**Challenge**

Develop more efficient and robust algorithms for the company’s new synthesis process for automatic transmission structures

**Goals**

- Efficiently generate a list of all possible unique structures
- Robustly test planarity of each candidate layout
- Efficiently optimise the planetary gear ratios to minimise a chosen error function

**Benefits**

The company now has a more efficient generator of planetary gear structures and a robust planarity tester. The synthesis process can continue having avoided non-planarity (illustrative example shown above)

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