Task Assignment Problem for UAVs

Siarhei Dymkou [1]

1 Summary

It was shown that dynamical assignment problem for allocation of MAS can be presented as a static problem. The challenge is to maximize the number of service requests that can be serviced. But this way leads to the huge dimensions of the variables involved, and this together with the specific structure of the considered problem are a serious obstacle for suitable solution for reasonable time. By this reason the development of special methods and design on this base the fast numerical methods for assignment problems of MAS will be done at nearest period. For design the effective numerical realization we are developing the new optimality and sub-optimality conditions that are more suitable for the design of the quick numerical methods and further applications. We propose to use the idea of constructive approach and extend this setting to produce new results and constructive elements of optimization theory for the considered MAS systems, in particular, for the so-called decentralized control MAS.

[1] Aeronautical Sciences Division, Computational and Theoretical AeroScience Group, Temasek Laboratories, National University of Singapore, T-Lab Building 5A, Engineering Drive 1, Singapore 117411