

Research Question

How to generate a metamaterial that exhibits high stiffness and strength, and is damage tolerant?

Hypothesis Generation

High-Level Hypothesis Generation

Inductive Bias

Fine-grained Hypothesis Generation

Hypo:

We propose the development of a periodic octet-truss lattice structure ... The lattice will be designed to achieve:

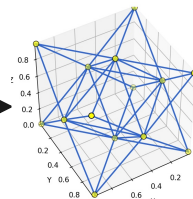
- Young's M: ['1.15e-03', '1.15e-03', '1.15e-03']
- Shear M: ['8.50e-04', '8.50e-04', '8.50e-04']
- Poisson's R: ['3.20e-01', '3.20e-01', '3.20e-01', '3.20e-01', '3.20e-01', '3.20e-01']

3D Lattice Structure Generation

Diffusion

Edge Prediction Module

Generated Structure



Hypothesis Refinement

Structure Validation

Two-Stage Refinement

Refined Structure

