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A Software forSimulating Robot Swarm Aggregation

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Abstract

Swarm robotics is a topic that focuses on studying a system composed of many homogeneous robots that collaborate to achieve a common goal. Swarm robotics presents several exciting challenges for engineers, with the development of controllers being one of the most critical. For this purpose, models and simulators have been developed to allow designers to test their designs. This paper presents a swarm robot simulator, made in Matlab, whose objective is to study robot aggregation, which is considered an essential swarm behavior. Simulations and results of a classical algorithm for environment-guided aggregation are presented to determine its ability to aggregate robots and how its efficiency is affected by environmental variations. © 2022, The Author(s), under exclusive license to Springer Nature Switzerland AG.

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