Data-Driven Additive Manufacturing Optimisation

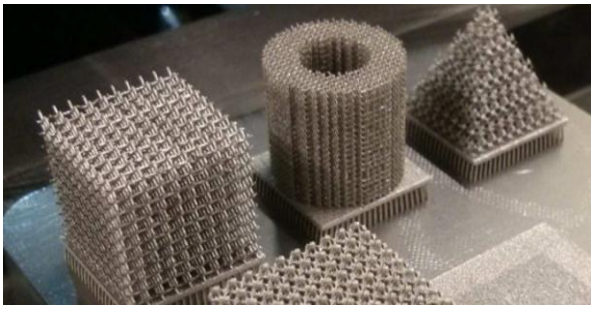
REACT

PURPOSE

For additive manufacturing engineers and teams struggling with tuning print parameters through trial-and-error, our predictive models estimate printing properties directly from material parameters, such as thermal conductivity and hardness.

This approach reduces material waste and improves manufacturing efficiency, with applications in biomedical equipment and wearable body sensors.

APPROACH



Example of 3D printed materials

- Neural network models trained on multi-input, multi-output datasets.

- Networks validated using experimentally printed samples fabricated with varying material properties and geometric dimensions.

BENEFITS

- ✓ Faster prototyping and improved productivity
- ✓ Material wastage reduction by minimising the number of failed or suboptimal print iterations
- ✓ Lower energy consumption associated with repeated printing – supports sustainable production strategies
- ✓ Operates as a stand-alone software platform
- ✓ Intuitive and user-friendly GUI
- ✓ Access advantages for early adopters

LOOKING FOR

- Industrial early adopters
- Industrial partners to collaborate on application-oriented test cases
- Industry capable of providing 10k plus measured data

Contact
venkat.kandregula@csa.catapult.org.uk
react@gla.ac.uk

CATAPULT Compound Semiconductor Applications

UKRI UK Research and Innovation