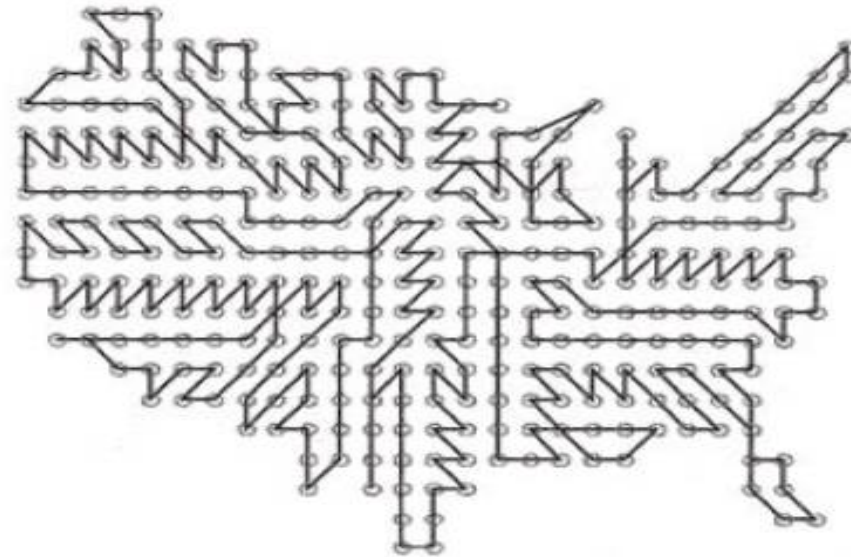
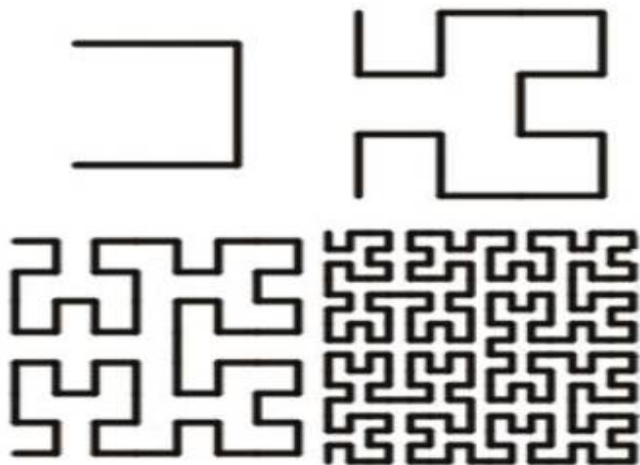




# CONTINUOUS TOOL-PATH





# CONTINUOUS TOOL-PATH

- Continuous path planning can be considered as another tool-path generation method.
- It is a continuous path, which **can cover a region of space without intersecting itself**.
- It has been found to be particularly useful in reducing **shrinkage** during AM fabrication processes.
- However, the **large number of path direction** that are produced by using this strategy

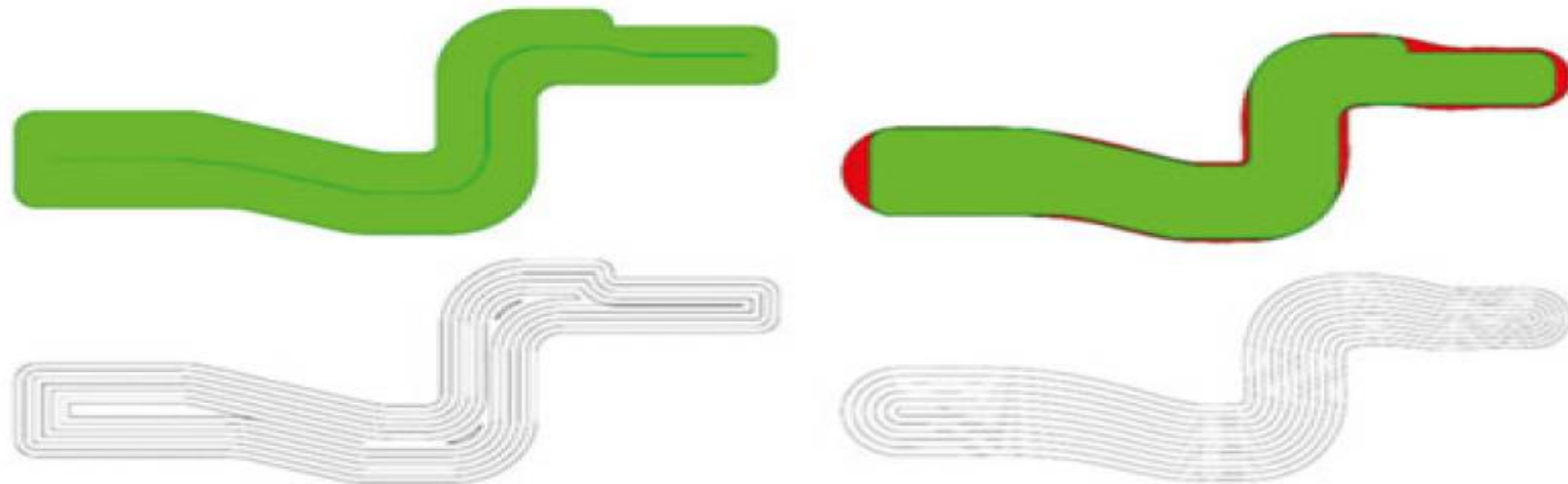


# MEDIAL AXIS TRANSFORMATION (MAT)

- It is an alternative methodology and to **generate the offset curves** by starting at the inside and working toward the outside.
- Therefore, the **traditional contour path patterns** from outside to inside is natural for machining whereas **MAT path starting from inside and working toward the outside**.
- This strategy **avoids producing gaps** by depositing excess material outside the boundary.
- So medial axis transformation is suitable for AM of void-free components.



# MEDIAL AXIS TRANSFORMATION (MAT)





# ADAPTIVE MAT

- The distance between the **next deposition path and the previous one, is always constant** for both contour path patterns and MAT path patterns.
- It is called as **constant step-over distance**.
- For **certain geometries**, it is not possible to achieve both high accuracy and void-free components using paths.
- In **wire feed AM process** are capable of producing different widths of deposits within a layer.



# ADAPTIVE MAT

- Therefore, to propose an adaptive path planning strategy that uses **continuously varying step-over distances** by adjusting the process parameters.
- It achieve the better part quality (void-free deposition), accuracy at the boundary, and material efficiency.

