Numerical and Experimental Investigation of the Joint Stiffness in Lattice Structures Fabricated by Additive Manufacturing

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Highlight

- A joint stiffening element is proposed to simulate lattice structures fabricated by Additive Manufacturing.
- The influence of the joint on the stiffness of the lattice structure can be considered in the proposed model.
- A parametric study is conducted to quantify the influence of the joint on a certain lattice structure and to find the optimal parameters of the joint stiffening element.
- Three-point bend testing is conducted, and it shows that the accuracy is significantly improved by the proposed model for bending dominant lattice structures.
- The computational cost of the proposed model is much lower than the tetrahedral element model.