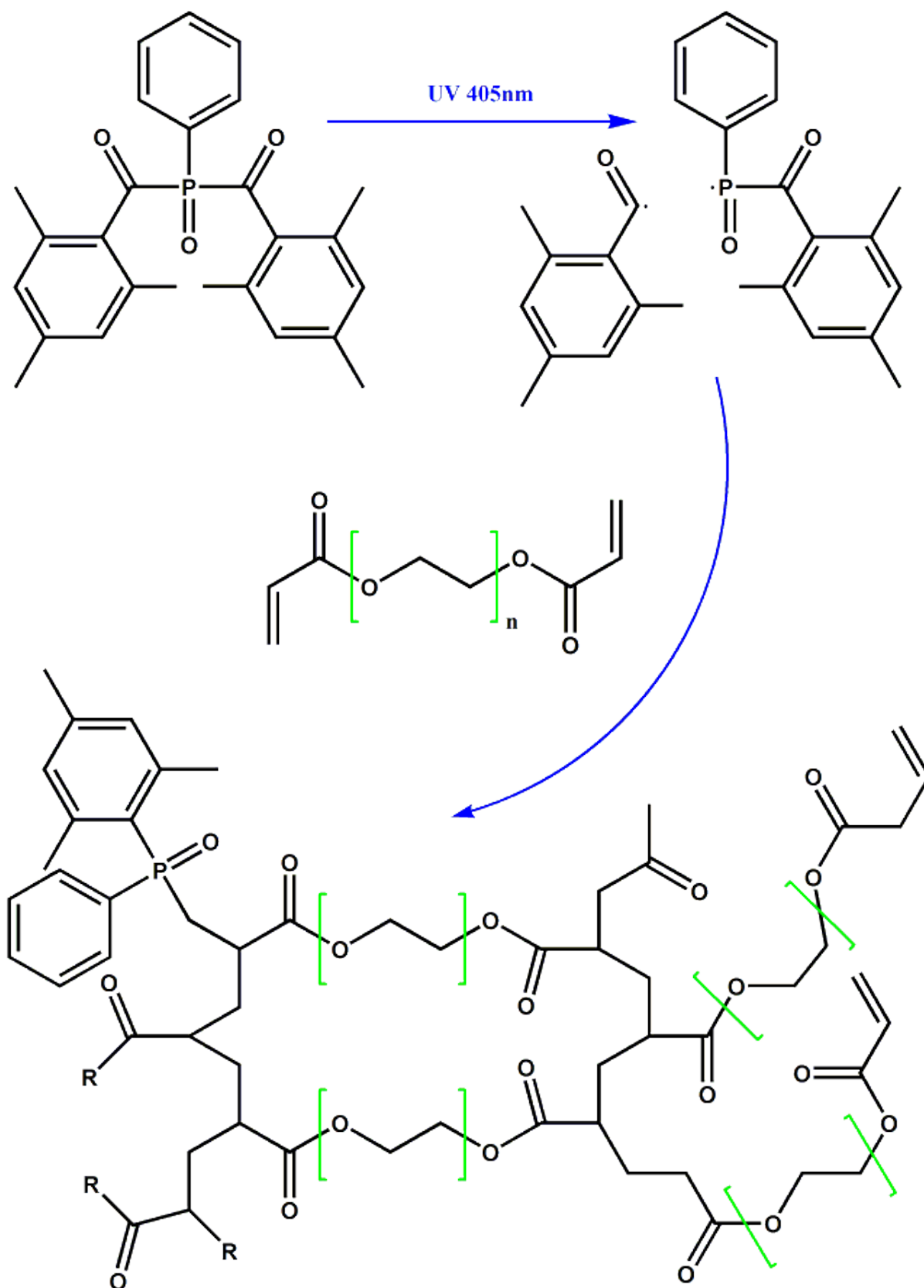
Supplementary Figure S7: Calibration of DMD pixel size to millimetres in the print. X and Y distances were measured with a Keyence digital microscope images analysis.



Supplementary Figure S8: Calibration of X stage microsteps to millimetres. Calibration was adjusted so that the projection module moved one image's width.

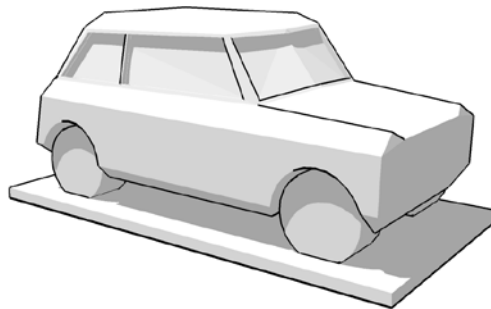


Supplementary Figure S9: Calibration of Y stage microsteps to millimetres. Calibration was adjusted so that the projection module moved one image's height.

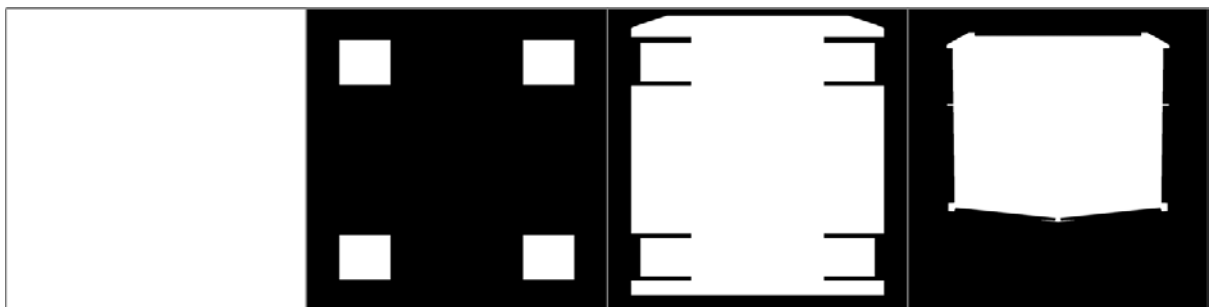


Supplementary Figure S10: Scheme of polymerisation reaction.

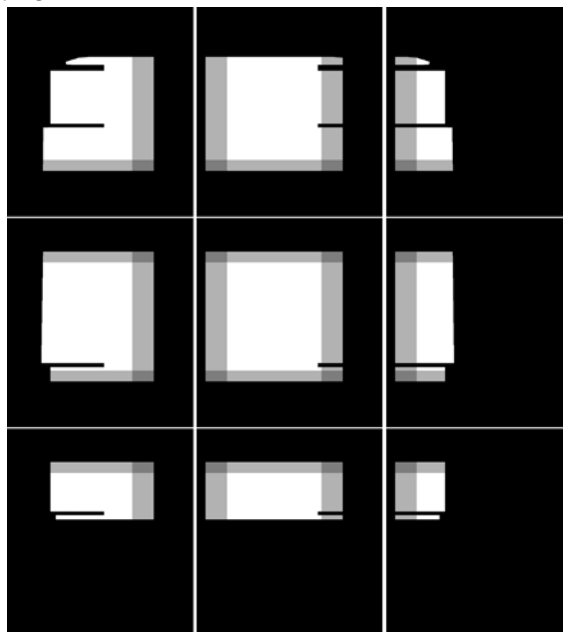
Build Software



Supplementary Figure S11: Example STL file to be printed.

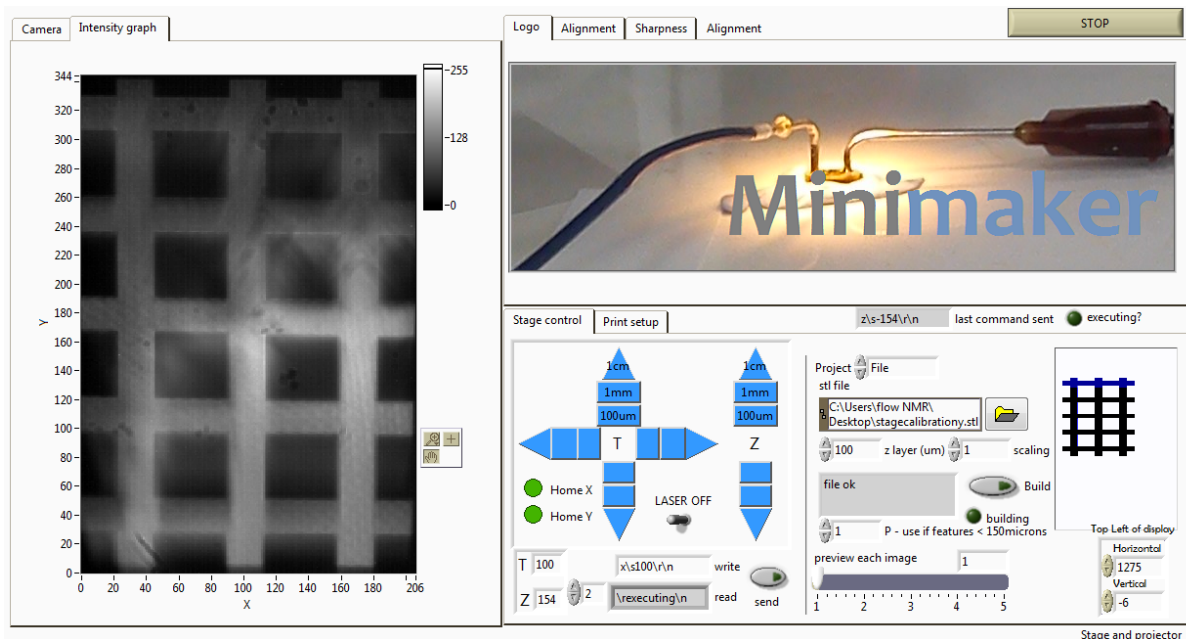


Supplementary Figure S12: Example PNG images created by horizontal slicing of the stl model. Owing to the mapping of pixels on the projector, our image files are stretched by a factor of two in x.

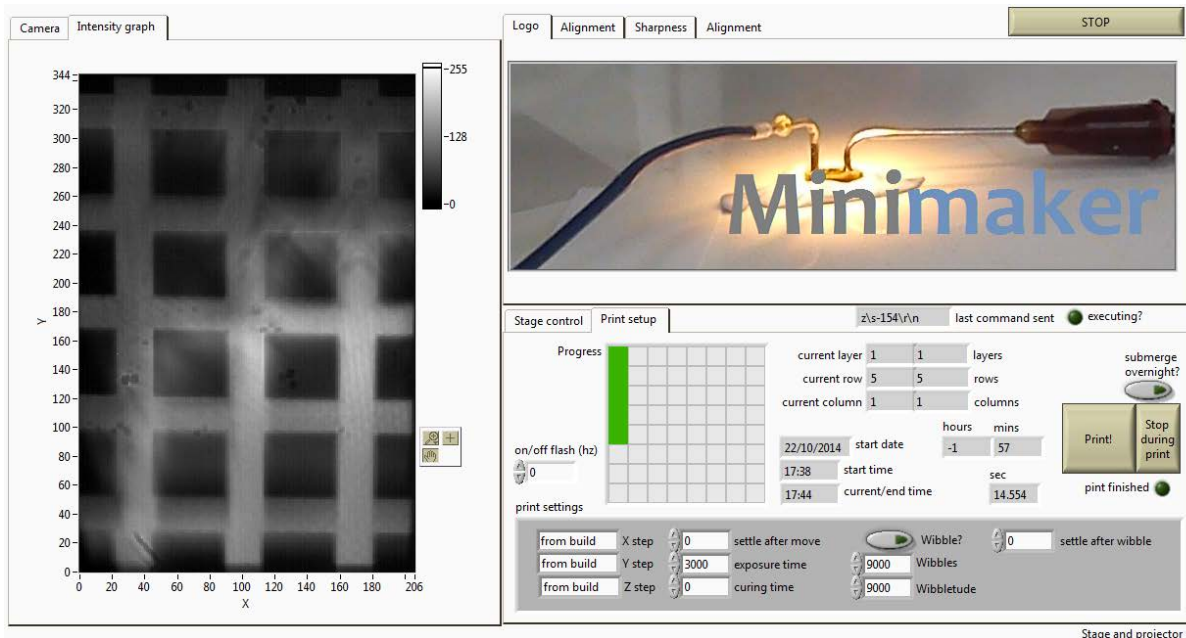


Supplementary Figure S13: The image is subdivided into individual exposures.

Control Software



Supplementary Figure S14: Control software user interface (Stage control tab): Three axis stage controls, laser control, and build settings on right. Live camera images displayed on left.



Supplementary Figure S15: Control software user interface (Print set up tab): Print settings such as exposure time controls, start print, and progress indicators.