IBaCoP-2018 and IBaCoP2-2018

Isabel Cenamor, Tómas de la Rosa and Fernando Fernández
Departamento de Informatica, Universidad Carlos III de Madrid
Avda. de la Universidad, 30. Leganes (Madrid). Spain
icenamorg@gmail.com, trosa@inf.uc3m.es, ffernand@inf.uc3m.es

Abstract
This manuscript describes the IBaCoP family of planning portfolios submitted to the International Planning Competition 2018. Our portfolios are improved versions of the planners submitted to the last IPC-2014. IBaCoP-2018 is configured following a Pareto efficiency approach for selecting planners and then giving the same execution time for the selected planners. IBaCoP2-2018 decides for each problem the sub-set of planners to use. This decision is based on predictive models trained with domain/problems from previous IPCs. Both 2018 portfolios compete in the sequential satisficing and agile tracks.

The Components of IBaCoP
We started the construction of the portfolio with all the planners from the sequential satisficing track in IPC-2011 plus Mercury, Jasper, BFS(f) and SIW. However, there are some planners that obtained similar results, and therefore do not contribute to diversity in the portfolio. The chosen planners were selected by using the Pareto efficiency (Censor 1977) technique described before. The final components for IBaCoP-2018 are:

- jasper (Xie, Müller, and Holte 2014)
- mercury (Katz and Hoffmann 2014)
- BFS(F) (Lipovetzky et al. 2014)
- SIW (Lipovetzky et al. 2014)
- FDSS-2 (Helmert et al. 2011)
- probe (Lipovetzky and Geffner 2011)
- yashp2-mt (Vidal 2011)
- lama-2011 (Richter, Westphal, and Helmert 2011)
- lamar (Olsen and Bryce 2011)
- arvand (Nakhost, Valenzano, and Xie 2011)

We trained a predictive model for a (yes/no) classification task using Rotation Forrest (Rodriguez, Kuncheva, and Alonso 2006). The model tries to encode whether a given planner will solve the planning task or not. IBaCoP2-2018 is the result of querying this model and selecting the five planners with the best “positive” prediction confidence.

Details for Sequential Agile and Satisficing Tracks
The IBaCoP-2018 in the sequential satisficing track assigns 257 seconds to each base planner. The IBaCoP-2018 agile planner assigns the time shown in Table 1. In addition in this track, if one or more candidate planners fail, the system runs lama-2011, lamar and arvand with the remaining time. In both tracks, IBaCoP2-2018 selects five planners recommended by the predictive model, and then assigns the same time per candidate.
Table 1: IBaCoP-2018 Agile. The list with the planners and the time in seconds per candidate.

<table>
<thead>
<tr>
<th>Planner</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>jasper</td>
<td>80</td>
</tr>
<tr>
<td>mercury</td>
<td>30</td>
</tr>
<tr>
<td>BFS(F)</td>
<td>45</td>
</tr>
<tr>
<td>SIW</td>
<td>45</td>
</tr>
<tr>
<td>FDSS-2</td>
<td>45</td>
</tr>
<tr>
<td>probe</td>
<td>45</td>
</tr>
<tr>
<td>yashsp2-mt</td>
<td>20</td>
</tr>
</tbody>
</table>

Acknowledgements

We generated sequential portfolios of existing planners to be submitted to the International Planning Competition. Thus, we would like to acknowledge and thank the authors of the individual planners for their contribution and hard work. We would also like to thank Florian and Alvaro for their help with the compilation and bug fixing issues.

References


