The complexity of the legalization in modern circuit designs is not only about the high number of standard cells. To meet various design requirements like:

- Multi-deck cells occupying multi-rows and additional power-rail constraints.
- Cell legalization has become difficult because complicated design rules, and constraints need to be addressed, such as fence region constraints.
- Global placement solution can put cells outside of the fence region or/and the circuit's cells in the fence regions.
- Despite the density, ranging from 5 to 95%, some fence regions have a high-density of cells in a specific area, shown in purple in the figure below.

Pseudocode:
Split the circuit into regions composed of segments and cells;
For each of the regions of the circuit
While as there are violated cells
- Legalize cell outside the region
- Update segments of the region;
- Identify the block of cells with higher overlaps;
- Legalize this block of cells;

Preminaries results:
The table below shows characteristics of some circuits from benchmarks of the ICCAD'17 contest.

Conclusion:
As a result, we want to present a legalized placement with fast runtime, without unnecessary movements, and minimal displacement.

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Total cells</th>
<th>Multi cells</th>
<th>Fixed cells</th>
<th>Nº</th>
<th>Multi cells</th>
<th>Higher occupancy</th>
<th>Lower occupancy</th>
</tr>
</thead>
</table>