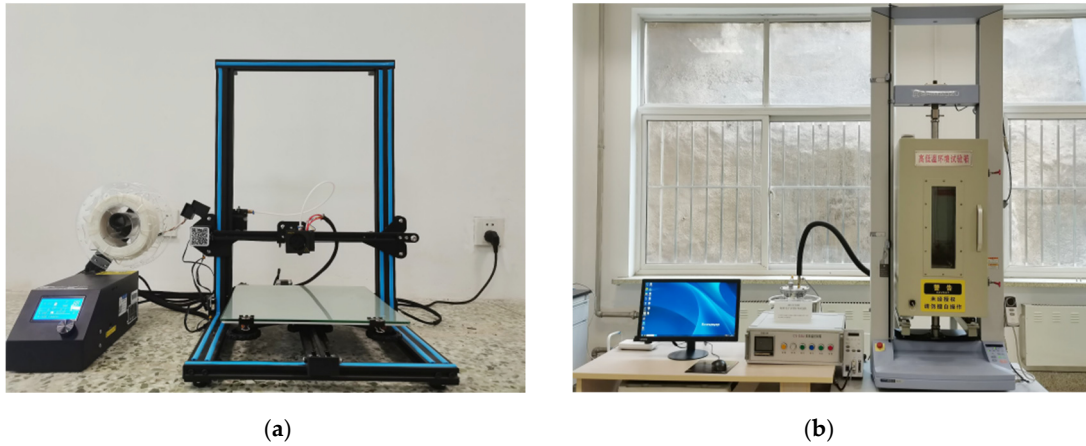


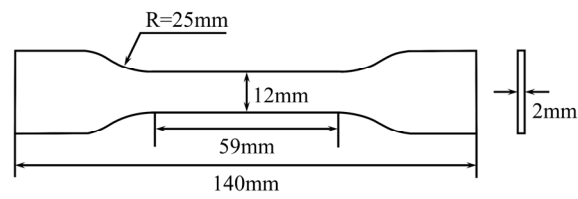
## Supporting Information

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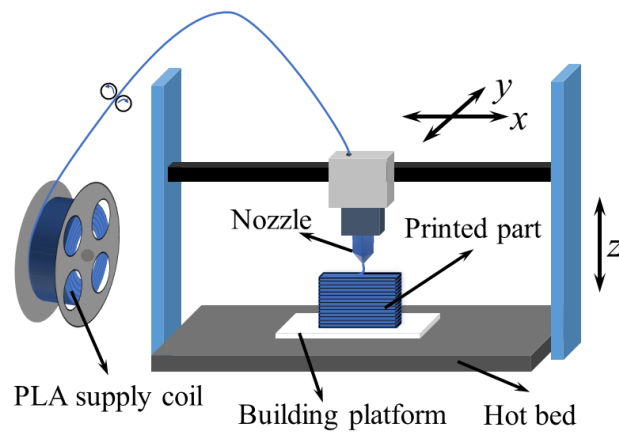
### Experimental and numerical investigation of 3D printing PLA origami tubes under quasi-static uniaxial compression



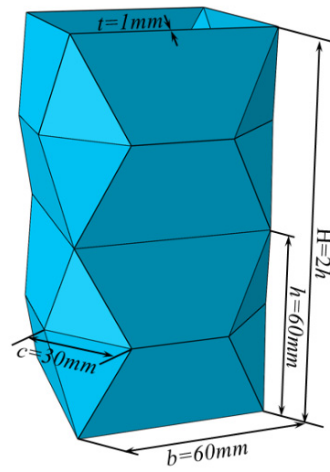
**Figure S1.** Equipment of 3D printing and tensile testing for PLA: (a) FFF 3D printer (CR-10S); (b) electronic universal testing machine with temperature chamber (AGS-X).



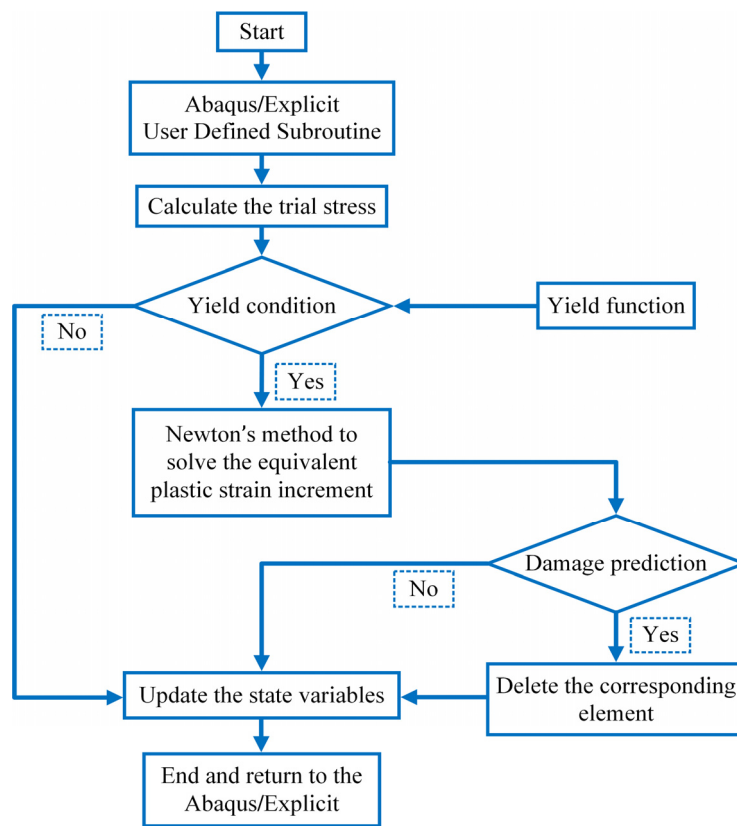
**Figure S2.** Test sample geometry for tensile testing of 3D printed parts. Geometry and dimensions specified according to ASTM-D412.



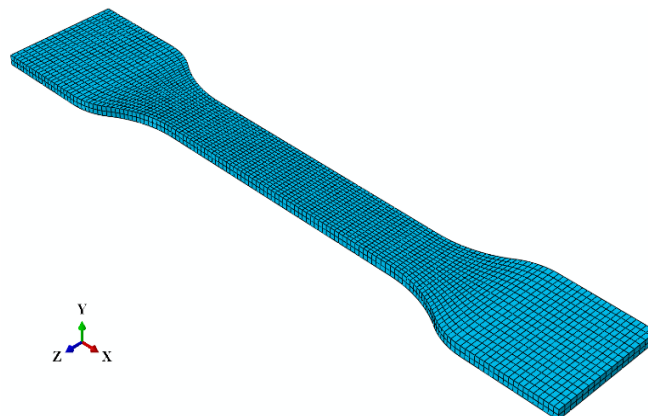
**Figure S3.** The direction of printing:  $\alpha = 90^\circ$ .



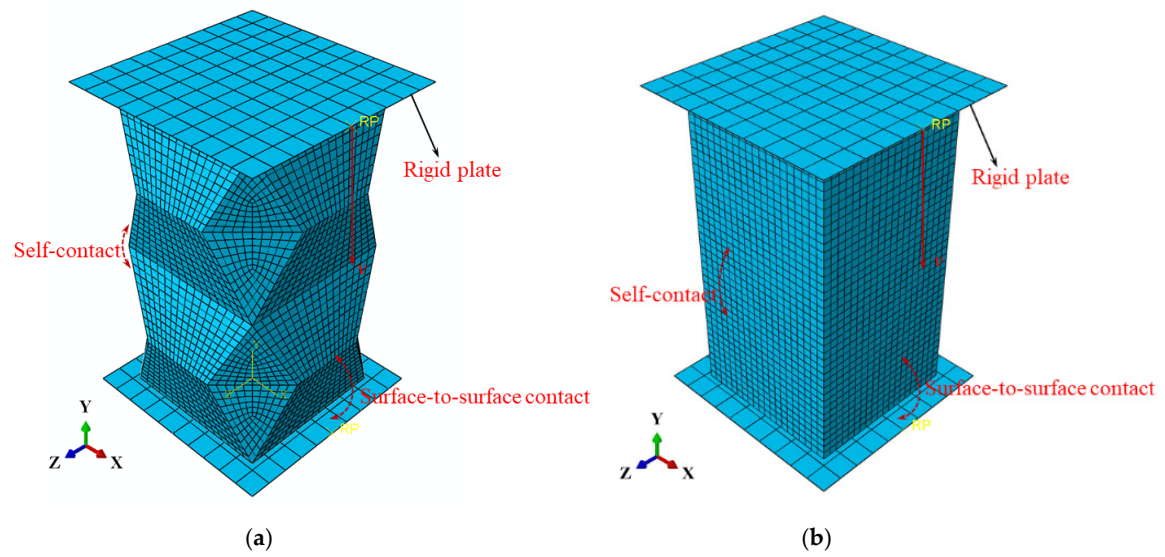
**Figure S4.** Pattern geometry and specific size of OCB.



**Figure S5.** The connection flow chart of ABAQUS and VUMAT for PLA materials.



**Figure S6.** Numerical model of PLA tensile sample.



**Figure S7.** Contact relationship of finite element model :(a) OCB; (b) CST.