

Design of a Chaotic Trajectory Generator Algorithm for Mobile Robots

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Abstract : This work addresses the problem of designing an algorithm capable of generating chaotic trajectories for mobile robots. Particularly, the chaotic behavior is induced in the linear and angular velocities of a Khepera III differential mobile robot by infusing them with the states of the Hénon chaotic map. A possible application, using the properties of chaotic systems, is patrolling a work area. In this work, numerical and experimental results are reported and analyzed. In addition, two quantitative numerical tests are applied in order to measure how chaotic the generated trajectories really are.

Keywords : chaos, chaotic trajectories, differential mobile robot, Henon map, Khepera III robot, patrolling applications

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